RECORD OF DECISION

Operable Unit Two
Eighteen Mile Creek Superfund Site
Niagara County, New York

United States Environmental Protection Agency
Region 2
New York, New York
January 2017

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DECLARATION

SITE NAME AND LOCATION

Eighteen Mile Creek Superfund Site
Niagara County, New York

Superfund Site Identification Number: NYN000206456
Operable Unit: 02

STATEMENT OF BASIS AND PURPOSE

This Record of Decision (ROD) documents the U.S. Environmental Protection Agency's (EPA's) selection of a remedy for Operable Unit 2 (OU2) of the Eighteen Mile Creek Superfund Site (Site), in Niagara County, New York, which is chosen in accordance with the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended, 42 U.S.C. §§ 9601-9675, and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 C.F.R. Part 300. This decision document explains the factual and legal basis for selecting the OU2 remedy. The attached index (see Appendix III) identifies the items that comprise the Administrative Record, upon which the selected remedy is based.

The New York State Department of Environmental Conservation (NYSDEC) was consulted on the planned remedy in accordance with Section 121(f) of CERCLA, 42 U.S.C. § 9621(f), and concurs with the selected remedy (see Appendix IV). EPA consulted with the Tuscarora Nation on the Proposed Plan for this ROD. EPA will maintain its government-to-government consultation with the Tuscarora Nation for all future response actions planned for the Site.

ASSESSMENT OF THE SITE

Actual or threatened releases of hazardous substances from the Site, if not addressed by implementing the response action selected in this ROD, may present an imminent and substantial endangerment to public health, welfare, or the environment.

DESCRIPTION OF THE SELECTED REMEDY

The selected remedy described in this document actively addresses soil and sediment contamination in the Eighteen Mile Creek (Creek) corridor, or the Creek Corridor, which is a discrete portion of the Site in Lockport, New York. This is the second remedial phase, or operable unit, for the Site, identified as OU2, which includes the former United Paperboard Company (United Paperboard) property, the White Transportation property, the former Flintkote Company Plant (Flintkote) property, and Upson Park. OU2 also addresses the contamination within the Creek Channel, which is defined as the sediment within the discrete Creek Corridor section of the Creek; an approximately 4,000-foot segment of the Creek that extends from the New York State Barge Canal (Canal) to Harwood Street in the City of Lockport. A previous ROD for OU1, signed in September 2013, selected a remedy to address contaminated soil at nine properties on Water Street (the Residential Properties) and threats posed by a deteriorating building at the Flintkote property on Mill Street. EPA anticipates that a third operable unit will address groundwater

contamination within the Creek Corridor, as well as contaminated sediment in the Creek from the downstream limit of the Creek Corridor to its location of discharge into Lake Ontario in Olcott, New York.

The major components of the selected remedy for the United Paperboard property, White Transportation property, and Upson Park include the following:

- Excavation of contaminated soil/fill exceeding the cleanup levels and off-site disposal of contaminated soil/fill at a Resource Conservation and Recovery Act (RCRA) or Toxic Substances Control Act (TSCA) regulated landfill, as appropriate, based on the concentrations of contaminants in the excavated soil/fill. If necessary to meet the requirements of the disposal facilities, contaminated material will be treated prior to land disposal;
- On-site treatment (e.g., stabilization) of lead contaminated soil/fill, prior to off-site disposal, if design evaluations reveal treatment will result in cost savings;
- Performance of a Phase 1B field reconnaissance survey during the remedial design including shovel testing, to further identify and record archeological features and deposits;
- Construction of access roads (gravel and/or paved) to facilitate implementation of remedial activities in and around the Creek. The access roads will remain in place following remediation, except at Upson Park, and form part of the bank stabilization cover system;
- Paving of pre-existing roadways, parking lots, and access roads;
- Placement of a cover system over contaminated soil/fill between the access roads and the top of the embankment adjacent to the Creek Channel comprised of a demarcation layer and two-foot thick stone and clean soil to ensure the stabilization of banks between the properties and the Creek Channel. This cover system will extend approximately ten feet beyond the top of the embankment and will be constructed flush with the surrounding topography to promote precipitation runoff;
- Restoration of the Creek bank through the placement of stone, topsoil, biodegradeable erosion fabric and live plantings. During the remedial design, the composition and thickness of the individual capping materials will be evaluated to promote reliability and efficacy of the cover system;
- Backfilling of the excavated areas with clean fill. The top six inches will consist of topsoil that will be planted with native grasses, shrubs, and/or trees;
- Long-term monitoring to visually inspect the cover system, restoration success, and ensure remedy effectiveness;
- Development of a Site Management Plan (SMP) to ensure proper management of the remedy and use restrictions at the properties post-construction. The SMP will include measures to prevent the transfer of deeper soil to the surface during post-construction activities, and provisions for any maintenance and long-term monitoring required for the remedy; and
- Implementation of institutional controls to limit future soil use of the properties.

The major components of the selected remedy for the Flintkote property are the same as those identified above for the United Paperboard, White Transportation and Upson Park properties with the following exceptions:

- Excavation will target contaminated soil/fill exceeding cleanup levels established for the Flintkote property; and
- The cover system to be placed over contaminated soil/fill between the access roads and the top of the embankment adjacent to the Creek Channel will be comprised of a demarcation layer and two-foot thick stone and clean soil to ensure the stabilization of banks between the properties and the Creek Channel.

The major components of the selected remedy for the Creek Channel include the following:

- Bank-to-bank removal of all contaminated sediment exceeding the sediment remedial action level (RAL), estimated to be 14,500 cubic yards, in the Creek Channel followed by backfilling to pre-dredging grade;
- Removal of the dilapidated and unpermitted Clinton and William Street dams to facilitate the removal of the contaminated sediment;
- Management and/or diversion of flows in the Creek from the Canal during sediment removal;
- Mitigation, if necessary, of potential impacts from the Canal to the Creek during maintenance activities at the Canal;
- Performance of a Phase 1B field reconnaissance survey during the remedial design, including shovel testing, to further identify and record archeological features and deposits;
- Dewatering of the sediment removed from the Creek Channel at a facility constructed at the Site prior to transportation of the sediment off-site for proper disposal at a RCRA or TSCA regulated landfill, as appropriate, based on the concentrations of contaminants in the material. If necessary, in order to meet the requirements of the disposal facilities, contaminated material will be treated prior to land disposal;
- Construction of gravel access roads, up to 20 feet in width, along the Creek Corridor to be utilized in the remediation of the Creek sediment. The access roads will remain in place and be re-graded following sediment remediation and form part of a bank stabilization cover system and allow for appropriate bank restoration;
- Backfilling the excavated areas with clean fill. The Creek bank will be restored through the placement of stone, topsoil, biodegradeable erosion control fabric, and live plantings; the composition and thickness of these individual materials will be evaluated during the design;
- Performance of a floodplain and hydraulic study to determine the types and locations of rock riffle grade control structures that will be constructed in the Creek to control flow, reduce the potential for erosion and scour of the banks, and reduce the potential for downstream flooding;
- Long-term monitoring to demonstrate the effectiveness in meeting the remedial action objectives; and
- Implementation of institutional controls in the form of informational devices, such as NYSDOH fish consumption advisories, to limit exposure to contamination.

The environmental benefits of the preferred remedy may be enhanced by consideration, during the design, of technologies and practices that are sustainable in accordance with EPA Region 2's

Clean and Green Energy Policy and NYSDEC's Green Remediation Policy.[1] This will include consideration of green remediation technologies and practices.

DECLARATION OF STATUTORY DETERMINATIONS

The selected remedy meets the requirements for remedial actions set forth in Section 121 of CERCLA, 42 U.S.C. § 9621, because it meets the following requirements: 1) it is protective of human health and the environment; 2) it meets a level or standard of control of the hazardous substances, pollutants and contaminants that at least attains the legally applicable or relevant and appropriate requirements under federal and state laws (unless a statutory waiver is justified); 3) it is cost-effective; and 4) it utilizes permanent solutions and alternative treatment (or resource recovery) technologies to the maximum extent practicable. In addition, Section 121 of CERCLA includes a preference for remedies that employ treatment that permanently and significantly reduce the volume, toxicity or mobility of hazardous substances as a principal element (or justify not satisfying the preference). The selected remedy may satisfy the preference for treatment to the extent that contaminated material requires treatment prior to land disposal. In addition, during the remedial design, further evaluations will be conducted to determine whether lead contaminated soil/fill could be treated and stabilized on-site, prior to off-site disposal.

This remedy will result in hazardous substances, pollutants, or contaminants remaining at the Site above levels that will not allow for unlimited use and unrestricted exposure. Pursuant to Section 121(c) of CERCLA, statutory reviews will be conducted no less often than once every five years after the initiation of construction to ensure that the remedy is, or will be, protective of human health and environment. If justified by the review, additional remedial actions may be implemented to remove, treat, or contain the contaminants.

ROD DATA CERTIFICATION CHECKLIST

The following information is included in the Decision Summary section of this ROD. Additional information can be found in the Administrative Record file for this action.

- ✓ A discussion of the current nature and extent of contamination is included in the "Summary of Site Characteristics" section.
- ✓ Chemicals of concern and their respective concentrations may be found in the "Summary of Site Characteristics" section.
- ✓ Potential adverse effects associated with exposure to Site contaminants may be found in the "Summary of Site Risks" section.
- ✓ A discussion of soil cleanup levels and the sediment RAL for chemicals of concern may be found in the "Remedial Action Objectives (RAOs)" section.
- ✓ A discussion of principle threat waste is contained in the "Principle Threat Wastes" section.
- ✓ Current and reasonably anticipated future land use assumptions are presented in the "Current and Potential Future Land and Resources Uses" section.

[1] See http://epa.gov/region2/superfund/green_remediation and http://www.dec.ny.gov/docs/remediation_hudson_pdf/der31.pdf.

- ✓ RAOs to be achieved as a result of the selected remedy are discussed in the "RAOs" section.
- ✓ Estimated capital, operation and maintenance, and total present-worth costs are discussed in the "Description of Remedial Alternatives" section.
- ✓ Key factors that led to selecting the remedy (*i.e.*, how the selected remedy provides the best balance of tradeoffs with respect to the balancing and modifying criteria, highlighting criteria key to the decision) may be found in the "Comparative Analysis of Alternatives" and "Statutory Determinations" sections.

AUTHORIZING SIGNATURE

John Prince, Acting Director
Emergency and Remedial Response Division

1/19/2017
Date

PART 2 DECISION SUMMARY

1. SITE NAME, LOCATION, AND DESCRIPTION

The Eighteen Mile Creek Superfund Site (Site) is located in Niagara County, New York and includes contaminated sediments, soil, and groundwater in and around the Eighteen Mile Creek (Creek).

The headwaters of the Creek consist of an East and West Branch which begin immediately north of the Canal. Water from the Creek's East Branch originates at the spillway on the south side of the Canal, where it is directed northward underneath the Canal and the Mill Street Bridge through a culvert. Water from the West Branch originates from the dry dock on the north side of the New York State Barge Canal (Canal) and then flows northward. The East and West Branches converge just south of Clinton Street in Lockport and then flow north beneath Clinton Street on the former United Paperboard Company (United Paperboard) property. There is a dam located in the Creek behind the United Paperboard building, referred to as the Clinton Street Dam, and the ponded water behind the dam is commonly referred to as Mill Pond. On the former Flintkote Company Plant (Flintkote) property, the Creek splits and forms the Millrace, which is a small segment of the Creek that splits and flows around an area of soil and fill on the Flintkote property, known as the Island. The Creek flows north for approximately 15 miles and discharges to Lake Ontario in Olcott, New York. A Site location map is provided as Figure 1.

EPA has divided the Site into separate phases, or operable units (OUs), for remediation purposes. OU1 is addressing the risks associated with the residential soil contamination at nine residential properties located on Water Street and also addressed the threats posed from the deteriorating building at the Flintkote property. OU2, the subject of this Record of Decision (ROD), addresses the contaminated soil at the following properties: the United Paperboard property, the White Transportation property, the Flintkote property, and Upson Park. OU2 also addresses the contamination within the Creek Channel, which is defined as the sediment within the discrete Creek Corridor section of the Creek; an approximately 4,000-foot segment of the Creek that extends from the Canal to Harwood Street in the City of Lockport. An OU2 Site map is provided as Figure 2. It is anticipated that a future OU3 will address the groundwater within the Creek Corridor, as well as contaminated sediments in the Creek that are not addressed by OU2, namely those from the end of the Creek Corridor to its location of discharge into Lake Ontario in Olcott, New York.

The people of the Tuscarora and the Tonawanda Seneca Nations fish and hunt at various locations along the Creek. The Tuscarora Nation reservation is located about 20 miles west of the Creek Corridor, and the Tonawanda Seneca Nation reservation is located about 20 miles southeast of the Creek Corridor.

2. SITE HISTORY AND ENFORCEMENT ACTIVITIES

The Creek Corridor has a long history of industrial use dating back to the 19th Century when it was used as a source of hydropower. Various manufacturing facilities operated at the properties within the Creek Corridor.

The United Paperboard property is located at 62 and 70 Mill Street and began operating as a lumber company between the late 1880s and early 1890s, and then as a paper company from the late 1890s until at least 1948. The industrial history of much of the property after 1948 is presently unknown. The portion of the property near the Clinton Street/Mill Street intersection is currently occupied by Duraline Abrasives which occupies one warehouse building on 62 Mill Street. Ash has been observed on the surface at many locations on the United Paperboard property.

The White Transportation property consists of four adjoining parcels located at 30 through 40 Mill Street. The property was used to store tractor-trailer trucks and other equipment associated with trucking from 1948 until the late 1990s, when operations ceased. When White Transportation closed, tractor-trailers were located throughout the property, many of which contained drums and miscellaneous debris. The trailers and related drums have been removed, but miscellaneous debris remains scattered throughout the property, and slag material has been observed at the surface.

Upson Park is about 5.9 acres in size and is located on Clinton Street. In the mid-1880s, the Upson Park property was used by a canal boat building company. By 1892 the canal boat company was no longer in operation, but a pulp mill and pulp company were operating on the property. The pulp mill operated until sometime between 1919 and 1928, while the pulp company operated until at least 1948. The industrial history of the property after that time is presently unknown. Ash similar to that identified at other properties within the Creek Corridor is observed at the surface along the Creek in Upson Park. Upson Park is a public park along the Canal used for walking, picnicking and other passive recreational activities.

The Flintkote property is approximately six acres in size and consists of two adjoining parcels at 198 and 300 Mill Street. The Flintkote Company began operations as a manufacturer of felt and felt products in 1928, when the property was purchased from the Beckman Dawson Roofing Company. In 1935, Flintkote began production of sound-deadening and tufting felt for installation and use in automobiles. Manufacturing of this product line continued until December 1971, when operations ceased and the plant closed. Aerial photographs suggest that by 1938, fill was disposed in the section of 300 Mill Street between the Creek and the Millrace in an area known as the Island.

3. HIGHLIGHTS OF COMMUNITY PARTICIPATION

On August 31, 2016, EPA released the Proposed Plan for cleanup of OU2 of the Site to the public for comment. EPA made supporting documentation comprising the administrative record available to the public at the information repositories maintained at the Lockport Public Library, 23 East Avenue in Lockport, New York, the EPA Region 2 Office in New York City, and EPA's website for the Site at www.epa.gov/superfund/eighteenmile-creek. EPA published notice of the start of a public comment period and the availability of the above referenced documents in the *Lockport Union-Sun Journal* on August 31, 2016. A copy of the public notice published in the *Lockport Union-Sun Journal* can be found in Appendix V. EPA accepted public comments on the Proposed Plan from August 31, 2016 through September 30, 2016.

On September 7, 2016, EPA held a public meeting at the 4-H Training Center, Niagara County Fairgrounds, located at 4487 Lake Avenue, Lockport, New York to inform officials and interested

citizens about the Superfund process, to present the Proposed Plan for OU2 of the Site, including the preferred remedial alternative, and to respond to questions and comments from the attendees. Responses to the questions and comments received at the public meeting and in writing during the public comment period are included in the Responsiveness Summary (See Appendix V).

4. SCOPE AND ROLE OF RESPONSE ACTION

Section 300.5 of the NCP, 40 C.F.R. Section 300.5, defines an OU as a discrete action that comprises an incremental step toward comprehensively addressing a site's problems. A discrete portion of a remedial response eliminates or mitigates a release, a threat of release, or a pathway of exposure. The cleanup of a site can be divided into a number of OUs, depending on the complexity of the problems associated with the site. At this Site, it is currently anticipated that the cleanup will be addressed in three OUs.

OU1 is addressing soil contamination at nine residential properties located on Water Street and also addressed the threats posed from the deteriorating building at the Flintkote property. OU2, which is the subject of this ROD, addresses soil and sediment contamination in the Creek Corridor. It is anticipated that OU3 will address the groundwater within the Creek Corridor, as well as contaminated sediments in the Creek that are not addressed by OU2. An objective of the remedy set forth in this ROD is to reduce the cancer risks and noncancer health hazards for people eating fish from the Creek by reducing the concentration of polychlorinated biphenyls (PCBs) and other Site-related contaminants in fish. For this ROD, EPA has identified a sediment remedial action level (RAL) of 1 part per million (ppm) for PCBs in sediments as the concentration triggering the bank-to-bank excavation of all sediment in the Creek Channel. As part of the OU3 remedial investigation, a comprehensive evaluation will be conducted of the entire length of the Creek, including the Creek Channel, to develop final remediation goals for contaminated sediments; therefore, this action is considered an interim remedy for sediments.

5. SUMMARY OF SITE CHARACTERISITCS

5.1 Overview

Site Geology and Hydrology

The Creek Channel varies in size from tens of feet wide or less to the south, to more than 50 feet wide at Mill Pond and is located within a well-incised, steeply sloped channel for a portion of its length within the Creek Corridor. In many areas, the Creek Channel bed along the center of the channel is comprised mostly of coarse sand and various sizes of gravel, stone, and rubble. Water depth in the Creek Channel varies from a few inches in the southern-most point of the West Branch to around 10 feet in the center of Mill Pond.

The Creek draws much of its flow from the Canal, but it also receives contributions from upstream areas within the watershed of the Creek and surface runoff during precipitation events or spring snow melts. Drainage within the watershed can be described generally as flowing to the north.

The Creek Corridor has four distinct geologic units. These units, in order of increasing depth, are summarized as follows:

- Topsoil described as a dark brown silty soil with varying amounts of natural organic matter (e.g., leaves and rootlets);

- Fill material consisting primarily of various colored ash and cinder material containing glass, coal, coke, slag, buttons, metal, ceramic, rubber and brick. Where encountered, the thickness of the fill material ranges from approximately 1 to 25 feet;

- A glaciolacustrine deposit consisting primarily of mottled, brown to reddish brown, silty clay and clayey silt containing traces of fine grained sand and fine gravel. This deposit directly overlies bedrock, and where encountered, ranges in thickness from 0.1 to more than 28 feet; and

- Light to dark gray dolostone bedrock with interbedded gray clay underlying the southern portion of the site, and marbleized red and white sandstone underlying the northern portion of the Site. Depth to bedrock at the Site ranges from 1.6 to more than 28 feet, with the greater depths generally associated with the thicker fill areas.

Groundwater underlying the Creek Corridor area occurs in both the soil and fill material above the bedrock (the overburden) and the upper fractured bedrock, and it flows toward the Creek along some portion of the Corridor.

5.2 Summary of the NYSDEC and EPA Remedial Investigations

Various NYSDEC studies and reports identified below, and included in the administrative record file for this action, discuss the nature and extent of soil contamination at the Flintkote property, White Transportation property, United Paperboard property, Upson Park, and the sediment contamination in the Creek Channel. In March 2006, NYSDEC selected a remedy under state law for the entire former Flintkote Plant property and in March 2010, NYSDEC selected a remedy under state law that included the White Transportation property, United Paperboard property, Upson Park, and the Creek Channel. With the inclusion of the Eighteen Mile Creek Site on the National Priorities List in 2012, these state remedies had not been implemented. In order to satisfy federal regulations pertaining to selecting a remedy under CERCLA, EPA conducted a supplemental investigation at these commercial/industrial properties in the Creek Corridor, which has been included in the Administrative Record file of this action.

5.2.1 NYSDEC Investigations

In 1999, NYSDEC conducted an investigation of the Flintkote property. The investigation revealed that the Flintkote property received various wastes, refuse, and debris over the years. Much of the waste material was visible at the surface and along the embankments of the Creek, which runs through the Flintkote property, and the Millrace. The subsurface investigation revealed that most

of the waste material at the Flintkote property consists of ash containing glass, coal, coke, slag, ceramic, bottles, brick, buttons, and wood.

In 2003, Niagara County, under NYSDEC's Environmental Restoration Program, conducted an additional investigation at the Flintkote property. As part of this study, soil, fill, groundwater, surface water, sediment, and waste samples were collected from the property to characterize the nature and extent of contamination. The sampling revealed the presence of approximately 46,500 cubic yards of ash fill at the property and elevated concentrations of PCBs, metals, and semi-volatile organic compounds (SVOCs) including polynuclear aromatic hydrocarbons (PAHs) in the soil and sediment in the building's basement. Moreover, a trench and sump which extended below the basement floor were found to contain contaminated sediment. These investigations, however, did not characterize the soil or determine the extent of suspected contamination beneath the large abandoned Flintkote building because the building was dilapidated, unsafe for personnel to enter, and too confining to employ drilling equipment.

In April 2005, NYSDEC initiated an investigation of the United Paperboard property, Upson Park, the White Transportation property, and the Creek Channel. These investigations documented the presence of PCB, metals, and SVOC-contaminated fill and soil on these properties.

5.2.2 EPA's Supplemental Investigations

EPA commenced its supplemental investigation of OU2 in 2014 and issued a Supplemental Remedial Investigation Report in August 2016. This report provides the analytical results of additional soil, fill, sediment, groundwater, and fish tissue samples collected to further characterize the nature and extent of contamination at this OU.

Soil sampling activities were conducted in phases between 2014 and 2016. At the Flintkote property, in addition to drilling soil borings in 2014, test pits were excavated after EPA removed the building in 2015. EPA collected surface and subsurface samples of soil and fill from vaults inside the footprint of the building and beneath the building foundations that were not previously accessible for sampling. The sampling revealed maximum concentrations of PCBs, lead, and the PAH benzo(A)anthracene at 33 ppm, 2,480 ppm, and 4.6 ppm, respectively.

At Upson Park, soil samples were collected to further delineate an area with elevated PCB concentrations. The sampling revealed maximum concentrations of PCBs and lead, at 250 ppm and 2,080 ppm, respectively.

In addition, surface soil samples were collected at the Flintkote property, Upson Park, and the United Paperboard property in support of the invertebrate bioaccumulation studies as part of the Baseline Ecological Risk Assessment (BERA). Additional soil sampling was not conducted at the White Transportation property as part of EPA's Supplemental RI, because of a lack of suitable ecological habitat.

To support the BERA, sediment samples were collected from the Creek Corridor in areas with elevated chemical concentrations in sediment identified during previous NYSDEC investigations

that indicated that there was the potential for both acute and chronic toxicity impacts. Surface sediment (0 to 0.5 feet beneath the sediment water interface) and surface water samples were collected in the Creek Channel at the same locations to assess the correlation of chemical parameters with toxicity testing and provide additional data for the BERA.

Fish were collected from the Creek Corridor and background locations in May 2015. Fish tissue samples were used to assess the bioaccumulation exposure pathway from the sediment to fish in support of the baseline human health and ecological risk assessments. The target fish species were forage sunfish for the ecological risk assessment and adult largemouth bass (game fish) for the human health risk assessment. Fewer fish tissue samples were collected than originally planned due to insufficient numbers of suitable species present for game fish and forage fish. As a result, the range of fish species collected for analysis was expanded to include silver redhorse, smallmouth bass, and walleye for fillet analysis. The fish fillet analysis indicated that maximum concentrations of PCBs, mercury, lead, and the pesticide dichloro-diphenyl-trichloroethane (DDT) in fish were 0.83 ppm, 0.18 ppm, 0.78 ppm, and 0.11 ppm, respectively.

The New York State Department of Health (NYSDOH) issued a fish consumption advisory for the Creek in 1994 after the State found elevated levels of PCBs during sampling. The NYSDOH advisory, which is still in effect, recommends that men, women, and children should not eat any fish from the Creek.

Surface water samples collected within the Creek Corridor as part of EPA's Supplemental RI did not reveal the presence of PCBs. However, other contaminants such as metals, pesticides, and SVOCs were detected.

As part of EPA's Supplemental RI, additional shallow groundwater monitoring wells were installed within the Creek Corridor to further characterize the volatile organic compound (VOC) contamination and identify gradient and flow directions of groundwater. Groundwater monitoring well installation and sampling results are provided in EPA's Supplemental RI Report. It is anticipated that EPA will address groundwater contamination in OU3.

6. CURRENT AND POTENTIAL FUTURE LAND AND RESOURCE USES

The Flintkote property, the White Transportation property, and the United Paperboard property are currently zoned for commercial/industrial use. The City of Lockport Tourism Focus Area Nomination Study (Bergmann 2015) shows a future uses as open space and waterfront mixed use for the White Transportation and United Paperboard properties. Therefore, future use scenarios considered both industrial and residential as potential future uses. Upson Park is currently a parkland used for recreational purposes. The Creek Channel is not used for commercial purposes but is accessible for recreational uses, including fishing. The City of Lockport, in its Comprehensive Plan and Tourism Focus Area Nomination Study, also identified additional park land and mixed waterfront uses as potential future use changes for the properties addressed by this action at the Site, although no specific plans currently exist.

7. SUMMARY OF SITE RISKS

As part of the RI/FS, EPA conducted a baseline risk assessment to estimate the current and future effects of contaminants on human health and the environment. A baseline risk assessment is an analysis of the potential adverse human health and ecological effects of releases of hazardous substances from a site or OU in the absence of any actions or controls to mitigate such releases, under current and future land and resource uses. The baseline risk assessment includes a human health risk assessment (HHRA) and BERA. It provides the basis for taking action and identifies the contaminants and exposure pathways that need to be addressed if remedial action is determined to be necessary. This section of the ROD summarizes the results of the baseline risk assessment for OU2 of the Site.

7.1 Baseline Human Health Risk Assessment

The Site-specific HHRA estimated cancer risks and noncancer health hazards from exposures to chemicals at OU2 of the Site. The HHRA quantitatively evaluates cancer risks and noncancer hazards. The Site-specific HHRA evaluated exposure to surface and subsurface soil at the Flintkote property, the White Transportation property, the United Paperboard property, Upson Park, and the consumption of fish from the Creek Channel. Groundwater at these properties is anticipated to be addressed as part of OU3. Consistent with EPA's policies and guidance, the baseline HHRA quantified cancer risks and noncancer health hazards as the total exposure to chemicals of potential concern (COPCs) in the absence of remedial action and institutional controls.

Risk Assessment Definitions and Process.

A four-step process is used for assessing site-related human health risks for a reasonable maximum exposure (RME) scenario. The process includes the following:

- *Hazard Identification* – uses the analytical data collected to identify the COPCs at a site for each medium with consideration of a number of factors explained below;
- *Exposure Assessment* - estimates the magnitude of actual and/or potential human exposures, the frequency and duration of these exposures, and the pathways (e.g., consumption of fish, ingesting contaminated soils, etc.) by which humans are potentially exposed;
- *Toxicity Assessment* - determines the types of adverse health effects associated with chemical exposures, and the relationship between magnitude of exposure (dose) and severity of adverse effects (response); and
- *Risk Characterization* - summarizes and combines outputs of the exposure and toxicity assessments to provide a quantitative assessment of site-related risks. The risk characterization step is also used to identify contaminants with concentrations which exceed acceptable levels, defined by the NCP as an excess lifetime cancer risk greater than 1×10^{-6} (one in a million) to 1×10^{-4} (one in ten thousand) or a Hazard Index (HI) greater than 1.0 for noncancer health effects; contaminants at these concentrations are considered chemicals of concern (COCs) and are typically those that will require remediation at a site. Also included in this section is a discussion of the uncertainties associated with these risks and hazards.

The cancer risk and noncancer hazard estimates in the HHRA are based on RME scenarios and were developed by taking into account various health protective estimates about the frequency and duration of an individual's exposure to chemicals selected as COCs as well as the toxicity of the contaminants.

In addition, the same process was used to evaluate central tendency exposures (CTE), or average exposures. The CTE provides additional information, but the RME is the basis for decisions at a site. The CTE calculations for cancer risks and noncancer hazards are provided in the HHRA, available in the Administrative Record file for this action.

Each of these steps, as applied to OU2 of the Site, are described below:

7.1.1 Hazard Identification

In this step, the COPCs in each medium were identified based on such factors as toxicity, frequency of occurrence, fate and transport of the contaminants in the environment, concentrations, mobility, persistence, and bioaccumulation. Analytical information that was collected to determine the nature and extent of contamination revealed the presence of VOCs, semi-VOCs, PCBs, and metals at OU2 of the Site at concentrations of potential concern. Based on this information, the risk assessment focused on surface soils, subsurface soils, sediments, fish, and contaminants which may pose significant risks and hazards to human health.

Numerous studies have documented the presence of VOCs in surface and subsurface soils at OU2 of the Site; SVOCs, including PAHs, metals including lead, mercury, antimony and copper, and PCBs were also identified. A comprehensive list of all COPCs can be found in the HHRA. Only the COCs, or these chemicals requiring remediation, are listed in Appendix II - Table 1. PCBs, PAHs, and metals, including lead, mercury, antimony, and copper, were the primary COPCs in the following: fish from the Creek Channel; sediment and surface soils (0 to 2 feet) at Upson Park; subsurface soils (0 to 10 feet) at the Flintkote property and the United Transportation property; and surface soils, subsurface soils, and the inhalation of particulates and volatilized chemicals at the United Paperboard property.

7.1.2 Exposure Assessment

Consistent with Superfund policy and guidance, the HHRA is a baseline human health risk assessment and, therefore, under this analysis EPA assumes that there will be no remediation or institutional controls to remove or mitigate hazardous substance releases. Cancer risks and noncancer hazard indices (HIs) were calculated based on an estimate of the RME expected to occur under current and future conditions at the Site. The RME is defined as the highest exposure that is reasonably expected to occur at a site.

Typically, exposures are evaluated using a statistical estimate of the exposure point concentration (EPCs), which is usually an upper bound estimate of the average concentration for each contaminant, but in some cases may be the maximum detected concentration. A summary of the EPCs for the COCs in each medium can be found in Appendix II – Table 2, while a comprehensive

list of the exposure point concentrations for all COPCs can be found in the HHRA available in the Administrative Record.

The receptors and exposure scenarios associated with the COPCs and evaluated in the HHRA are summarized in Appendix II – Table 2. Both current and future land uses for each area (e.g., Creek Channel, Upson Park, Flintkote property, White Transportation property, and United Paperboard property) were considered, and are described in detail in Section 6 of this Record of Decision. In addition, the City of Lockport's Comprehensive Plan and the Tourism Focus Area Nomination Study were considered in selecting the exposure pathways. In the HHRA (Appendix B – Table 2), EPA uses current and future conditions to evaluate the magnitude and range of exposure by various receptors and age ranges (i.e., adults, adolescents and children). Direct contact and inhalation of chemicals in surface water and sediment during recreational activities were also evaluated. Consumption of fish, despite NYSDEC's fish consumption advisory, was also evaluated. Exposure to surface water during recreational activities was not evaluated because the Creek is classified as a Class D water by NYSDEC and is not considered suitable for swimming or other recreational activities. In addition, the Creek flows rapidly with steep banks and dense vegetation throughout most of the reach within the OU2 Creek Corridor, making access to the stream bed difficult. Therefore, potential exposures to surface water were considered minor and not a significant contributor to overall exposures, and as such, the possibility of people swimming or wading in the Creek was not considered a completed exposure pathway.

7.1.3 Toxicity Assessment

In this step, the types of adverse health effects associated with contaminant exposures and the relationship between magnitude of exposure and severity of adverse health effects were determined. Potential health effects are contaminant-specific and may include the risk of developing cancer over a lifetime or other noncancer health effects, such as changes in the normal functions of organs within the body (*e.g.*, changes in the effectiveness of the immune system). Some contaminants are capable of causing both cancer and noncancer health effects.

Under current EPA guidelines, the likelihood of carcinogenic risks and noncancer hazards due to exposure to site chemicals are considered separately. Consistent with current EPA policy, it was assumed that the toxic effects of the Site-related chemicals would be additive. Thus, cancer risks and noncancer hazards associated with exposures to individual COPCs were summed to indicate the potential cancer risks and noncancer hazards associated with mixtures of potential carcinogens and non-carcinogens, respectively.

Toxicity data for the human health risk assessment are provided by the Integrated Risk Information System (IRIS) database, the Provisional Peer Reviewed Toxicity Database (PPRTV), or another source that is identified as an appropriate reference for toxicity values consistent with the May 2013 Tier 3 Toxicity Value White Paper and OSWER Directive 9285.7-53 for toxicity values. This information is presented in Appendix II – Tables 3 and 4 (noncancer toxicity data summary) and Appendix II - Table 5 and 6 (cancer toxicity data summary). Additional toxicity information for all COPCs is presented in the HHRA that is part of the Administrative Record.

7.1.4 Risk Characterization

Non-carcinogenic hazards were assessed using the HI approach, based on a comparison of expected contaminant intakes and benchmark comparison levels of intake (reference doses, reference concentrations). Reference doses (RfDs) and reference concentrations (RfCs) are estimates of daily exposure levels for humans (including sensitive individuals) which are thought to be safe over a lifetime of exposure. The estimated intake of chemicals identified in environmental media (*e.g.*, the amount of a chemical ingested from contaminated soils) is compared to the RfD or the RfC to derive the Hazard Quotient (HQ) for the contaminant in the particular medium. The HI is obtained by adding the HQs for all compounds within a particular medium that impacts a particular receptor population.

The HQ for oral and dermal exposures is calculated as below. The HQ for inhalation exposures is calculated using a similar model that incorporates the RfC, rather than the RfD.

HQ = Intake/RfD:

Where: HQ = hazard quotient;
Intake = estimated intake for a chemical (mg/kg-day); and
RfD = reference dose (mg/kg-day).

The intake and the RfD represent the same exposure period (i.e., chronic, subchronic, or acute).

The key concept for a noncancer HI is that a "threshold level" (measured as an HI of less than 1) exists below which noncancer health effects are not expected to occur.

As previously stated, the HI is calculated by summing the HQs for all chemicals for likely exposure scenarios for a specific population. An HI greater than 1.0 indicates that the potential exists for non-carcinogenic health effects to occur as a result of site-related exposures, with the potential for health effects increasing as the HI increases. When the HI is calculated for all chemicals for a specific population that exceeds an HI = 1.0, separate HI values are then calculated for those chemicals which are known to act on the same target organ. These discrete HI values are then compared to the acceptable limit of an HI = 1.0 to evaluate the potential for noncancer health effects on a specific target organ. The HI provides a useful reference point for gauging the potential significance of multiple contaminant exposures within a single medium or across media. A summary of the non-carcinogenic hazards associated with these chemicals for each exposure pathway is contained in Appendix II - Table 7.1 through 7.4.

Noncancer Analysis Results

Angler. The HI for noncancer effects exceeded the EPA's threshold value of 1 for fish consumers for the young child (HI of 14), the adolescent (HI of 8.6), and the adult (HI of 7.7). The main contributors were exposure through ingestion of fish contaminated with PCBs and from mercury (assumed methyl mercury). The noncancer health effects from exposure to PCBs include effects

on the immune system and the noncancer health effects for mercury are on the central nervous system.

Upson Park. The HI for noncancer effects exceeded the EPA's threshold value of 1 for the recreational user exposed to surface soils for the young child (HI of 7.1) and for the adolescent (HI of 3.1). The HI for noncancer effects also exceeded the EPA's threshold value of 1 for the outdoor worker from exposure to surface soils (HI of 3.2); the construction worker for exposure to subsurface soils (0 to 10 feet) (HI of 7.9). The main contributor was PCBs associated with effects on the immune system.

Flintkote property. The HI for noncancer effects exceeded the EPA's threshold value of 1 for exposure for the visitor/trespasser to surface soils for the young child (HI of 3.1) and the adolescent (HI of 1.8). The HI for noncancer effects exceeded the EPA's threshold value of 1 for exposure to surface soils for the outdoor worker (HI of 2.8) and the construction worker (HI = 8.1). The main noncancer HI was associated with antimony and PCBs. The noncancer hazards from antimony were impacts on blood glucose levels and for PCBs was effects on the immune system.

United Paperboard property. The HI for noncancer effects exceeded the EPA's threshold value of 1 for exposure for the current visitor/trespasser to surface soils for the young child (HI of 2.1) and the adolescent (HI of 1.2). The HI for noncancer effects exceeded the EPA's threshold value of 1 for exposure for the future indoor worker exposed to dust particles (HI of 1.5); the future outdoor worker for exposure to surface soils (HI of 1.9); the future construction worker exposed to subsurface soils (0 to 10 feet) (HI of 10). An evaluation of future residents exposed to soils at depths of 0 to 10 feet assuming subsurface soils are brought to the surface results in an HI of 59 for the young child and an HI of 5.7 for the adult. The main contributors were PCBs, antimony and copper. The noncancer health hazards from antimony are associated with impacts on blood glucose levels, impacts on the immune system from PCBs, and irritation of the gastrointestinal system from copper.

For carcinogens, risks are generally expressed as the incremental probability of an individual developing cancer over a lifetime as a result of exposure to a carcinogen, using the cancer slope factor (SF) for oral and dermal exposures and the inhalation unit risk (IUR) for inhalation exposures. Excess lifetime cancer risk for oral and dermal exposures is calculated from the following equation, while the equation for inhalation exposures uses the IUR, rather than the SF:

Risk = LADD x SF

Where: Risk = a unitless probability (e.g., 1 x 10^{-6}) of an individual developing cancer;
LADD = lifetime average daily dose averaged over 70 years (mg/kg-day); and
SF = cancer slope factor, expressed as [1/(mg/kg-day)].

These risks are probabilities that are usually expressed in scientific notation (such as 1 x 10^{-4}). An excess lifetime cancer risk of 1 x 10^{-4} indicates that one additional incidence of cancer may occur in a population of 10,000 people who are exposed under the conditions identified in the assessment. Again, as stated in the NCP, the acceptable risk range for site-related exposure is 10^{-6} (one in a

million) to 10^{-4} (one in ten thousand).

In summary, the HHRA shows that all of the risks associated with the RME are greater than the goal of protection established in the NCP of 10^{-6} (i.e., one additional cancer in 1,000,000 people). All of the risks associated with the RME are also greater than the 10^{-4} cancer risk that typically would require remedial action at a site or operable unit and are summarized below based on receptor. A summary of the cancer risks associated with the RME is contained in Appendix II - Table 7.1 through 7.4.

Cancer Risk Analysis Results

Angler. Cancer risks for anglers consuming fish from the Creek Channel are 3.8×10^{-5} for the young child, 4.8×10^{-5} for the adolescent, and 7.1×10^{-5} for the adult, and these risks are within the risk range. The total risk to the child/adult is 1.1×10^{-4}, that is within the risk range; however, these risks are presented here since the noncancer HI=1 was exceeded based on exposure to PCBs. Cancer risks from exposure to the sediment/soil for the anglers were within the risk range. The results are summarized in Appendix II – Table 7.1.

Upson Park. The cancer risks to the recreational user exposed to surface soils/sediment are 2.4×10^{-5} for the young child and 2.1×10^{-5} for the adolescent. The cancer risks to the outdoor worker is 4.9×10^{-5} and the risks to the construction worker is 4.6×10^{-6}. The main contaminant was PCBs. The results are summarized in Appendix II – Table 7.2.

Flintkote property. The cancer risks to the visitor/trespasser exposed to soil/sediment is 1.4×10^{-4} for the young child; 1.3×10^{-5} for the adolescent risk; and 1.5×10^{-4} for the adult outdoor worker. The cancer risks for the construction worker exposed to subsurface soils (0 to 10 feet) is 3.4×10^{-6}. The main contaminants were PCBs and PAHs (benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoroanthene, benzo(k)fluoroanthene, and dibenzo(a,h)anthracene). The results are summarized in Appendix II – Table 7.3.

United Paperboard property. The cancer risks to the visitor/trespasser exposed to surface soils is 7.3×10^{-6} for the young child and 8.5×10^{-6} for the adolescent. The cancer risks to the indoor worker exposed to dust particles is 2.3×10^{-5} and 2.9×10^{-5} for the outdoor worker exposed to surface soils. The cancer risks to the adult construction worker exposed to subsurface soils (0 to 10 feet) is 6×10^{-6}. The cancer risks to the future resident young child exposed under an assumption that subsurface soils are brought to the surface is 6.0×10^{-4} and 8.1×10^{-5} for the adult. The total cancer risks to the future adult/child resident is 6.8×10^{-4}. The contaminants were benzo(a)pyrene and PCBs. The results are summarized in Appendix II – Table 7.4.

Lead

Lead is evaluated based on comparison of the concentrations in soil to specific screening levels for residential and industrial properties. Lead above EPA's residential lead screening level (400 ppm) was found in soil at the United Paperboard property. Concentrations above EPA's commercial/industrial lead screening level (800 ppm) were found at the Creek Channel, the White

Transportation property, and the Flintkote property. Exposure to these concentrations may result in an increased potential for adverse health effects.

The evaluation of lead data at the White Transportation property yielded an average concentration less than the residential screening level of 400 ppm. However, sampling results in one area of the property along the Creek bank revealed lead concentrations of 3,750 ppm, 2,590 ppm, and 1,030 ppm; resulting in an average surface lead concentration for that area of 2,457 ppm, exceeding the residential and industrial soil screening levels for lead.

7.1.5 Uncertainties in the Risk Assessment

The procedures and inputs used to assess risks in this evaluation, as in all such assessments, are subject to uncertainties. In general, the main sources of uncertainty include the following: environmental chemistry sampling and analysis; environmental parameter measurement; fate and transport modeling; exposure parameter estimation, and toxicological data.

Uncertainty in environmental sampling arises in part from the potentially uneven distribution of chemicals in the media sampled. Consequently, there is significant uncertainty as to the actual levels present. Environmental chemistry-analysis error can stem from several sources including the errors inherent in the analytical methods and characteristics of the matrix being sampled. Due to a lack of methyl mercury analytical results in the fish tissue dataset used for the HHRA, results for elemental mercury (the form of mercury for which most of the data were available) were used as a surrogate for methyl mercury, consistent with EPA guidance. Therefore, EPCs derived using mercury data may slightly overestimate the methyl mercury concentration and thus result in a potential slight overestimate of noncancer health hazards.

Uncertainties in the exposure assessment are related to estimates of how often an individual would actually come in contact with the COCs, the period of time over which such exposure would occur, and in the models used to estimate the concentrations of the chemicals at the point of exposure. EPCs for fish tissue were based on tissue samples including both skinless and skin-on fillet samples, consistent with EPA guidance. EPCs derived for organic COCs in fish may be overestimated for those individuals consuming only skinless fillets since fatty tissues concentrate many organic compounds. Conversely, the EPC derived for methyl mercury in fish may be underestimated for those individuals consuming only skinless fillets (mercury concentrates in muscle tissue). EPCs for all COCs may be underestimated for those individuals consuming whole fish.

In addition, PCBs, dioxins, furans, and dioxin-like PCBs were evaluated in the HHRA. In the environment, PCBs occur as mixtures whose compositions differ from the commercial mixtures (Aroclors). This is because after release into the environment, the mixture composition changes over time through partitioning, chemical transformation, and preferential bioaccumulation discussed in PCBs: Cancer Dose-Response Assessment and Application to Environmental Mixtures published in 1996. PCB congener data are useful for assessing potential risks and hazards from environmental PCB contamination when PCB patterns from Aroclors are weathered or

degraded and for comparison with available historical tissue data. The HHRA did not find enhancement of dioxin-like PCBs.

All of the receptors and exposure scenario combinations are considered possible under current/future conditions for the different exposure areas and were quantitatively evaluated except for potential exposures to surface water and sediment within the Creek Corridor of the Creek. Because the Creek flows rapidly and access to the stream bed is difficult due to steep banks and dense vegetation throughout most of the reach within the Creek Corridor, the potential for people swimming or wading in the creek was not considered a completed exposure pathway. Therefore, potential exposures to surface water or stream bed sediments within the creek proper were considered minor and not a significant contributor to overall exposures. Furthermore, there was limited data available, especially for surface water, with which to quantitatively evaluate any potential exposures to these media within the Creek Channel. This is considered an uncertainty unlikely to substantially affect overall risk and hazard estimates and conclusions from the HHRA.

Uncertainties in toxicological data occur in extrapolating both from studies in animals to humans and from high to low doses of exposure, as well as from the difficulties in assessing the toxicity of a mixture of chemicals. These uncertainties are addressed by making conservative assumptions concerning risk and exposure parameters throughout the assessment. As a result, the risk assessment provides upper-bound estimates of the risks to populations near OU2 of the Site, and it is highly unlikely to underestimate actual risks related to the Site. Thallium soluble salts was screened into the analysis as a COPC for several exposure areas (Flintkote property, United Paperboard Property, and the Creek Channel). Based on the significant uncertainties associated with the toxicity value, the toxicity information on this chemical could not be used in the HHRA, which may result in a potential underestimation of risk.

Noncancer hazards, and cancer risks were quantified only for a selected subset (the COPCs) of chemicals detected in environmental media. While omission of other chemicals based on screening or lack of toxicity information may underestimate total noncancer hazards and cancer risks, this is not considered a significant source of uncertainty because the chemicals that were excluded were present at low concentrations.

More specific information concerning public health risks, including a quantitative evaluation of the degree of risk associated with various exposure pathways, is presented in the HHRA.

7.2 Ecological Risk Assessment

In 2015, as part of the Supplemental RI/FS, EPA initiated an ecological risk assessment, consisting of a screening-level evaluation and BERA to evaluate whether adverse effects to ecological receptors (*i.e.,* organisms and their respective habitats) are occurring or may occur as a result of exposure to contaminants present at OU2. As described previously, OU2 consists of a mix of partially paved commercial properties that abut the heavily vegetated Creek Channel along with the Creek Channel.

As part of the BERA, additional sampling and testing was conducted at the Site to investigate bioaccumulation of contaminants from soil and sediment into invertebrates that reside in those media. These data were used to develop site-specific bioaccumulation factors to invertebrates, which were subsequently used in food chain modeling to calculate the risk to upper trophic level receptors. In addition, sediment and surface water toxicity tests were conducted to determine the potential for both chronic (growth and reproduction) and acute (survival) impacts to aquatic and benthic organisms. Surface water toxicity tests indicated that contaminant levels in surface water in the Creek Channel are not great enough to adversely affect aquatic life. Sediment toxicity tests identified one location with contaminant levels great enough to adversely affect benthic aquatic organisms. This additional sampling and toxicity tests are described further in the EPA's Supplemental Investigation section above.

An ecological risk assessment quantifies risk to different potentially exposed ecological receptors as a Hazard Quotient (HQ). If an HQ is calculated to be equal to or less than 1, then no adverse health effects are expected as a result of exposure. If the HQ is greater than 1, then adverse health effects are possible. The results of both the sediment and surface water toxicity tests and food chain modeling were used to calculate risks to wildlife, along with screening of media to assess the risk to benthic and plant communities. Contaminants of concern were identified based upon the calculation of an HQ. The contaminants that resulted in the greatest HQs for the greatest number of ecological receptors were PCBs, copper, lead, and PAHs. Copper and lead were found to pose a potential risk to terrestrial plants, soil invertebrates, benthos, and terrestrial and aquatic dependent wildlife. PCBs were found to pose the greatest potential risk to aquatic-dependent receptors, with HQs that were several orders of magnitude greater than 1 for the tree swallow and little brown bat, and one to two orders of magnitude greater than 1 for benthos.

7.3 Summary of Human Health and Ecological Risks

The results of the HHRA indicate that contamination present at the Flintkote property, the White Transportation property, the United Paperboard property, and Upson Park pose unacceptable cancer risks and noncancer health hazards. In addition, concentrations of lead in soil at these properties are above EPA's commercial lead screening levels. The consumption of fish from the Creek Channel at OU2 of the Site also presents an unacceptable human health exposure risk.

The BERA results also caused EPA to conclude that PCBs, copper, lead, and PAHs pose a potential risk to terrestrial plants, soil invertebrates, benthos, and terrestrial and aquatic dependent wildlife.

7.4 Basis for taking Action

Based on the results of the Supplemental RI/FS, HHRA, and BERA, EPA has determined that the response action selected in this ROD is necessary to protect public health or welfare or the environment from actual or threatened releases of hazardous substances into the environment.

8. REMEDIAL ACTION OBJECTIVES

Remedial action objectives (RAOs) are specific goals to protect human health and the environment. These objectives are based on available information and standards, such as applicable or relevant and appropriate requirements (ARARs), to-be-considered (TBC) guidance, and site-specific, risk-based levels established using the risk assessments. The following RAOs have been established for OU2 of the Site:

- Reduce the cancer risks and noncancer health hazards for people eating fish from the Creek by reducing the concentration of PCBs and other Site-related contaminants in fish;
- Reduce and/or eliminate risks to ecological receptors by reducing exposure to contaminated soil/fill and sediments;
- Reduce or eliminate potential human exposure to contaminated soil/fill at the Flintkote property, the White Transportation property, and United Paperboard property to levels that are protective of commercial/industrial use and protective of the environment;
- Reduce or eliminate exposure to contaminated soil/fill at Upson Park to levels that are protective of recreational use, and protective of the environment;
- Reduce or eliminate the migration of contamination in soil/fill from the Flintkote property, the White Transportation property, the United Paperboard property, and Upson Park to adjacent properties, the Creek, and groundwater; and
- Reduce or eliminate the potential for migration of contaminants from the Creek to adjacent properties.

The cleanup levels for the primary COCs for soil/fill at OU2 of the Site are presented in Table 8. In addition, EPA has adopted a RAL for the Creek Channel sediments of 1 ppm for PCBs as the concentration triggering bank-to-bank excavation of all sediment in the banks' full width of the Creek Channel. The banks' full width is defined as the width at which water begins to leave the Creek Channel and discharge to the floodplain. The sediments in this portion of the Creek are underlain by either hard bottom (bedrock) or a clearly visible layer of native material, such as clay. The extent of contaminated sediments above the RAL will effectively result in all contaminated sediments above these layers being removed. As indicated in the Scope and Role of Response Action section, a separate investigation is underway for OU3 to address contaminated sediments in the remainder of the Creek from the north end of the Creek Corridor in Lockport to the Creek's location of discharge into Lake Ontario in Olcott, New York, which are not addressed by this action. Investigations to date have identified that the highest levels of PCBs in sediments are found within the Creek Corridor, such that the Creek Corridor may be acting as a source of PCBs to the lower reaches of the Creek. Because further studies are required to fully understand the nature and extent of contamination in other reaches of the Creek, this OU2 action is not expected to fully address the fish consumption RAO.

As part of the OU3 remedial investigation, a comprehensive evaluation will be conducted of the entire length of the Creek, including the Creek Channel, to develop final remedial goals for contaminated sediments; therefore, this action is considered an interim remedy for the sediments.

9. DESCRIPTION OF REMEDIAL ALTERNATIVES

Section 121(b)(1) of CERCLA, 42 U.S.C. § 9121(b)(1), mandates that remedial actions must be protective of human health and the environment, cost-effective, and utilize permanent solutions and alternative treatment technologies and resource recovery alternatives to the maximum extent practicable. Section 121(b)(1) also establishes a preference for remedial actions that employ, as a principal element, treatment to permanently and significantly reduce the volume, toxicity, or mobility of the hazardous substances, pollutants, and contaminants at a site. Section 121(d) further specifies that a remedial action must attain a level or standard of control of the hazardous substances, pollutants, and contaminants that at least meets ARARs under federal and state laws, unless a waiver can be justified pursuant to Section 121(d)(4) CERCLA, 42 U.S.C. §9621(d)(4).

Detailed descriptions of the remedial alternatives presented in this ROD to address the Flintkote property, the White Transportation property, the United Paperboard property, Upson Park, and the Creek Corridor sediments can be found in the NYSDEC's Final Remedial Alternatives Report, dated October 2005, the NYSDEC's Final Feasibility Study Report, dated September 2009, and the EPA's Supplemental FS Report, dated August 2016.

The construction time provided for each alternative reflects only the time required to construct or implement the remedy and does not include the time required to design the remedy, negotiate the performance of the remedy with any potentially responsible parties, or procure contracts for design and construction, or operation and maintenance.

9.1 Remediation of Properties

Remedial alternatives were developed to address soil contamination, including floodplain soil, at the Flintkote property, the White Transportation property, the United Paperboard property, and Upson Park. For the purposes of evaluating alternatives, each property is designated with the following property-specific identification:

A: Flintkote
B: White Transportation
C: United Paperboard
D: Upson Park

9.2 Description of Common Elements among Remedial Alternatives

All of the soil alternatives, with the exception of Alternative 1 (No Action), include the following common components:

Cultural Resource Investigation:
Based on the results of the Stage lA Cultural Resource Investigation conducted by EPA as part of the Supplemental RI for OU2, a Phase IB field reconnaissance survey would be conducted, including shovel testing along the Creek Channel, to further identify and record archeological features and deposits.

Bank Stabilization:
To ensure the stabilization of banks between the properties and the Creek Channel, contaminated soil/fill between the access roads and the top of the embankment adjacent to the Creek Channel would be covered in place with a demarcation layer and two-foot thick stone and clean soil. This cover system would extend approximately ten feet beyond the top of the embankment, and it would be constructed flush with the surrounding topography to promote precipitation runoff. The Creek bank would be restored through the placement of stone, topsoil, biodegradeable erosion-control fabric and live plantings. During the remedial design, the composition and thickness of the individual capping materials would be evaluated to promote reliability and efficacy of the cover system.

Institutional Controls:
Because contaminated soil will remain on the properties above levels that allow for unrestricted use/unlimited exposure following remediation, institutional controls would be implemented and may include environmental easements/restrictive covenants, deed notices, and/or zoning restrictions to limit future use of the properties. Institutional controls in the form of informational devices, such as fish consumption advisories, would be implemented to limit exposure to contamination. Fish consumption advisories are implemented and managed by the NYSDOH.

Long-Term Monitoring:
Long-term monitoring would be conducted periodically to visually inspect any cover system and restoration success, and to ensure remedy effectiveness. Fish tissue monitoring for human health and ecological exposure will be included in the monitoring plan.

Site Management Plan:
A SMP would be developed to provide for the proper management of the remedy and any use restrictions at the properties post-construction. Because each of the alternatives evaluated would result in soil contamination remaining at the OU2 properties, particularly at depth, that would not allow for unrestricted use and unlimited exposure, the SMP would include measures to prevent the transfer of deeper soil to the surface during post-construction activities. The SMP would also provide for the proper implementation, management, and maintenance of institutional controls.

9.3 Description of Soil (S) Remedial Alternatives

Alternative S1: No Action

S1A: Flintkote	
Capital Cost:	$0
Annual O&M Costs:	$0
Present-Worth Cost:	$0
Construction Time:	Not Applicable

S1B: White Transportation

Capital Cost:	$0
Annual O&M Costs:	$0
Present-Worth Cost:	$0
Construction Time:	Not Applicable

S1C: United Paperboard

Capital Cost	$0
Annual O&M Costs:	$0
Present-Worth Cost:	$0
Construction Time:	Not Applicable

S1D: Upson Park

Capital Cost:	$0
Annual O&M Costs:	$0
Present-Worth Cost:	$0
Construction Time:	Not Applicable

The NCP requires that a "No Action" alternative be developed as a baseline for comparison with the other alternatives. Under this alternative, EPA would take no action to prevent exposure to the soil contamination, and the contaminated soil would be left in place. This alternative would not include the maintenance of any existing measures at the Flintkote property (i.e., temporary fencing and limited gravel cover installed subsequent to the demolition of the building pursuant to the OU1 ROD).

Alternative S2: Limited Action

S2A: Flintkote

Capital Cost:	$77,000
Annual O&M Costs:	$112,000
Present-Worth Cost:	$189,000
Construction Time:	2.5 Months

S2B: White Transportation

Capital Cost:	$50,000
Annual O&M Costs:	$109,000
Present-Worth Cost:	$159,000
Construction Time:	2.5 Months

S2C: United Paperboard

Capital Cost:	$115,000
Annual O&M Costs:	$116,000
Present-Worth Cost:	$231,000
Construction Time:	2.5 Months

S2D: Upson Park

Capital Cost:	$98,000
Annual O&M Costs:	$114,000
Present-Worth Cost:	$212,000
Construction Time:	2.5 Months

This alternative would provide institutional controls and minimal engineering controls to prevent exposure to contaminated soils and would include long-term monitoring. Physical barriers, such as fencing with warning signs, would be installed at the property to limit exposure to contaminated soil/fill. Long-term maintenance would be required and would include periodic inspections and repairs (as appropriate) of the fencing and warning signs.

Alternative S3: Capping

S3A: Flintkote

Capital Cost:	$1,303,000
Annual O&M Costs:	$163,000
Present-Worth Cost:	$1,466,000
Construction Time:	3 Months

S3B: White Transportation

Capital Cost:	$821,000
Annual O&M Costs:	$177,000
Present-Worth Cost:	$998,000
Construction Time:	3 Months

S3C: United Paperboard

Capital Cost:	$990,000
Annual O&M Costs:	$192,000
Present-Worth Cost:	$1,182,000
Construction Time:	3 Months

S3D: Upson Park

Capital Cost:	$1,340,000
Annual O&M Costs:	$224,000
Present-Worth Cost:	$1,564,000
Construction Time:	3 Months

This alternative would provide engineering and institutional controls to prevent exposure to contaminated soil and to prevent erosion of contaminated soil/fill into the Creek Channel. The cap would consist of a demarcation layer and a two-foot soil cover for soil/fill exceeding the cleanup levels identified in Table 8.

Under this alternative, some soil/fill may require excavation and off-site disposal to facilitate the construction of access roads (gravel and/or paved) that would be utilized to facilitate

implementation of remedial activities for the Creek. The layout of these roads would be determined during the remedial design. The access roads would remain following remediation of the Creek, except at Upson Park, and they would form part of the bank stabilization cover system. Existing roadways, parking lots, and access roads would be asphalt paved following the construction of the soil cover. Excavated soil/fill would be transported off-site for proper disposal at a RCRA or TSCA regulated landfill, as appropriate, based on the concentrations of contaminants in the excavated soil/fill. If necessary, in order to meet the requirements of the disposal facilities, contaminated material would be treated prior to land disposal.

Long-term maintenance would be required and would include periodic inspections and repairs (as appropriate) of the cap.

Alternative S4: Excavation

S4A: Flintkote	
Capital Cost:	$11,307,000
Annual O&M Costs:	$24,000
Present-Worth Cost:	$11,331,000
Construction Time:	9 Months
S4B: White Transportation	
Capital Cost:	$317,000
Annual O&M Costs:	$24,000
Present-Worth Cost:	$341,000
Construction Time:	1 Month
S4C: United Paperboard	
Capital Cost:	$2,443,000
Annual O&M Costs:	$24,000
Present-Worth Cost:	$2,467,000
Construction Time:	2 Months
S4D: Upson Park	
Capital Cost:	$3,235,000
Annual O&M Costs:	$24,000
Present-Worth Cost:	$3,259,000
Construction Time:	2 Months

This alternative includes the excavation of contaminated soil/fill exceeding the cleanup levels identified in Table 8 and off-site disposal at a RCRA or TSCA regulated landfill, as appropriate, based on the concentrations of contaminants in the excavated soil/fill. If necessary, in order to meet the requirements of the disposal facilities, contaminated material would be treated prior to land disposal. During the remedial design further evaluations would be conducted to determine whether lead contaminated soil/fill could be treated and stabilized on-site, prior to off-site disposal.

Under this alternative, access roads (gravel and/or paved) would be constructed to facilitate implementation of remedial activities of the Creek. The access roads would remain in place following remediation, except at Upson Park, and form part of the bank stabilization cover system.

Verification samples would be collected following excavation to confirm that all contaminated soil/fill in excess of the cleanup levels has been removed. At the Flintkote property, temporary shoring along the Millrace would be required to facilitate the removal of contaminated soil adjacent to the Creek Channel and the turbine discovered during the demolition of the building conducted during the implementation of the remedy for OU1. Once excavation activities have been completed, the temporary shoring would be removed, and clean soil would be used as backfill, with the top six inches consisting of topsoil that would be planted with native grasses, shrubs, and/or trees. Following excavation and backfill to grade, pre-existing roadways, parking lots, and access roads would be asphalt paved.

Alternative S5: Combination Excavation and Capping

S5A: Flintkote	
Capital Cost:	$6,339,000
Annual O&M Costs:	$179,000
Present-Worth Cost:	$6,518,000
Construction Time:	4 Months
S5B: White Transportation	
Capital Cost:	$331,000
Annual O&M Costs:	$142,000
Present-Worth Cost:	$473,000
Construction Time:	1 Month
S5C: United Paperboard	
Capital Cost:	$2,341,000
Annual O&M Costs:	$146,000
Present-Worth Cost:	$2,487,000
Construction Time:	2 Months
S5D: Upson Park	
Capital Cost:	$2,291,000
Annual O&M Costs:	$233,000
Present-Worth Cost:	$3,154,000
Construction Time:	2 Months

This alternative consists of the excavation of contaminated soil/fill containing PCBs and lead at concentrations greater than 50 ppm and 1,000 ppm, respectively, the backfill to grade of excavated areas, and transportation off-site for proper disposal at a RCRA or TSCA regulated landfill, as appropriate, based on the concentrations of contaminants in the excavated soil/fill. If necessary, in order to meet the requirements of the disposal facilities, contaminated material would be treated

prior to land disposal. During the remedial design, further evaluations would be conducted to determine whether lead contaminated soil/fill could be treated and stabilized on-site, prior to off-site disposal.

Contaminated soil/fill with PCB concentrations below 50 ppm, but greater than the cleanup levels identified in Table 8 of this Record of Decision, would also then be covered with a two-foot soil cover. The approximate areas that would be excavated and capped are shown on Figure 4. In some instances, contaminated soil could be re-used on-site. For example, soil with contaminant concentrations below the specified action levels that had been excavated to remove more contaminated soil located at depth might be reused as fill under the clean soil cover.

Under this alternative, access roads (gravel and/or paved) would be constructed to facilitate implementation of remedial activities at the Creek. The access roads would remain in place following remediation, except at Upson Park, and form part of the bank stabilization cover system. Existing roadways, parking lots, and access roads would be asphalt paved following excavation and construction of the soil cover. Long-term maintenance would be required and would include periodic inspections and repairs (as appropriate) of the cap.

9.4 Description of Creek Channel (CC) Remedial Alternatives

Alternative CC1: No Action

Capital Cost:	$0
Annual O&M Costs:	$0
Present-Worth Cost:	$0
Construction Time:	Not Applicable

As discussed above, the NCP requires that a "No Action" alternative be developed as a baseline for comparing other remedial alternatives. Under this alternative, there would be no remedial measures to address contamination in the Creek Channel. This alternative would not include any monitoring or institutional controls.

Alternative CC2: Sediment Excavation

Capital Cost:	$10,519,000
Annual O&M Costs:	$147,000
Present-Worth Cost:	$10,666,000
Construction Time:	2 Years

This alternative consists of the bank-to-bank removal of all contaminated sediment, estimated at 14,500 cubic yards with sediment thickness up to approximately four feet, covering approximately a distance of 4,000 feet in the Creek Channel followed by backfilling to pre-dredging grade. Under this alternative, PCBs would be used as an indicator compound with a sediment RAL of 1 ppm to ensure that RAOs are achieved. The bank full width is defined as width at which water begins to leave the Creek Channel and discharge to the floodplain. The areas that would be excavated would

include the Creek Channel from the Canal to approximately Harwood Street, including the East Branch, West Branch, and the Millrace. To facilitate the removal of contaminated sediment, the dilapidated and unpermitted Clinton and William Street dams would be removed. During the remedial design, methods to manage and/or divert flows in the Creek from the Canal during sediment removal would be further evaluated and identified for implementation, if appropriate. Similarly, measures to mitigate the potential impact from the Canal to the Creek during maintenance activities at the Canal would be evaluated during the remedial design and implement if appropriate.

The sediment within the bank full width would be removed and dewatered at a facility constructed at the Site before being transported off-site for proper disposal at a RCRA or TSCA regulated landfill, as appropriate, based on the concentrations of contaminants in the material. If necessary, in order to meet the requirements of the disposal facilities, contaminated material would be treated prior to land disposal.

Gravel access roads, up to 20 feet in width, would be constructed along the Creek Corridor to be utilized in the remediation of the Creek sediment. The access roads would remain in place and be re-graded following sediment remediation and form part of a bank stabilization cover system and allow for appropriate bank restoration.

Backfill material would be comprised of clean material. The Creek bank would be restored through the placement of stone, topsoil, biodegradeable erosion control fabric, and live plantings. During the remedial design, the composition and thickness of the individual capping materials would be evaluated to promote reliability and efficacy of the cover system. In addition, a floodplain and hydraulic study would also be conducted during the remedial design to determine the types and locations of rock riffle grade control structures that would be constructed in the Creek to control flow, reduce the potential for erosion and scour of the banks, and reduce the potential for downstream flooding.

Long-term monitoring would be conducted to demonstrate the effectiveness in meeting the remedial action objectives. Institutional controls in the form of informational devices, such as fish consumption advisories, would be implemented to limit exposure to contamination. Fish consumption advisories are implemented and managed by the NYSDOH.

Alternative CC3: Combined Sediment Excavation and Capping

Capital Cost:	$7,934,000
Annual O&M Costs:	$174,000
Present-Worth Cost:	$8,108,000
Construction Time:	2 Years

This alternative includes the remedial measures included in Alternative CC2, but includes the capping of sediment between Clinton Street and the Clinton Street Dam rather than the excavation and off-site disposal of contaminated sediments in this approximately 40,000 square foot area. The cap would be 36 inches thick and would include the following layers: chemical isolation layer;

bioturbation layer; and an erosion protection layer. This alternative would also include the restoration of the Clinton Street Dam and maintenance of the cap.

Because this alternative would also result in contaminants remaining above levels that allow for unrestricted use and unlimited exposure in the Creek Chanel, CERCLA requires that the Site be reviewed at least once every five years. If justified by the review, additional response actions may be implemented.

10. COMPARATIVE ANALYSIS OF ALTERNATIVES

In selecting a remedy for a site, EPA considers the factors set forth in Section 121 of CERCLA, 42 U.S.C. § 9621, and conducts a detailed analysis of the viable remedial alternatives in accordance with the NCP, 40 C.F.R Section 300.430(e)(9), the EPA's *Guidance for Conducting Remedial Investigations and Feasibility Studies*, OSWER Directive 9355.3-01, and the EPA's *A Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents*, OSWER 9200.1-23.P. The detailed analysis consists of an assessment of the individual alternatives against each of the nine evaluation criteria set forth at 40 C.F.R. § 300.430(e)(9)(iii) and a comparative analysis focusing upon the relative performance of each alternative against those criteria.

A comparative analysis of these alternatives based upon the nine evaluation criteria noted below follows.

Threshold Criteria *- The first two remedy selection criteria are known as "threshold criteria" because they are the minimum requirements that each response measure must meet in order to be eligible for selection as a remedy.*

10.1 Overall Protection of Human Health and the Environment

Overall protection of human health and the environment determines whether an alternative eliminates, reduces, or controls threats to public health and the environment through institutional controls, engineering controls, or treatment.

Soil Alternatives

Alternative S1 (No Action) is not protective of human health and the environment because it does not eliminate, reduce, or control risk of exposure to contaminated soil/fill. Alternative S2 (Limited Action) would provide protection of human health, in as far as the engineering controls could be maintained. Alternative S3 (Capping) would provide greater protection of human health and the environment from future exposure to contaminated soil/fill than Alternative S2 through the placement of cover material and through institutional controls. Alternative S4 (Excavation) would remove soil/fill with concentrations of contaminants above the cleanup levels and, therefore, would provide the highest level of protection to human and ecological receptors from contact with contaminants. Alternative S5 (Excavation and Capping) would be protective of human health because contaminated soil/fill would either be removed from the properties or contained in place

and supplemented with institutional controls that prevent exposure. However, contaminated soil/fill would remain in place above the cleanup levels. Under Alternatives S3, S4, and S5, the two-foot bank stabilization cover system would reduce the risk of erosion and exposure to contaminated soil along the banks of the Creek Corridor. The two-foot thick bank stabilization cover system would significantly reduce exposure of ecological receptors to site-related contaminants and address the potential for site-related contaminants to enter the Creek Corridor. In addition, upland soil at the properties provides limited ecological function. There would be no local human health or environmental impacts associated with off-site disposal in Alternatives S4 or S5 because the contaminants would be removed from the Site to a secure disposal facility.

Creek Channel Alternatives

Alternative CC1 (No Action) is not protective of human health and the environment because it does not eliminate, reduce, or control risk of exposure to contaminated sediment. Alternative CC2 (Sediment Excavation) involves the bank-to-bank excavation of all sediments in the Creek Channel and, therefore would provide the highest level of protection to human and ecological receptors from contact with contaminants. Alternative CC3 (Combined Sediment Excavation and Capping) would also provide protection of human health and the environment, however, monitoring and maintenance of the cap would be required to ensure protection over the long term.

There would be no local human health or environmental impacts associated with off-site disposal in Alternatives CC2 or CC3 because the contaminants would be removed from the Site to a secure approved disposal facility.

10.2 Compliance with ARARs, to be Considered (TBCs) and other Guidance

Section 121 (d) of CERCLA, 42 U.S.C. § 9621(d), and Section 300.430(f)(1)(ii)(B) of the NCP, 40 CFR §300.430(f)(1)(ii)(B), require that remedial actions at CERCLA sites at least attain legally applicable or relevant and appropriate federal and state requirements, standards, criteria and limitations which are collectively referred to as "ARARs," unless such ARARs are waived under Section 121(d)(4) of CERCLA.

Compliance with ARARs addresses whether a remedy will meet all of the applicable or relevant and appropriate requirements of other federal and state environmental statutes or provides a basis for invoking a waiver.

Soil Alternatives

New York State's 6 NYCRR Part 375 is an ARAR, a TBC, or an 'other guidance' to consider in addressing contaminated soil at OU2. Alternative S1 would not achieve the soil cleanup levels established in this ROD because no measures would be implemented and contaminants in the soil/fill, which exceed the cleanup levels, would remain in place. Alternatives S3 through S5 would either cap or remove, or a combination thereof, the soil/fill exceeding the cleanup levels at each of the properties.

RCRA and TSCA are federal laws that mandate procedures for managing, treating, transporting, storing, and disposing of hazardous wastes and PCBs, respectively. All portions of RCRA that are applicable or relevant and appropriate to the selected remedy for the Site would be met by Alternatives S2 through S5, and all portions of TSCA would be met by Alternatives S2 through S5.

Creek Channel Alternatives

There are currently no federal or state promulgated standards for contaminant levels in sediments. There are, however, other federal or state advisories, criteria, or guidance (which are used as TBC criteria). Specifically, NYSDEC's "Screening and Assessment of Contaminated Sediment Guidance" (2014) are sediment screening values and are TBC criteria. Because the contaminated sediments would not be addressed under Alternative CC1, the PCB sediment action level would not be achieved under that alternative. Alternative CC2 would achieve the sediment action level through the bank-to-bank removal of sediment. Alternative CC3 would achieve the sediment action level through a combination of isolation and removal of sediment.

Because there is no active remediation associated with the sediment for Alternative CC1, action-specific and location-specific ARARs do not apply. It is anticipated that Alternatives CC2 and CC3 would be performed in the dry and comply with action-specific and location-specific ARARs. In the event of a change of circumstance that results in work not being performed in the dry, because of technical impracticability, two chemical-specific ARARs pertaining to water column concentrations (0.001 nanograms per liter [ng/L] New York State water quality PCB standards for the protection of human consumers of fish and 0.12 ng/L for the protection of wildlife) would need to be waived (see Section 121(d)(4)(c) of CERCLA and 40 C.F.R. 300.430(f)(1)(ii)(C)(3)).

Pursuant to Section 106 of the National Historic Preservation Act (NHPA), a Stage 1B Cultural Resource Investigation would be performed during the design phase to evaluate the existence of cultural and archaeological resources within the Creek Corridor that could be impacted by the implementation of this alternative.

RCRA and TSCA are federal laws that mandate procedures for managing, treating, transporting, storing, and disposing of hazardous wastes and PCBs, respectively. All portions of RCRA that are applicable or relevant and appropriate to the remedy for the Site would be met by Alternatives CC1 through CC3 and all portions of TSCA would be met by Alternatives CC1 and CC3.

Primary Balancing Criteria *- The next five remedy selection criteria, 3 through 7, are known as "primary balancing criteria." These five criteria are factors with which tradeoffs between response measures are assessed so that the best option will be chosen, given site-specific data and conditions.*

10.3 Long-Term Effectiveness and Permanence

Long-term Effectiveness and Permanence considers the ability of an alternative to maintain protection of human health and the environment over time.

Soil Alternatives

Alternatives S1 provides no reduction in risk. Alternative S2 relies on fencing and institutional controls to limit access, but it would not reduce risk should exposure occur. Alternative S3 would not be as permanent or effective over the long-term as Alternatives S4 or S5 because the cap would require periodic maintenance. Alternative S5 would be more effective and permanent than Alternative S3 because soil/fill containing the highest concentrations of contaminants would be removed, and the remaining material would be capped. The material removed would be taken to an approved off-site disposal facility and treated, if required. Off-site treatment/disposal of the contaminated soil at a secure, permitted hazardous waste facility is reliable because the design of such facilities includes safeguards intended to ensure the reliability of the technology and the security of the waste material. Under Alternative S4, long-term risks would be eliminated because the contaminated soil/fill exceeding the cleanup levels would be permanently removed and taken to an approved off-site disposal facility, where it would be treated, if required. Bank stabilization would help to promote long-term permanence through the restoration of riparian habitat. Alternatives S2, S3, S4, and S5 also rely on institutional controls and long-term monitoring of the bank stabilization measures to reduce future health risks associated with exposure to contaminated soil.

Creek Channel Alternatives

Alternatives CC1 provides no reduction in risk. Under Alternative CC2, long-term risks would be eliminated because all of the sediment would be permanently removed and taken to an approved off-site disposal facility. Alternative CC3 would reduce risk by a combination of excavation and capping. Alternative CC3 would not be as permanent or effective over the long-term as Alternative CC2 because some contaminated sediment would remain in place. Proper design, placement, and maintenance of the cap are required for its effectiveness, continued performance, and reliability. Though PCBs isolated under the cap would migrate into the cap very slowly through molecular diffusion, the cap would be designed to address this migration.

Alternatives CC2 and CC3 also rely on institutional controls and long-term monitoring to reduce future health risks. The fish consumption advisory would continue to provide some measure of protection of human health until concentrations in fish are reduced to the point where the fish consumption advisory can be relaxed or lifted by NYSDOH.

The NYSDEC in its RI report concluded that the Canal is not a significant contributor of contamination to the Creek sediments within the Creek Corridor. However, the investigation also concluded that one-time events, such as pulling the Canal plug (which allows water to drain from the Canal to the Creek), could potentially cause contaminated sediments to be released to the Creek. The FS assumed that a sediment release from pulling the Canal plug could be avoided through operational changes (i.e. use of pumps) to prevent such a potential slug of sediment to be released to the Creek. Under Alternatives CC2 and CC3, measures would be evaluated during the remedial design to mitigate the potential impact from the Canal to the Creek.

10.4 Reduction in Toxicity, Mobility, or Volume Through Treatment

Reduction in Toxicity, Mobility, or Volume of Contaminants through Treatment evaluates an alternative's use of treatment to reduce the harmful effects of principal contaminants, their ability to move in the environment and the amount of contamination present.

Soil Alternatives

Alternative S1 and S2 would not achieve any reduction in toxicity, mobility, or volume because contaminated soil/fill would remain in place. Alternative S3 would provide a reduction in the mobility of the contaminants and the potential for exposure to contaminants through capping, but it would not reduce the volume or toxicity of the contaminants at the Site. Under Alternative S4, the mobility, volume, and potential for exposure to contaminants would be reduced through the removal and disposal of the soil/fill at an approved off-site facility. Furthermore, off-site treatment, if required, would reduce the toxicity and volume of the contaminated soil/fill prior to land disposal. Alternative S5 would use a combination of capping and removal to achieve a reduction in mobility, volume, and potential for exposure to contaminants at the Site. Under Alternative S5, the exposure to contaminants would be reduced through capping and the mobility and volume of soil/fill containing the highest concentrations of contaminants would be reduced through removal and off-site disposal. If off-site treatment is required, it would reduce the toxicity and volume of the contaminated soil/fill prior to land disposal. Under Alternatives S4 and S5, the on-site stabilization of lead contaminated soil/fill prior to off-site disposal would be evaluated further during the remedial design. On-site treatment would reduce the toxicity of the treated material, however, the addition of a stabilization agent would result in an increase in volume.

Creek Channel Alternatives

Alternative CC1 would not achieve any reduction in toxicity, mobility, or volume because contaminated sediment would remain in place. Alternative CC2 would reduce the mobility, volume, and potential for exposure to contaminants through the removal and disposal of the sediments at an approved off-site facility. Alternative CC3 employs a combination of excavation and capping. As a result, mobility and exposure to sediments in the Creek Channel at Mill Pond would be reduced through isolation of contaminants beneath the cap and through the removal and disposal of the remaining sediments in the Creek Channel at an approved off-Site facility. Although CC2 would reduce mobility and volume, it would not reduce the toxicity of contaminants in the sediments.

10.5 Short-Term Effectiveness

Short-term Effectiveness considers the length of time needed to implement an alternative and the risks the alternative poses to workers, residents and the environment during implementation.

Soil Alternatives

Alternative S1 would not create new adverse short-term impacts. Minimal impacts would be expected for Alternative S2 resulting from the installation of fencing. Alternative S3 would present less of an impact than S4 and S5 to the surrounding community since contaminated soils would not be significantly disturbed during the cap construction. However, Alternative S3 would cause some increase in truck traffic and noise in the surrounding community due to the installation of the cap.

Alternatives S4 and S5 would cause an increase in truck traffic, noise, and potentially dust in the surrounding community due to excavation of contaminated soil. These impacts would be greater for Alternative S4 due to the increased volume of soil/fill that would be excavated and transported off-site. Alternatives S4 and S5 could also cause additional potential for worker exposure to contaminated soil during excavation and other construction activities. Each of the active alternatives S2, S3, S4, and S5, would create similar additional short-term risks from construction of the bank stabilization system and access roads.

However, proven procedures including engineering controls, personal protective equipment, and safe work practices would be used to address potential impacts to workers and the community. For example, the work would be scheduled to coincide with normal working hours on week days, and no work would occur on weekends or holidays. In addition, trucking routes with the least disruption to the surrounding community will be utilized. Appropriate transportation safety measures would be required during the shipping of the contaminated material to the off-site disposal facility.

The risk of release during implementation of Alternatives S2 through S5 is principally limited to wind-blown soil transport or surface water runoff. Any potential environmental impacts associated with dust and runoff would be minimized with proper installation and implementation of dust and erosion control measures and by applying appropriate health and safety measures during excavation and off-site disposal to limit the amount of material that may migrate to a potential receptor.

No time is required for construction of Alternative S1. Time required for implementation of Alternative S2 is estimated to take 2 months. Alternative S3, Alternative S4, and Alternative S5 are estimated to take 9 months, 14 months, and 9 months, respectively.

Creek Channel Alternatives

Alternative CC1 would not create new adverse short-term impacts. Under Alternatives CC2 and CC3, several short-term impacts to community and workers would be expected. These include dust, noise, and potential exposure during handling and transportation of contaminants. To minimize short-term impacts, site access would be restricted during construction and remediation activities. Proven procedures including engineering controls, personal protective equipment, and safe work practices would be in place to protect the workers and surrounding community. In addition, trucking routes with the least disruption to the surrounding community would be utilized.

Appropriate transportation safety measures would be required during the shipping of the contaminated material to the off-site disposal facility.

The risk of release of contaminants into the water column during implementation of Alternatives CC2 and CC3 would be minimized by damming and diverting the Creek to allow excavation and capping of sediment under near dry conditions.

No time is required for construction of Alternative CC1. Time required for implementation of Alternative CC2 is estimated to take two years. Alternative CC3 is also estimated to take two years.

10.6 Implementability

Implementability addresses the technical and administrative feasibility of a remedy from design through construction and operation. Factors such as availability of services and materials, administrative feasibility, and coordination with other governmental entities are also considered.

Soil Alternatives

Alternative S1 would be the easiest alternative to implement, as there are no construction activities to implement. Alternatives S2, S3, S4, and S5 would use technologies that have been implemented at other sites and are known to be reliable to address contaminated soil and that can be readily implemented. Alternative S2 would be easier to implement than Alternative S3 because it only involves the installation of fencing along the upland soils rather than the placement of a cap. Alternatives S4 and S5 would be the most difficult to implement because they require the use of heavy equipment to remove large volumes of contaminated soil/fill along steep slopes in some areas. Where necessary, shoring would be used to manage steep slopes. At the Flintkote property, the steep slope along Mill Street and excavation around the turbine adjacent to the Creek potentially pose the need for additional engineering measures to effectively perform excavation activities. Alternative S5 involves a combination of capping and removal, and it would be slightly easier to implement than Alternative S4 because less material would be removed using heavy equipment.

The personnel required to operate the heavy equipment would require appropriate Occupational Safety and Health Administration (OSHA) certifications (e.g., hazardous waste worker), in addition to being certified in the operation of heavy equipment. Such individuals are readily available. Off-site hazardous and nonhazardous treatment/disposal facilities for the disposal of the contaminated soils are available, so disposal would be feasible.

Creek Channel Alternatives

Alternative CC1 would be the easiest alternative to implement, as there are no construction activities to implement. Under Alternatives CC2 and CC3, the design and construction methods of both capping and dredging are relatively standard. However, implementation of the dredging component is complicated by limited site access and steep slopes. Under Alternative CC3, the area amenable to capping in the Creek Corridor is limited due to the shallow water depth in significant

portions of the Creek Corridor. With a deeper water depth, the placement of a cap in the area upstream of the Clinton Street Dam is technically feasible. Since the area targeted for capping is limited, this alternative would not involve large quantities of capping material and the necessary materials are expected to be available. Conditions in the area upstream of Clinton Street Dam targeted for capping are not expected to impact the ability to properly place the cap material nor significantly impact the depth of open water.

Although the management of Creek flows poses implementation challenges, methods could be readily implemented using standard construction equipment and materials. For cost-estimating and planning purposes, EPA's Supplemental FS assumed in-channel Creek flow diversion using fabric dam bags during sediment removal. During the remedial design, alternative measures could be evaluated. Off-site disposal facilities for the disposal of the excavated sediments are available, so disposal would be feasible.

10.7 Cost

Cost includes estimated capital and annual operation and maintenance costs, as well as present worth cost. Present worth cost is the total cost of an alternative over time in terms of today's dollar value. Cost estimates are expected to be accurate within a range of +50 to -30 percent. (This is a standard assumption in accordance with EPA guidance.)

The estimated capital cost, operation and maintenance (O&M), and present worth cost are discussed in detail in EPA's Supplemental FS. The cost estimates are based on the best available information. Alternative S1 and CC1 have no cost because no activities are implemented. The present worth cost, using a discount rate of 7%, for Alternatives S1 through S5 and Alternatives CC1 through CC3 at each property are as follows:

Alternative	Soil			
	Flintkote property	**White Transportation**	**United Paperboard**	**Upson Park**
S1 - No Action	$0	$0	$0	$0
S2 - Limited Action	$189,000	$159,000	$231,000	$212,000
S3 - Capping	$1,466,000	$998,000	$1,182,000	$1,564,000
S4 - Excavation	$11,331,000	**$341,000**	**$2,467,000**	**$3,259,000**
S5 - Combined Excavation and Capping	**$6,518,000**	$473,000	$2,487,000	$3,154,000

Alternative	Sediment
	Creek Channel
CC1 - No Action	$0
CC2 - Sediment Excavation	**$10,666,000**
CC3 - Combined Sediment Excavation and Capping	$8,108,000

Note: The selected remedy is shown in bold.

Modifying Criteria *- The final two remedy selection criteria, 8 and 9, are called "modifying criteria" because new information or comments from the state or the community on the Proposed Plan may modify the preferred response measure or cause another response measure to be considered.*

10.8 State/Support Agency Acceptance

State/Support Agency acceptance considers whether the State and/or Support Agency agrees with the EPA's analyses and recommendations.

10.8.1 State Acceptance

NYSDEC concurs with the selected remedy. A letter of concurrence is attached in Appendix IV.

10.8.2 Tribal Acceptance

Following interest expressed by the Tuscarora Nation, EPA consulted with the Tuscarora Nation regarding the Proposed Plan for this remedy. The Tuscarora Nation provided no comments for the Proposed Plan. EPA will maintain its government-to-government consultation with the Tuscarora Nation for all future response actions planned for the Site.

10.9 Community Acceptance

Community Acceptance considers whether the local community agrees with the EPA's analyses and preferred alternative. Comments received on the Proposed Plan are an important indicator of community acceptance.

EPA solicited input from the community on the remedial alternatives proposed for OU2 at the Site. Verbal comments received from community members at the September 7, 2016, public meeting were generally supportive of the preferred soil and creek Channel alternatives. Comments were generally related to the nature and extent of contamination at the Site. During the comment period from August 31, 2016 to September 30, 2016, two comment letters were received via email and U.S. mail. Copies of the comment letters are provided as Attachment D to Appendix IV. A summary of significant comments contained in the letters and the comments provided at the public meeting on September 7, 2016, as well as EPA's responses to those comments, are provided in the Responsiveness Summary (Appendix V).

11. PRINCIPAL THREAT WASTES

The NCP establishes an expectation that the EPA will use treatment to address the principal threats posed by a site wherever practicable (40 CFR §300.430(a)(1)(iii)(A)). The "principal threat" concept is applied to the characterization of "source materials" at a Superfund site. A source material is material that includes or contains hazardous substances, pollutants, or contaminants that act as a reservoir for the migration of contamination to groundwater, surface water, or air, or

act as a source for direct exposure. Principal threat wastes are those source materials considered to be highly toxic or highly mobile which generally cannot be contained in a reliable manner or would present a significant risk to human health or the environment should exposure occur. The decision to treat these wastes is made on a site-specific basis through detailed analysis of alternatives, using the remedy selection criteria described above. The manner in which principal threat wastes are addressed provides a basis for making a statutory finding as to whether the remedy must employ treatment as a principal element.

EPA's findings to date indicate the presence of principal threat wastes at the Flintkote property and Upson Park, associated with elevated concentrations of PCBs. Based upon EPA's guidance, principal threats at industrial sites include soils contaminated at concentrations greater than or equal to 500 ppm PCBs. For residential areas, principal threats will generally include soils contaminated with PCBs at concentrations greater than 100 ppm. At the Flintkote property, currently zoned for industrial use, PCBs were detected at a maximum concentration of 626 ppm. At Upson Park, currently an open recreation space area, PCBs were detected at a maximum concentration of 390 ppm. EPA does not believe that on-site treatment of the principal threat wastes is practicable or cost-effective given the soil volumes at these properties are relatively small. On-site treatment of these contaminated soils was evaluated in the FS, but with the exception of potential stabilization measures for lead, the FS did not recommend in-situ stabilization measures for PCBs due to the heterogeneous nature of the subsurface soil/fill. Ex-situ measures were not presented because it would not be cost effective given the small volume and because there is limited land available for placement of an on-site treatment facility that is not within the floodplain of the Creek. While treatment of some wastes sent off-site may be required prior to land disposal, the requirement for treatment would be governed by the requirements of the receiving facility and would not be a "principal element" of the selected remedy.

12. SELECTED REMEDY

12.1 Description of the Selected Remedy

The selected remedy for OU2 is Alternative S4 (Excavation) for the United Paperboard, the White Transportation, and Upson Park properties; Alternative S5 (Combination Excavation and Capping) for the Flintkote property, and Alternative CC2 (Sediment Excavation). The major components of the selected remedy for the United Paperboard property, White Transportation property, and Upson Park include the following:

- Excavation of contaminated soil/fill exceeding the cleanup levels and off-site disposal of contaminated soil/fill at a RCRA or TSCA regulated landfill, as appropriate, based on the concentrations of contaminants in the excavated soil/fill. If necessary to meet the requirements of the disposal facilities, contaminated material will be treated prior to land disposal;
- On-site treatment (e.g., stabilization) of lead contaminated soil/fill, prior to off-site disposal, if design evaluations reveal treatment will result in cost savings;
- Performance of a Phase 1B field reconnaissance survey during the remedial design, including shovel testing, to further identify and record archeological features and deposits;

- Construction of access roads (gravel and/or paved) to facilitate implementation of remedial activities in and around the Creek. The access roads will remain following remediation, except at Upson Park, and form part of the bank stabilization cover system;
- Paving of pre-existing roadways, parking lots, and access roads;
- Placement of a cover system over contaminated soil/fill between the access roads and the top of the embankment adjacent to the Creek Channel comprised of a demarcation layer and two-foot thick stone and clean soil to ensure the stabilization of banks between the properties and the Creek Channel. This cover system will extend approximately ten feet beyond the top of the embankment and will be constructed flush with the surrounding topography to promote precipitation runoff;
- Restoration of the Creek bank, beyond the bank full width, through the placement of stone, topsoil, biodegradeable erosion fabric and live plantings. During the remedial design, the composition and thickness of the individual capping materials will be evaluated to promote reliability and efficacy of the cover system;
- Backfilling of the excavated areas with clean fill. The top six inches will consist of topsoil that will be planted with native grasses, shrubs, and/or trees;
- Long-term monitoring to visually inspect the cover system, restoration success, and ensure remedy effectiveness;
- Development of a Site Management Plan to ensure proper management of the remedy and use restrictions at the properties post-construction. The Site Management Plan will include measures to prevent the transfer of deeper soil to the surface during post-construction activities, and provisions for any maintenance and long-term monitoring required for the remedy; and
- Implementation of institutional controls to limit future soil use of the properties.

The major components of the selected remedy for the Flintkote property are the same as those identified above for the United Paperboard, White Transportation and Upson Park properties with the following exceptions:

- Excavation will target contaminated soil/fill exceeding cleanup levels established for the Flintkote property; and
- The cover system to be placed over contaminated soil/fill between the access roads and the top of the embankment adjacent to the Creek Channel will be comprised of a demarcation layer and two-foot thick stone and clean soil to ensure the stabilization of banks between the properties and the Creek Channel.

The major components of the selected remedy for the Creek Channel include the following:

- Bank-to-bank removal of all contaminated sediment exceeding the Sediment Action Level, estimated to be 14,500 cubic yards, in the Creek Channel followed by backfilling to pre-dredging grade;
- Removal of the dilapidated and unpermitted Clinton and William Street dams to facilitate the removal of the contaminated sediment;
- Management and/or diversion of flows in the Creek from the Canal during sediment removal;

- Mitigation, if necessary, of potential impacts from the Canal to the Creek during maintenance activities at the Canal;
- Performance of a Phase 1B field reconnaissance survey during the remedial design, including shovel testing, to further identify and record archeological features and deposits;
- Dewatering of the sediment removed from the Creek Channel at a facility constructed at the Site prior to transportation of the sediment off-site for proper disposal at a RCRA or TSCA regulated landfill, as appropriate, based on the concentrations of contaminants in the material. If necessary, in order to meet the requirements of the disposal facilities, contaminated material will be treated prior to land disposal;
- Construction of gravel access roads, up to 20 feet in width, along the Creek Corridor to be utilized in the remediation of the Creek sediment. The access roads will remain in place and be re-graded following sediment remediation and form part of a bank stabilization cover system and allow for appropriate bank restoration;
- Backfilling the excavated areas with clean fill. The Creek bank will be restored through the placement of stone, topsoil, biodegradeable erosion control fabric, and live plantings; the composition and thickness of these individual materials will be evaluated during the design;
- Performance of a floodplain and hydraulic study to determine the types and locations of rock riffle grade control structures that will be constructed in the Creek to control flow, reduce the potential for erosion and scour of the banks, and reduce the potential for downstream flooding;
- Long-term monitoring to demonstrate the effectiveness in meeting the remedial action objectives; and
- Implementation of institutional controls in the form of informational devices, such as fish consumption advisories, to limit exposure to contamination.

The environmental benefits of the preferred remedy may be enhanced by consideration, during the design, of technologies and practices that are sustainable in accordance with EPA Region 2's Clean and Green Energy Policy and NYSDEC's Green Remediation Policy.[2] This will include consideration of green remediation technologies and practices.

12.2 Summary of the Rationale for the Selected Remedy

Based upon the requirements of CERCLA, the results of the OU2 investigations, the detailed analysis of the alternatives, and public comments, EPA has determined the combination of Alternative S4 (Excavation) for the United Paperboard, the White Transportation, and Upson Park properties, Alternative S5 (Combination Excavation and Capping) for the Flintkote property, and Alternative CC2 (Sediment Excavation) best satisfy the requirements of Section 121 of CERCLA, 42 U.S.C. § 9621, and provides the best balance of tradeoffs among the remedial alternatives with respect to the NCP's nine evaluation criteria, 40 CFR §300.430(e)(9).

Alternative S1 (No Action) was not selected because it is not protective of human health and the environment. Alternative S2 (Limited Action) was not selected because it does not reduce the

[2] See http://epa.gov/region2/superfund/green_remediation and http://www.dec.ny.gov/docs/remediation_hudson_pdf/der31.pdf.

toxicity, mobility, or volume of contaminants and, therefore, does not reduce risk should exposure occur. Alternative S3 (capping) would achieve the RAOs and provide a reduction in the mobility of contaminants through the capping and isolating contaminated soil/fill, however it is not considered to be as effective as Alternatives S4 or S5 over the long term. While Alternative S4 would provide a reduction in toxicity, mobility, or volume of contaminants exceeding the cleanup levels through the removal and disposal at an approved off-site facility, Alternative S5 relies on the excavation of soil/fill containing the highest concentrations of contaminants and capping of the remaining contaminants exceeding the cleanup levels.

At the United Paperboard, the White Transportation, and Upson Park properties, Alternative S4 will achieve substantial and long-term risk reduction through excavation and off-site disposal, and it will allow properties to be used for their reasonably anticipated future land use. Alternative S4 will reduce the risk within a reasonable time frame, at comparable cost to the other alternatives, and it provides for long-term reliability of the remedy. Implementation of Alternative S5 at the Flintkote property will also achieve substantial and long-term risk reduction within a reasonable time-frame. There are some significant implementation issues associated with Alternative S4 at the Flintkote property due to the steep slopes along Mill Street, the need to excavate around the turbine adjacent to the Creek, and the significantly larger volume of soil that would require excavation at depth adjacent to the Creek Channel. The proper placement of the cap in combination with excavation of soil/fill containing the highest concentrations of contaminants under Alternative S5 would ensure effective remediation at the Flintkote property by preventing direct contact with or migration of contaminants in deeper soil that would be left in place. Under Alternative S5, no contaminated soil or fill with PCBs above 10 ppm would be left on the Flintkote property. Alternative S5 is not expected to impact the reasonably-anticipated future land use at the Flintkote property.

As for the Creek Channel, Alternative CC1 was not selected because it is not protective of human health and the environment. While Alternative CC2 and Alternative CC3 would each achieve the RAOs and may be similarly protective of human health and the environment over the long term, at this Site the creek sediments contamination is relatively shallow, and the volume of contaminated sediment that would be left in place under Alternative CC3 would be relatively small. Bank-to-bank excavation of sediment in the Creek Channel under Alternative CC2 may be similarly protective over the long term when compared to Alternative CC3, but Alternative CC2 would not require monitoring and maintenance over the long term of what would be a relatively small volume of contaminated sediments.

12.3 Summary of the Estimated Selected Remedy Costs

The estimated capital, O&M, and present worth costs of the selected remedy are discussed in detail in EPA's August 2016 Supplemental FS Report. The cost estimates, which are based on available information, are order-of- magnitude engineering cost estimates that are expected to be within +50 to -30 percent of the actual cost of the project. Changes to the cost estimate can occur as a result of new information and data collected during the design of the remedy.

A cost estimate summary for the selected remedy is presented in Table 9 in Appendix II. The estimated capital, annual O&M, and total present-worth costs are presented below:

Alternative	Capital & Periodic Cost	Annual O&M Cost	Present-Worth Cost
Flintkote property			
S5 - Combined Excavation & Capping	$6,339,000	$179,000	$6,518,000
White Transportation Property			
S4 - Excavation	$317,000	$24,000	$341,000
United Paperboard Property			
S4 - Excavation	$2,443,000	$24,000	$2,467,000
Upson Park			
S4 - Excavation	$3,235,000	$24,000	$3,259,000
Creek Channel			
CC2 - Sediment Excavation	$10,519,000	$147,000	$10,666,000
Total			
Selected Remedy	$19,749,000	$533,000	$23,251,000

12.4 Expected Outcomes of the Selected Remedy

The selected remedy actively addresses contaminated soil at the White Transportation property, United Paperboard property, Flintkote property, and Upson Park and contaminated sediment within the Creek Channel. The results of the human health and ecological risk assessments indicate that the soil contamination poses unacceptable human health and ecological risks. In addition, the consumption of fish from the Creek Channel presents an unacceptable human health risk.

The selected remedy will achieve the RAOs and cleanup levels for the White Transportation property, United Paperboard property, Flintkote property, and Upson Park in a short period, thereby addressing risks posed by contaminated fill/soil at these properties and facilitating commercial/industrial use of the White Transportation, United Paperboard, and Flintkote properties and the continued recreational use of Upson Park. Although the sediment action level for PCB-contaminated sediments in the Creek Channel sediment will trigger the bank-to-bank excavation of all sediment in the Creek Channel, the selected remedy is not expected to address the fish consumption RAO fully because further studies are required to understand the nature and extent of contamination in the Creek fully. Final remedial goals for contaminated sediment will be developed as part of a comprehensive evaluation that will be conducted as part of the OU3 remedial investigation.

Soil cleanup levels for the Contaminants of Concern at the Site are presented in Table 8.

13. STATUTORY DETERMINATIONS

EPA has determined that the selected remedy complies with the CERCLA and NCP provisions for remedy selection, meets the threshold criteria, and provides the best balance of tradeoffs among the alternatives with respect to the balancing and modifying criteria. These provisions require the selection of remedies that are protective of human health and the environment, comply with ARARs (or justify a waiver from such requirements), are cost effective, and utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. In addition, CERCLA includes a preference for remedies that employ treatment that permanently and significantly reduce the volume, toxicity, or mobility of hazardous substances as a principal element (or justify not satisfying the preference). The following sections discuss how the OU2 remedy meets those statutory requirements.

13.1 Protection of Human Health and the Environment

The selected remedy at the United Paperboard, White Transportation, and Upson Park properties will protect human health and the environment because it reduces or eliminates human and ecological receptors' exposure to contamination in soil/fill through the excavation of contaminated material. At the Flintkote property, the selected remedy will protect human health and the environment by reducing or eliminating human and ecological receptors' exposure to contamination through a combination of excavation and capping. Although the upland soil at the properties provides limited ecological function, the protectiveness of ecological receptors along the banks of the Creek Corridor is being addressed through engineering controls. Along the banks, the two-foot bank stabilization cover system will significantly reduce exposure of ecological receptors to site-related contaminants and will reduce the risk of erosion and exposure to contaminated soil.

The selected interim remedy for the Creek Corridor will protect human health in the short-term by reducing the future health risks and hazards associated with the consumption of fish through reducing the concentration of contaminants in fish in the Creek Channel until a comprehensive evaluation is completed for the entire Creek as part of OU3.

Institutional controls will also assist in the protecting human health over both the short- and long-term at this OU by helping to control and limit exposure to hazardous substances.

13.2 Compliance with ARARs

The selected remedy complies with chemical-specific, location-specific and action-specific ARARs. A complete list of the ARARs, TBCs and other guidance that concern the selected remedy is presented in Table 10, Table 11, and Table 12, which can be found in Appendix II.

13.3 Cost Effectiveness

A cost-effective remedy is one whose costs are proportional to its overall effectiveness (NCP Section 300.430(f)(1)(ii)(D)).)). Overall effectiveness is based on the evaluations of long-term effectiveness and permanence, reduction in toxicity, mobility, and volume through treatment, and

short-term effectiveness.

Each of the alternatives underwent a detailed cost analysis. In that analysis, capital and annual O&M costs were estimated and used to develop present-worth costs. In the present-worth cost analysis, annual O&M costs were calculated for the estimated life of each alternative. The total estimated present worth cost for implementing the selected remedy is $23,251,000.

Based on the comparison of overall effectiveness to cost, the selected remedy meets the statutory requirement that Superfund remedies be cost effective (NCP Section 300.430(f)(1)(ii)(D)) in that it represents reasonable value for the money to be spent. Overall effectiveness was evaluated by assessing three of the five balancing criteria in combination (long-term effectiveness and permanence; reduction in toxicity, mobility and volume through treatment; and short-term effectiveness). Overall effectiveness was then compared to costs to determine cost-effectiveness. The overall effectiveness of the selected remedy has been determined to be proportional to the costs, and the selected remedy therefore represents reasonable value for the money to be spent.

13.4 Utilization of Permanent Solutions and Alternative Treatment (or Resource Recovery) Technologies to Maximum Extent Practicable

The selected remedy complies with the statutory mandate to utilize permanent solutions, alternative treatment technologies, and resource recovery alternatives to the maximum extent practicable. Of those alternatives that are protective of human health and the environment and comply with ARARs (or provide a basis for invoking an ARAR waiver), EPA has determined that the selected remedy provide the best balance of tradeoffs among the alternatives with respect to the balancing criteria set forth in Section 300.430(f)(1)(i)(B) of the NCP because they each represent the maximum extent to which permanent solutions and treatment technologies can be utilized in a practicable manner in the Creek Corridor. The selected remedy satisfies the criteria for long-term effectiveness and permanence by removing contaminant soil/fill exceeding the remediation goals at the United Paperboard, White Transportation, and Upson Park properties. This remedy will permanently reduce the mass of contaminants in soil/fill at the Site, thereby reducing the toxicity, mobility, and volume of contamination.

The combination of excavation and capping at the Flintkote property satisfies the criteria for long-term effectiveness and permanence by removing soil/fill at elevated concentrations and isolated contaminated soil/fill at lower concentrations, followed by long-term monitoring. The removal of high concentrations of PCBs at the Upson Park and Flintkote properties will address source materials constituting principal threat wastes at the site.

The excavation of sediment within the Creek Channel satisfies the criteria for long-term effectiveness and permanence by permanently removing sediment in the Creek above the sediment RAL, which will result in the full bank-to-bank excavation of the Creek Corridor.

The selected remedy is implementable because it employs standard technologies that are readily available.

13.5 Preference for Treatment as a Principal Element

The selected remedy may satisfy the preference for treatment, because, if necessary and in order to meet the requirements of the disposal facilities, contaminated material would be treated prior to land disposal. In addition, during the remedial design, further evaluations would be conducted to determine whether lead-contaminated soil/fill could be treated and stabilized on-site, prior to off-site disposal.

13.6 Five-Year Review Requirements

This remedy will result in hazardous substances, pollutants, or contaminants remaining at the United Paperboard, White Transportation, Upson Park, and Flintkote properties above levels that would otherwise allow for unlimited use and unrestricted exposure. Pursuant to Section 121(c) of CERCLA, statutory reviews will be conducted no less often than once every five years after the initiation of construction to ensure that the remedy remains protective of human health and environment.

14. DOCUMENTATION OF SIGNIFICANT CHANGES

The Proposed Plan for OU2 of the Site was released on August 31, 2016. The Proposed Plan identified Alternative S5 as the preferred alternative for remediating the Flintkote property; Alternative S4 as the preferred alternative for remediating the United Paperboard, the White Transportation, and Upson Park properties, and Alternative CC2 as the preferred alternative for remediating the Creek Channel at OU2 of the Site.

EPA considered all comments at the public meeting on September 6, 2016 and reviewed all written (including electronic formats such as e-mail) comments during the public comment period and has determined that no significant changes to the remedy, as originally identified in the Proposed Plan, are necessary or appropriate.

APPENDIX I

FIGURES

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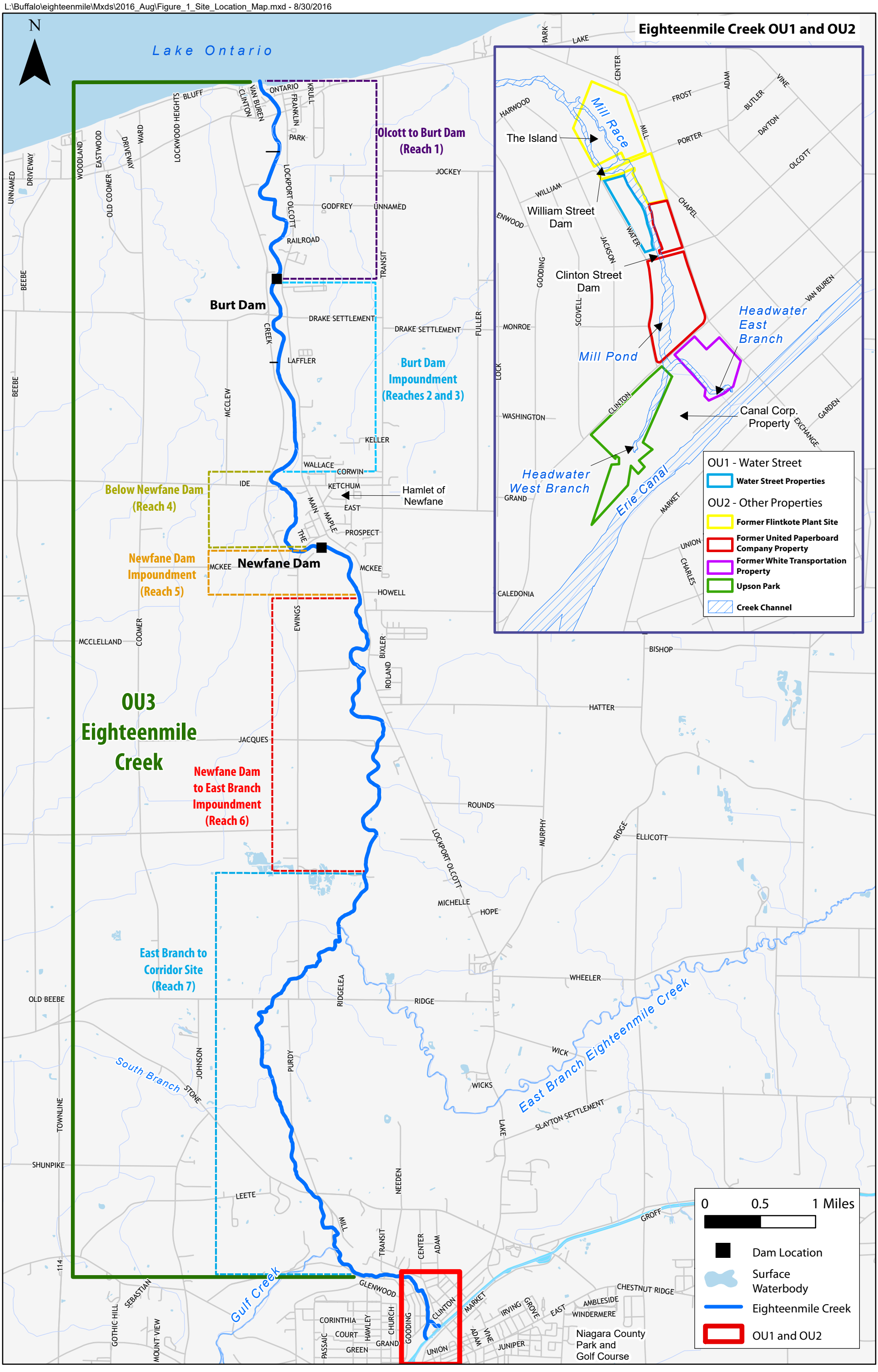

Figure 1 Site Location Map, Eighteenmile Creek Superfund Site
Lockport, NY

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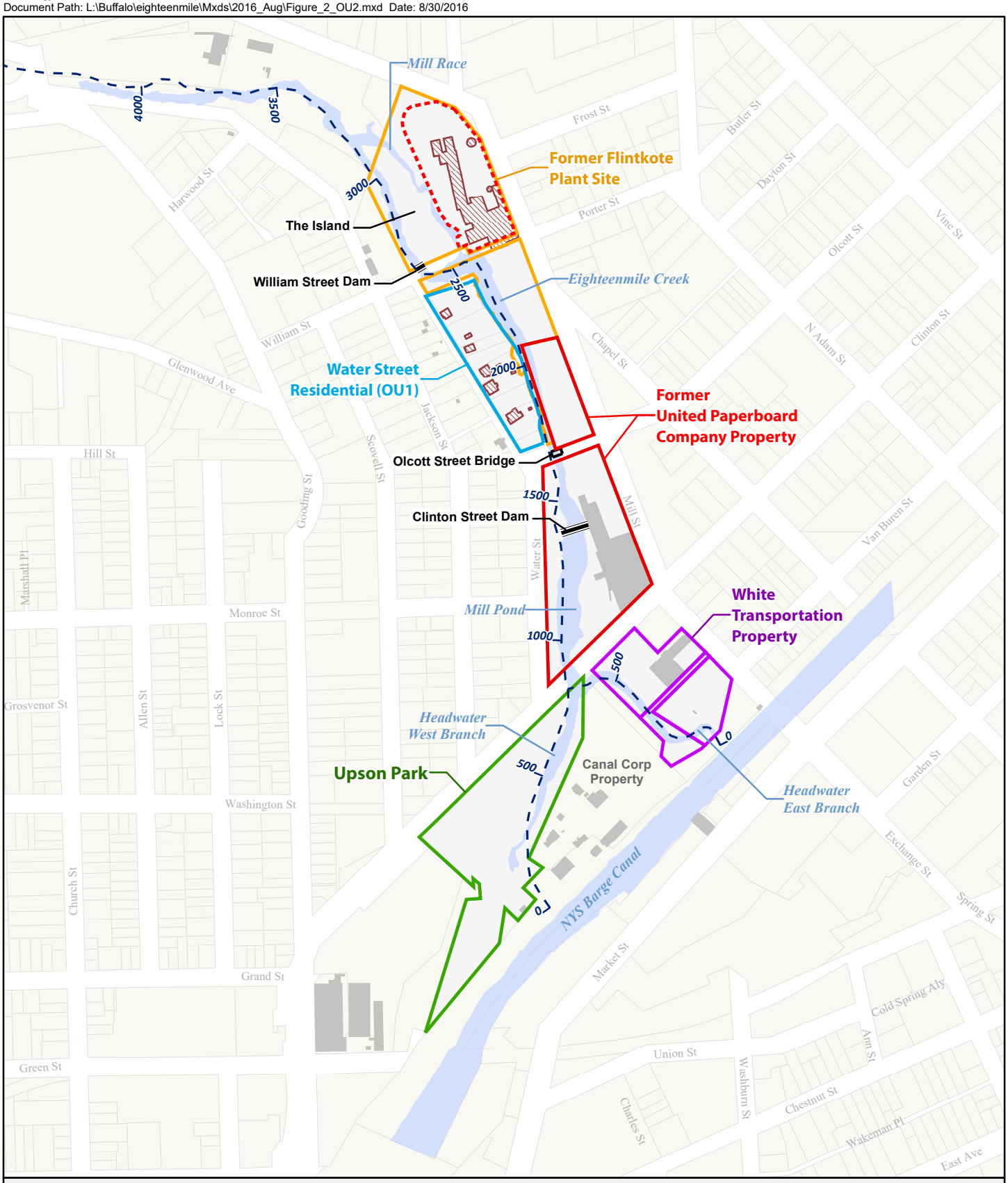


Eighteenmile Creek / Headwater East Branch Centerline (500-ft marker)

Building

Former Building Footprint

Demolition Area

Tax Parcels

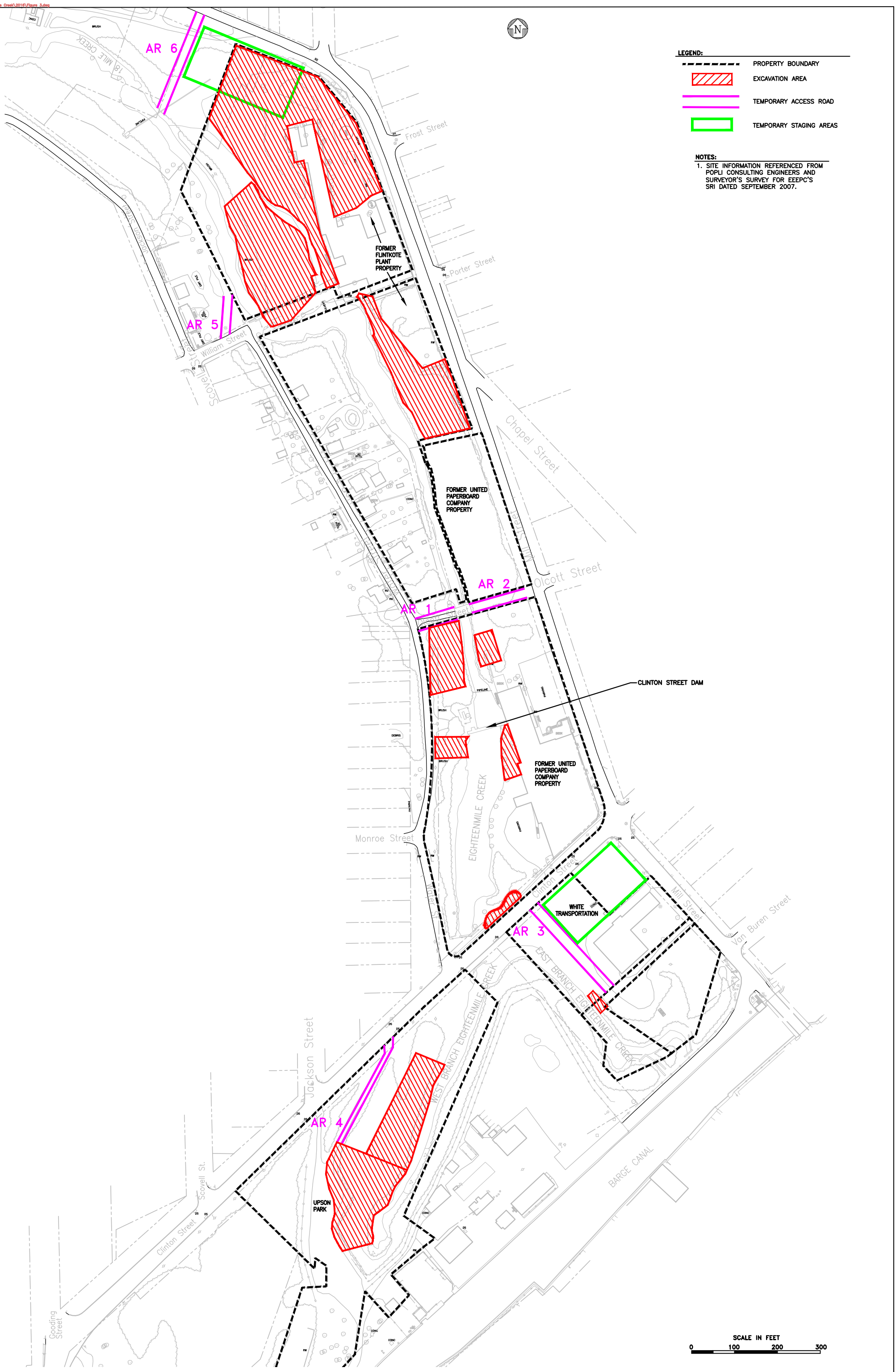
Figure 2 OU2 Eighteenmile Creek Lockport, New York

0 200 400 800 Feet

N

Data Source: Esri 2012, Niagara County 2014.

P:\18 Mile Creek\2016\Figure 3.dwg



ecology and environment

Figure 3 Alternative S4: Excavation, OU2 Eighteenmile Creek Corridor Site Lockport, New York

F:\18 Mile Creek\2016\Figure 4.dwg

LEGEND:

- PROPERTY BOUNDARY
- EXCAVATION AND CAPPING AREA
- CAPPING AREA
- TEMPORARY ACCESS ROAD
- TEMPORARY STAGING AREAS

NOTES:

1. SITE INFORMATION REFERENCED FROM POPLI CONSULTING ENGINEERS AND SURVEYOR'S SURVEY FOR EEEPC'S SRI DATED SEPTEMBER 2007.

AR 1
AR 2
AR 3
AR 4
AR 5
AR 6

FORMER FLINTKOTE PLANT PROPERTY
FORMER UNITED PAPERBOARD COMPANY PROPERTY
FORMER UNITED PAPERBOARD COMPANY PROPERTY
CLINTON STREET DAM
WHITE TRANSPORTATION
UPSON PARK

Mill Street
Center St.
Frost Street
Porter Street
William Street
Chapel Street
Olcott Street
Monroe Street
Clinton Street
Jackson Street
Scovell St.
Mill Street
Van Buren Street
Flooding Street
18 MILE CREEK
EIGHTEENMILE CREEK
WEST BRANCH EIGHTEENMILE CREEK
EAST BRANCH EIGHTEENMILE CREEK
BARGE CANAL

SCALE IN FEET
0 100 200 300

ecology and environment

Figure 4 Alternative S5: Combined Excavation and Capping, OU2 Eighteenmile Creek Corridor Site, Lockport, New York

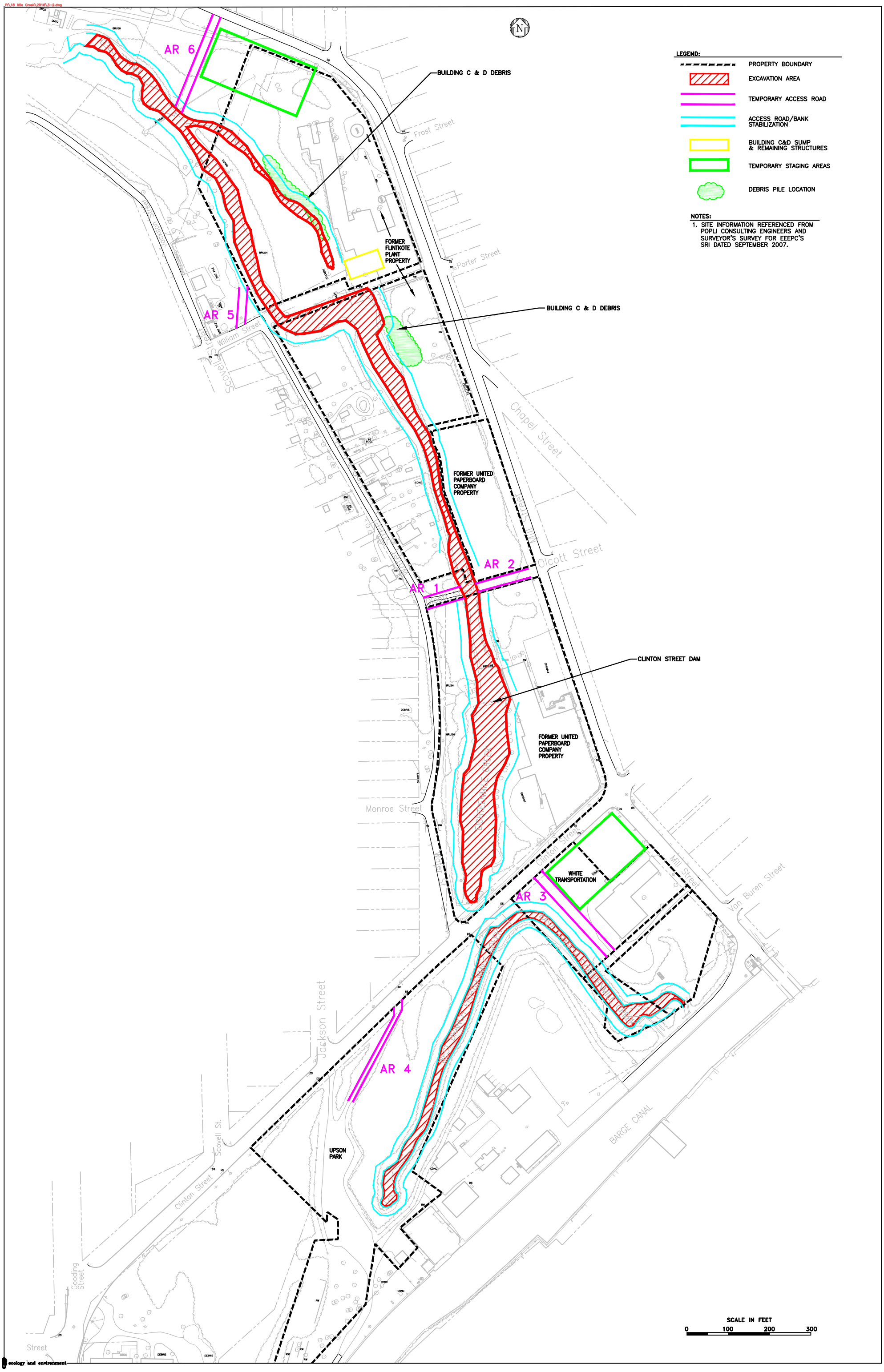


Figure 5 **Alternative CC3, OU2 Eighteenmile Creek Corridor Site, Lockport, New York**

APPENDIX II

TABLES

TABLE 1 - Page 1 of 4
SUMMARY OF CHEMICALS OF CONCERN AND MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATIONS

Scenario Timeframe:	Current / Future									
Medium:	Fish									
Exposure Medium:	Fish									
		Detected Concentrations				Exposure Point Concentration for RME and CTE Individual				
Exposure Point (1)	Chemicals of Concern	Minimum	Maximum Concentration (Qualifier)	Units (1)	Frequency of Detection	Value	Units (1)	Statistic (2)	Rationale (3)	
18 Mile Creek - Fish	PCB - 1254	0.0044 J	0.46 J	mg/kg wet weight	10/10	0.242	mg/kg wet weight	95% Adjusted Gamma UCL	95% UCL	
	PCB - 1260	0.0023	0.15	mg/kg wet weight	10/10	0.0697	mg/kg wet weight	95% Student-t UCL	95% UCL	
	Mercury	0.064 J	0.50	mg/kg wet weight	10/10	0.37	mg/kg wet weight	95% Student-t UCL	95% UCL	
(1) Fish were collected from the OU2 Creek Corridor in May 2015 (see Figure 2-2), and tissue samples were analyzed for PCB Aroclors, TCL pesticides, dioxins/furans, TAL metals and TCL SVOCs. Fish tissue data is in weight weithe units. Samples weights are in mg/kg wet weight.										
(2) Statistical method recommended by ProUCL for calculation of 95% UCL statistic.										
(3) ProUCL, a statistical software package developed by EPA, was used to calculate the UCLs. ProUCL version 5.0 was used to calculate the Exposure Point Concentration. Pro-UCL recommended the H-UCL statistic for the lognormal distribution of these data. The lesser of the 95% UCL or the maximum detected concentration is used as the Exposure Point Concentration value.										

TABLE 1 - Page 2 of 4
SUMMARY OF CHEMICALS OF CONCERN AND MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATIONS

Scenario Timeframe:	Current / Future								
Medium:	Soil								
Exposure Medium:	Surface Soils & Sediment (0 to 2 Feet)								
		Detected Concentrations				Exposure Point Concentration for RME and CTE Individual			
Exposure Point (1)	Chemicals of Concern	Minimum	Maximum (Concentration) (Qualifier)	Units (1)	Frequency of Detection	Value	Units (1)	Statistic (2)	Rationale
Upson Park Surface Soil (0 to 2 Feet)	PCB - 1248	0.0063 J	250	mg/kg	18/60	30.8	mg/kg	97.5% KM (Chebyshev) UCL	95% UCL
	PCB - 1254	0.016 J	140	mg/kg	26/60	21.06	mg/kg	97.5% KM (Chebyshev) UCL	95% UCL
	PCB - 1260	0.012 J	1.6	mg/kg	16/60	0.117	mg/kg	95% KM (BCA) UCL	95% UCL
(1) Units milligram/kilogram									
(2) ProUCL is a statistical software package developed by EPA. ProUCL version 5.0 was used to calculated the Exposure Point Concentration. Pro-UCL recommended the H-UCL statistic for the lognormal distribution of these data.									

Scenario Timeframe:	Current / Future								
Medium:	Soil & Sediment								
Exposure Medium:	Subsurface Soil/Sediment (0 to 10 Feet)								
		Detected Concentrations				Exposure Point Concentration for RME and CTE Individual			
Exposure Point (1)	Chemicals of Concern	Minimum	Maximum (Concentration) (Qualifier)	Units (1)	Frequency of Detection	Value	Units (1)	Statistic (2)	Rationale
Upson Park Subsurface Soil (0 to 10 Feet) and Sediment	PCB - 1248	0.6	250.0	mg/kg	4/96	18.7	mg/kg	97.5% KM (Chebyshev) UCL	ProUCL
	PCB - 1254	0.6	140	mg/kg	47/96	12.9	mg/kg	97.5% KM (Chebyshev) UCL	ProUCL
	PCB - 1260	0.0036 J	18026	mg/kg	51/96	13.49	mg/kg	97.5% KM (Chebyshev) UCL	ProUCL
	PCB - 1268	0.0034	180	mg/kg	18/96	2.38	mg/kg	97.5% KM (Chebyshev) UCL	ProUCL
(1) Units for soil are milligram/kilogram (mg/kg).									
(2) Statistical method recommended by ProUCL for calculation of 95% UCL statistic.									
(3) ProUCL, a statistical software package developed by EPA, was used to calculate the UCLs. ProUCL version 5.0 was used to calculate the Exposure Point Concentration. Pro-UCL recommended the H-UCL statistic for the lognormal distribution of these data. The lesser of the 95% UCL or the maximum detected concentration is used as the Exposure Point Concentration value.									

TABLE 1 - Page 3 of 4
SUMMARY OF CHEMICALS OF CONCERN AND MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATIONS

Scenario Timeframe:	Current / Future								
Medium:	Soil								
Exposure Medium:	Surface Soils & Sediment (0 to 2 Feet)								
		Detected Concentrations				Exposure Point Concentration for RME and CTE Individual			
Exposure Point (1)	Chemicals of Concern	Minimum	Maximum (Concentration) (Qualifier)	Units (1)	Frequency of Detection	Value	Units (1)	Statistic (2)	Rationale (3)
Flintkote Surface Soil (0 to 2 Feet)	Aroclor 1242	0.51	46.0	mg/kg	5/67	2.87	mg/kg	95% Adjusted Gamma UCL	ProUCL
	Aroclor 1248	0.013	280.0	mg/kg	32/67	33.23	mg/kg	97.5% KM (Chebyshev) UCL	ProUCL
	Aroclor 1254	0.031	110	mg/kg	32/67	9.839	mg/kg	95% Approximate Gamma KM-UCL	ProUCL
	Aroclor 1260	0.029	1.5	mg/kg	6/67	0.14	mg/kg	95% Approximate Gamma KM-UCL	ProUCL
	Benzo(a)anthracene	0.22	110.0	mg/kg	18/18	77.05	mg/kg	99% Chebyshev (Mean, Sd) UCL	ProUCL
	Benzo(a)pyrene	0.12	20.0	mg/kg	17/18	5.92	mg/kg	95% GROS Adjusted Gamma UCL	ProUCL
	Benzo(b)fluoroanthene	0.32	160.0	mg/kg	18/18	107.40	mg/kg	99% Chebyshev (Mean, Sd) UCL	ProUCL
	Dibenzo(ah)anthracene	0.05	16.0	mg/kg	14/18	4.2	mg/kg	95% GROS Adjusted Gamma UCL	ProUCL
(1) Units for soil are milligram/kilogram (mg/kg).									
(2) Statistical method recommended by ProUCL for calculation of 95% UCL statistic.									
(3) ProUCL, a statistical software package developed by EPA, was used to calculate the UCLs. ProUCL version 5.0 was used to calculate the Exposure Point Concentration. Pro-UCL recommended the H-UCL statistic for the lognormal distribution of these data. The lesser of the 95% UCL or the maximum detected concentration is used as the Exposure Point Concentration value.									

Scenario Timeframe:	Current / Future								
Medium:	Soil & Sediment								
Exposure Medium:	Subsurface Soil/Sediment (0 to 10 Feet)								
		Detected Concentrations				Exposure Point Concentration for RME and CTE Individual			
Exposure Point (1)	Chemicals of Concern	Minimum	Maximum (Concentration) (Qualifier)	Units (1)	Frequency of Detection	Value	Units (1)	Statistic (2)	Rationale
Flintkote Subsurface Soil (0 to 10 Feet) and Sediment	PCB - 1248	0.21 J	280	mg/kg	10/115	21.55	mg/kg	97.5% KM (Chebyshev) UCL	ProUCL
	PCB - 1254	0.003	110.0	mg/kg	50/115	9.8	mg/kg	97.5% KM (Chebyshev) UCL	ProUCL
	PCB - 1260	0.0013	2.6	mg/kg	19/115	0.16	mg/kg	95% Approximate Gamma KM-UCL	ProUCL
	PCB - 1262	0.02	0.5	mg/kg	4/62	0.035	mg/kg	95% KM (t) UCL	ProUCL
	Antimony	0.095 J	3000	mg/kg	48/69	328.9	mg/kg	97.5% KM (Chebyshev) UCL	ProUCL
(1) Units for soil are milligram/kilogram (mg/kg).									
(2) Statistical method recommended by ProUCL for calculation of 95% UCL statistic.									
(3) ProUCL, a statistical software package developed by EPA, was used to calculate the UCLs. ProUCL version 5.0 was used to calculate the Exposure Point Concentration. Pro-UCL recommended the H-UCL statistic for the lognormal distribution of these data. The lesser of the 95% UCL or the maximum detected concentration is used as the Exposure Point Concentration value.									

TABLE 1 - Page 4 of 4
SUMMARY OF CHEMICALS OF CONCERN AND MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATIONS

Scenario Timeframe:	Current / Future								
Medium:	Soil								
Exposure Medium:	Surface Soils & Sediment (0 to 2 Feet)								
		Detected Concentrations				Exposure Point Concentration for RME and CTE Individual			
Exposure Point (1)	Chemicals of Concern	Minimum	Maximum (Concentration) (Qualifier)	Units (1)	Frequency of Detection	Value	Units (1)	Statistic (2)	Rationale (3)
United Paperboard Surface Soil (0 to 2 Feet)	Aroclor 1242	0.6	33.0	mg/kg	4/62	1.66	mg/kg	95% KM (t) UCL	ProUCL
	Aroclor 1248	0.087 J	71.0	mg/kg	34/62	13.09	mg/kg	97.5% KM (Chebyshev) UCL	ProUCL
	Aroclor 1254	0.014 J	130	mg/kg	39/62	16.28	mg/kg	97.5% KM (Chebyshev) UCL	ProUCL
	Aroclor 1260	0.015 J	3.7 J	mg/kg	16/62	0.26	mg/kg	95% KM (BCA) UCL	ProUCL
(1) Units for soil are milligram/kilogram (mg/kg).									
(2) Statistical method recommended by ProUCL for calculation of 95% UCL statistic.									
(3) ProUCL, a statistical software package developed by EPA, was used to calculate the UCLs. ProUCL version 5.0 was used to calculate the Exposure Point Concentration. Pro-UCL recommended the H-UCL statistic for the lognormal distribution of these data. The lesser of the 95% UCL or the maximum detected concentration is used as the Exposure Point Concentration value.									

Scenario Timeframe:	Current / Future								
Medium:	Soil & Sediment								
Exposure Medium:	Subsurface Soil/Sediment (0 to 10 Feet)								
		Detected Concentrations				Exposure Point Concentration for RME and CTE Individual			
Exposure Point (1)	Chemicals of Concern	Minimum	Maximum (Concentration) (Qualifier)	Units (1)	Frequency of Detection	Value	Units (1)	Statistic (2)	Rationale (3)
United Paperboard Subsurface Soil (0 to 10 feet) and Sediment	PCB - 1242	0.6	33	mg/kg	4/96	1.078	mg/kg	95% KM (t) UCL	ProUCL
	PCB - 1248	0.0036	550.0	mg/kg	47/96	45.0	mg/kg	97.5% KM (Chebyshev) UCL	ProUCL
	PCB - 1254	0.003	130.0	mg/kg	51/96	10.88	mg/kg	97.5% KM (Chebyshev) UCL	ProUCL
	PCB - 1260	0.015	76.0	mg/kg	18/96	4.406	mg/kg	95% KM (Chebyshev) UCL	ProUCL
	Benzo-a-pyrene	0.013	20.0	mg/kg	22/26	4.807	mg/kg	95% GROS Adjusted Gamma UCL	ProUCL
	Antimony	0.69	980	mg/kg	36/52	146.7	mg/kg	97.5% KM (Chebyshev) UCL 95	ProUCL
	Copper	6.5	54,900	mg/kg	88/88	3,543	mg/kg	95% Chebyshev (Mean, Sd) UCL	ProUCL
(1) Units for soil are milligram/kilogram (mg/kg).									
(2) Statistical method recommended by ProUCL for calculation of 95% UCL statistic.									
(3) ProUCL, a statistical software package developed by EPA, was used to calculate the UCLs. ProUCL version 5.0 was used to calculate the Exposure Point Concentration. Pro-UCL recommended the H-UCL statistic for the lognormal distribution of these data. The lesser of the 95% UCL or the maximum detected concentration is used as the Exposure Point Concentration value.									

TABLE 2 - Page 1 of 4
SELECTION OF EXPOSURE PATHWAYS

Scenario Timeframe	Media	Exposure Medium	Exposure Point	Receptor Population	Age	Exposure Route	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Current / Future	Surface Soil and Sediment (0 to 2 feet)	Surface Soil and Sediment (0 to 2 feet)	Creek Banks	Recreator	Young Child	Ingestion	Quantitative	Site visitors may contact surface soils (0 to 2 feet) during recreational exposures. Exposures including direct contact (ingestion and dermal) and inhalation of volatilized contaminants. This is a completed exposrue pathway for adults, adolescents, and young child.
					Adolescent	Dermal		
					Adult	Inhalation		
Current / Future	Surface Soil and Sediment (0 to 2 feet)	Surface Soil and Sediment (0 to 2 feet)	Creek Banks	Angler	Young Child	Ingestion	Quantitative	Site visitors and anglers may contact surface soils (0 to 2 feet) during recreational exposures. Exposures including direct contact (ingestion and dermal) and inhalation of volatilized contaminants. This is a completed exposrue pathway for adults, adolescents, and young child.
					Adolescent	Dermal		
					Adult	Inhalation		
Current / Future	Fish	Fish	Creek Channel	Angler	Adult	Ingestion	Quantitative	Anglers have been observed fishing within the Creek Channel. The potential exists that anglers will fish and consume fish caught in the Creek Channel. It is also assumed that anglers will share fish with younger individuals and this fish will be consumed.
				Angler	Adolescent	Ingestion	Quantitative	
				Angler	Child (6 years and younger)	Ingestion	Quantitative	
Current / Future	Surface Water	Surface Water	Creek Channel	Recreator and Angler	Adult	Ingestion	Qualitative	The stream is shallow and fast-flowing in most places. In addition, the stream banks are steep making direct access difficult but possible. Stream is not suitable for swimming or wading. This pathway will be evaluated qualitatively in the baseline HHRA.
				Recreator and Angler	Adolescent	Ingestion	Qualitative	
				Recreator and Angler	Child (6 years and younger)	Ingestion	Qualitative	
Current / Future	Surface Soil and Sediment (0 to 2 feet)	Surface Soil and Sediment (0 to 2 feet)	Upson Park	Recreator	Child (6 years and younger)	Ingestion/Dermal and Inhalation of Particulates	Quantitative	The Upson Park provides opportunities for recreational use. Individuals may be exposed to surface soils (0 to 2 feet) and sediments through direct contact (dermal, ingestion) and inhalation of volatile compounds from the soil. This is a completed exposure pathway under current and future conditions.
				Recreator	Adolescent	Ingestion/Dermal and Inhalation of Particulates	Quantitative	
				Recreator	Adult	Ingestion/Dermal and Inhalation of Particulates	Quantitative	
Current / Future	Surface Soil and Sediment (0 to 2 feet)	Surface Soil and Sediment (0 to 2 feet)	Upson Park	Outdoor Worker	Adult	Ingestion/Dermal and Inhalation of Particulates	Quantitative	Outdoor workers may be exposed to surface soils during routine park maintenance. Exposure to surface soils (0 to 2 feet) and sediment may occur during maintenance activities. Pathways include direct contact with soil (ingestion and dermal contact) and inhalation of volatile compounds from surface soils. This completed exposure pathway will be evaluated under current and future conditions.
Current / Future	Surface Soil, Subsurface Soil, and Sediment (0 to 10 feet)	Surface Soil, Subsurface Soil, and Sediment (0 to 10 feet)	Upson Park	Construction Worker	Adult	Ingestion/Dermal and Inhalation of Particulates	Quantitative	Construction workers may be exposed to contaminants in subsurface soil at depths of 0 to 10 feet. Construction workers may be exposed during direct contact (dermal and ingestion) and inhalation of volatile organic compounds from the soil. This is a complete exposure pathway.

TABLE 2 - Page 2 of 4
SELECTION OF EXPOSURE PATHWAYS

Scenario Timeframe	Media	Exposure Medium	Exposure Point	Receptor Population	Age	Exposure Route	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Current / Future	Surface Soil and Sediment (0 to 2 feet)	Surface Soil and Sediment (0 to 2 feet)	Flintkote Property	Site Visitor / Trespasser	Young Child (6 years and younger)	Ingestion/Dermal and Inhalation of Particulates	Quantitative	The Flintkote property is zoned for industrial land use. Site visitors or trespassers may be exposed to surface soils and sediments (0 to 2 feet) through direct contact (dermal, ingestion) and inhalation of volatile compounds from the soil. This is a completed exposure pathway under current and future conditions.
				Site Visitor / Trespasser	Adolescent	Ingestion/Dermal and Inhalation of Particulates	Quantitative	
Current / Future	Surface Soil and Sediment (0 to 2 feet)	Surface Soil and Sediment (0 to 2 feet)		Site Visitor / Trespasser	Adult	Ingestion/Dermal and Inhalation of Particulates	Quantitative	
Current / Future	Subsurface Soil (0 to 10 feet)	Subsurface Soil (0 to 10 feet)		Construction Worker	Adult	Ingestion/Dermal and Inhalation of Particulates	Quantitative	Construction workers may be exposed to contaminants in soil at depths of 0 to 10 feet on the Flintkote property. Construction workers may be exposed during direct contact (dermal and ingestion) and inhalation of volatile organic compounds from the soil. Exposure pathways may include direct contact (dermal and ingestion) and inhalation of volatile organic compounds from the soil. This is a complete exposure pathway.
Current / Future	Surface Soil (0 to 2 feet)	Surface Soil (0 to 2 feet)	Flintkote Property	Outdoor Worker	Adult	Ingestion/Dermal and Inhalation of Particulates	Quantitative	Outdoor workers may be exposed to surface soils and sediments during routine maintenance on the Flintkote property. Exposure to surface soils (0 to 2 feet) may occur during maintenance activities. Pathways include direct contact with soil (ingestion and dermal contact) and inhalation of volatile compounds from surface soils. This completed exposure pathway will be evaluated under current and future conditions.
Current / Future	Surface Soil, Subsurface Soil, and Sediment (0 to 10 feet)	Surface Soil, Subsurface Soil, and Sediment (0 to 10 feet)	Flintkote Property	Construction Worker	Adult	Ingestion/Dermal and Inhalation of Particulates	Quantitative	Construction workers may be exposed to contaminants in soil at depths of 0 to 10 feet on the Flintkote property. Construction workers may be exposed during direct contact (dermal and ingestion) and inhalation of volatile organic compounds from the soil. Exposure pathways may include direct contact (dermal and ingestion) and inhalation of volatile organic compounds from the soil. This is a complete exposure pathway.

TABLE 2 - Page 3 of 4
SELECTION OF EXPOSURE PATHWAYS

Scenario Timeframe	Media	Exposure Medium	Exposure Point	Receptor Population	Age	Exposure Route	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Current / Future	Surface Soil and Sediment (0 to 2 feet)	Surface Soil and Sediment (0 to 2 feet)	United Paperboard	Site Visitor / Trespasser	Young Child (6 years and younger)	Ingestion/Dermal and Inhalation of Particulates	Quantitative	The United Paperboard property is zoned for commercial land use. Site visitors or trespassers may be exposed to surface soil (0 to 2 feet) and sediment through direct contact (dermal, ingestion) and inhalation of volatile compounds from the soil. This is a completed exposure pathway under current and future conditions.
				Site Visitor / Trespasser	Adolescent	Ingestion/Dermal and Inhalation of Particulates	Quantitative	
				Site Visitor / Trespasser	Adult	Ingestion/Dermal and Inhalation of Particulates	Quantitative	
Current / Future	Dust from Surface Soil and Sediment (0 to 2 feet)	Dust from Surface Soil and Sediment (0 to 2 feet)	United Paperboard	Indoor Worker	Adult	Ingestion/Dermal and Inhalation of Particulates	Quantitative	Indoor workers have no direct contact with outdoor soils. However, exposure to surface soils (0 to 2 feet) may occur through ingestion, dermal contact, inhalation of contaminated soils that have been incorporated into indoor dust, and the inhalation of contaminants present in indoor air. This completed exposure pathway will be evaluated under current and future conditions.
Current / Future	Surface Soil and Sediment (0 to 2 feet)	Surface Soil and Sediment (0 to 2 feet)	United Paperboard	Outdoor Worker	Adult	Ingestion/Dermal and Inhalation of Particulates	Quantitative	Outdoor workers may be exposed to surface soils and sediments during routine maintenance on the United Paperboard property. Exposure to surface soils (0 to 2 feet) may occur during maintenance activities. Pathways include direct contact with soil (ingestion and dermal contact) and inhalation of volatile compounds from surface soils. This completed exposure pathway will be evaluated under current and future conditions.
Future	Surface Soil, Subsurface Soil, and Sediment (0 to 10 feet)	Surface Soil, Subsurface Soil, and Sediment (0 to 10 feet)	United Paperboard	Construction Worker	Adult	Ingestion/Dermal and Inhalation of Particulates		Construction workers may be exposed to contaminants in soil at depths of 0 to 10 feet on the United Paperboard property. Construction workers may be exposed during direct contact (dermal and ingestion) and inhalation of volatile organic compounds from the soil. Exposure pathways may include direct contact (dermal and ingestion) and inhalation of volatile organic compounds from the soil. This is a complete exposure pathway.
Future	Groundwater	Tap Water	United Paperboard and White Transportation	Resident	Child and Adult	Ingestion and Inhalation	Quantitative	The groundwater is classified by NYSDEC as GA, indicating the potential use of the groundwater as a potable water source. Currently, individuals receive their drinking water from a public water supply system. This pathway will be quantitatively evaluated as a future exposure pathway. Routes of exposures including direct contact (ingestion) and inhalation of volatile compounds while showering. This pathway will be evalaued in OU-3
Future	Surface Soil (0 to 2 Feet) Brought to Surface After Construction	Surface Soil (0 to 2 Feet) Brought to Surface After Construction	United Paperboard	Resident	Young Child (6 years and younger)	Ingestion/Dermal and Inhalation of Particulates	Quantitative	The projected future use of United Paperboard has changed to less restrictive Waterfront Mixed Use. Residential exposures may occur in the future through direct contact ingestion and dermal contact and inhalation of volatile compounds from subsurface soils brought to the surface during construction. These pathways are potentially complete and will be evaluated quantitatively.
				Resident	Adult	Ingestion/Dermal and Inhalation of Particulates	Quantitative	

TABLE 2 - Page 4 of 4
SELECTION OF EXPOSURE PATHWAYS

Scenario Timeframe	Media	Exposure Medium	Exposure Point	Receptor Population	Age	Exposure Route	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Current / Future	Surface Soil and Sediment (0 to 2 feet)	Surface Soil and Sediment (0 to 2 feet)	White Transportation	Site Visitor / Trespasser	Young Child (6 years and younger)	Ingestion Dermal Inhalation	Quantitative	White Transportation is a commercial facility zoned for industrial land use. Site visitors or trespassers may be exposed to surface soil and sediment (0 to 2 feet) through direct contact (dermal, ingestion) and inhalation of volatile compounds from the soil. This is a completed exposure pathway under current and future conditions.
				Site Visitor / Trespasser	Adolescent	Ingestion Dermal Inhalation	Quantitative	
				Site Visitor / Trespasser	Adult	Ingestion Dermal Inhalation	Quantitative	
Current / Future	Dust from Surface Soil and Sediment (0 to 2 feet)	Dust from Surface Soil and Sediment (0 to 2 feet)	White Transportation	Indoor Worker	Adult	Ingestion/Dermal and Inhalation of Particulates	Quantitative	Indoor workers have no direct contact with outdoor soil. However, exposure to surface soil (0 to 2 feet) may occur through ingestion, dermal contact, inhalation of contaminated soil that have been incorporated into indoor dust, and the inhalation of contaminants present in indoor air. This completed exposure pathway will be evaluated under current and future conditions.
Current / Future	Surface Soil and Sediment (0 to 2 feet)	Surface Soil and Sediment (0 to 2 feet)	White Transportation	Outdoor Worker	Adult	Ingestion/Dermal and Inhalation of Particulates	Quantitative	Outdoor workers may be exposed to surface soils and sediments during routine maintenance on the White Transportation property. Exposure to surface soil (0 to 2 feet) may occur during maintenance activities. Pathways include direct contact with soil (ingestion and dermal contact) and inhalation of volatile compounds from surface soils. This completed exposure pathway will be evaluated under current and future conditions.
Future	Surface Soil, Subsurface Soil, and Sediment (0 to 10 feet)	Surface Soil, Subsurface Soil, and Sediment (0 to 10 feet)	White Transportation	Construction Worker	Adult	Ingestion/Dermal and Inhalation of Particulates		Construction workers may be exposed to contaminants in soil at depths of 0 to 10 feet on the White Transportation property. Construction workers may be exposed during direct contact (dermal and ingestion) and inhalation of volatile organic compounds from the soil. Exposure pathways may include direct contact (dermal and ingestion) and inhalation of volatile organic compounds from the soil. This is a complete exposure pathway.
Future	Groundwater	Tap Water	United Paperboard and White Transportation	Resident	Child and Adult	Ingestion and Inhalation	Quantitative	The groundwater is classified by NYSDEC as GA, indicating the potential use of the groundwater as a potable water source. Currently, individuals receive their drinking water from a public water supply system. This pathway will be quantitatively evaluated as a future exposure pathway. Routes of exposures including direct contact (ingestion) and inhalation of volatile compounds while showering. This pathway will be evalaued in OU-3.
Future	Surface Soil Brought to Surface After Construction	Surface Soil Brought to Surface After Construction	White Transportation	Resident	Young Child (6 years and younger)	Ingestion/Dermal and Inhalation of Particulates	Quantitative	The projected future use of White Transportation has changed to less restrictive Waterfront Mixed Use, which may be predominantly residential with some smaller-scale commercial businesses that support the adjacent neighborhoods or the tourism industry. Residential exposures may occur in the future through direct contact ingestion, dermal contact, and inhalation of volatile compounds from surface soil (0 to 2 feet) and sediment. These pathways are potentially complete and will be evaluated quantitatively.
				Resident	Adult	Ingestion/Dermal and Inhalation of Particulates	Quantitative	

TABLE 3 - Page 1 of 1
NONCANCER ORAL REFERENCE DOSES FOR CHEMICALS OF CONCERN

		Oral Reference Doses		Dermal (1)		Absorbed RfD for Dermal (1)			Combined	RfD Target Organs	
Chemicals of Concern	Chronic / Subchronic	Value	Units (3)	Value	Reference	Value	Units (1)	Primary Target Organ	Uncertainty/Modifying Factor	Sources (2)	Date
Aroclor 1016	Chronic	7E-05	mg/kg-day	NA	EPA 2004	NA	EPA 2004	Reduced Birthweight	100	IRIS	9/2015
Aroclor 1254	Chronic	2E-05	mg/kg-day	NA	EPA 2004	NA	EPA 2004	Immune System, Eye	300	IRIS	9/2015
Antimony (metallic)	Chronic	4E-04	mg/kg-day	0.15 (3)	EPA 2004	0.00006	EPA 2004	Longevity, blood glucose, and cholesterol	1,000/1	IRIS	9/2015
Benzo-a-anthracene	Chronic	NA	mg/kg-day								
Bennzo-a-pyrene	Chronic	NA	mg/kg-day								
Benzo-b-fluoroa	Chronic	NA	mg/kg-day								
Benzo-b-fluoroanthene	Chronic	NA	mg/kg-day								
Di-benzo-ah-anthracene	Chronic	NA	mg/kg-day								
Mercury (methyl in fish)	Chronic	1E-04	mg/kg-day	NA	EPA 2004	NA	EPA 2004	Central Nervous System	10	IRIS	9/2015
Mercury (elemental in soils/sediment)	Chronic	3E-04	mg/kg-day	NA	EPA 2004	NA	EPA 2004	Hand tremor; increases in memory disturbances; slight subjective and objective evidence of autonomic dysfunction	10	IRIS	9/2015
Copper	Chronic	4E-02	mg/kg-day	NA	EPA 2004	NA	EPA 2004	Gastrointestinal system / Irritation		HEAST	06/19/05

(1) Oral absorption data is not provided since dermal exposures were not evaluated in this assessment and will be addressed during the 17 Mile Study.

(2) Abbreviations: IRIS - Integrated Risk Information System; NA - not appropriate; mg/kg-day - milligrams/kilogram bodyweight/day).

(3) The source of the oral absorption efficiency to dermal factor is from RAGS Part E Table 4-1 (EPA 2004).

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NONCANCER REFERENCE CONCENTRATIONS FOR CHEMICALS OF CONCERN

		Inhalation Reference Concentration			Combined Uncertainty/Modifying Factor	RfD Target Organs	
Chemicals of Concern	Chronic / Subchronic	Value	Units (3)	Primary Target Organ		Sources (2)	Date
Aroclor 1016	Chronic	NA		Route to Route Extrapolation Used from Oral to Inhalation			
Aroclor 1254	Chronic	NA		Route to Route Extrapolation Used from Oral to Inhalation			
Antimony (metallic)	Chronic	NA					
Benzo-a-anthracene	Chronic	NA					
Bennzo-a-pyrene	Chronic	NA					
Benzo-b-fluoroa	Chronic	NA					
Benzo-b-fluoroanthene	Chronic	NA					
Di-benzo-ah-anthracene	Chronic	NA					
Mercury (methyl in fish)	Chronic	NA					
Mercury (elemental in soils/sediment)	Chronic	3E-04	mg/m^3	Neurological / Hand tremor; increases in memory disturbances; slight subjective and objective evidence of autonomic dysfunction	30/1	IRIS	9/2015
Copper	Chronic	NA					

(1) Oral absorption data was obtained from RAGS Part E (EPA, 2004).

(2) Abbreviations: IRIS - Integrated Risk Information System; NA - not appropriate; mg/kg-day - milligrams/kilogram bodyweight/day).

TABLE 5 - Page 1 of 1
CANCER TOXICITY VALUES - ORAL/DERMAL CANCER SLOPE FACTORS AND WEIGHT OF EVIDENCE FOR CHEMICALS OF CONCERN

Chemicals of Concern	Oral Cancer Slope Factor		Oral Absorption Efficiency for Dermal (1)	Absorbed Cancer Slope Factor (1) for Dermal		Weight of Evidence/ Cancer Guideline	Oral Cancer Slope Factor	
	Value	Units (3)		Value	Units (4)	Description (2)	Source(s) (3)	Date(s)
Total PCBs (high risk)	2E+00	$(mg/kg\text{-}day)^{-1}$	NA	NA		Probable Human Carcinogen (B2)	IRIS	2015
Total PCBs (low risk)	1E+00	$(mg/kg\text{-}day)^{-1}$	NA	NA		Probable Human Carcinogen (B2)	IRIS	2015
Antimony (Metallic)	NA							
Benzo-a-anthracene	7E-01	$(mg/kg\text{-}day)^{-1}$	1	7E-01	$(mg/kg\text{-}day)^{-1}$	Probable Human Carcinogen (B2)	IRIS	2015
Bennzo-a-pyrene	7.3E+00	$(mg/kg\text{-}day)^{-1}$	1	7.3E+00	$(mg/kg\text{-}day)^{-1}$	Probable Human Carcinogen (B2)	IRIS	2015
Benzo-b-fluoroanthene	7.3E-01	$(mg/kg\text{-}day)^{-1}$	1	7.3E-01	$(mg/kg\text{-}day)^{-1}$	Probable Human Carcinogen (B2)	IRIS	2015
Benzo-k-fluoroanthene	7.3E-02	$(mg/kg\text{-}day)^{-1}$	1	7.3E-02	$(mg/kg\text{-}day)^{-1}$	Probable Human Carcinogen (B2)	IRIS	2015
Di-benzo-ah-anthracene	7.3E+00	$(mg/kg\text{-}day)^{-1}$	1	7.3E+00	$(mg/kg\text{-}day)^{-1}$	Probable Human Carcinogen (B2)	IRIS	2015
Mercury	NA					Not classified.	IRIS	2015
Copper	NA							
Methyl mercury	NA	$(mg/kg\text{-}day)^{-1}$	NA	NA		C (possible human carcinogen)	IRIS	2015

(1) Oral absorption factors were evaluated based on RAGS Part E.
(2) Cancer Weight of Evidence Classifications are based on EPA's Cancer Guidelines 1986 and 2005.
(3) Abbreviations: IRIS - Integrated Risk Information System; NA - not appropriate; mg/kg-day - milligrams/kilogram bodyweight/day).

TABLE 6 - Page 1 of 1

CANCER TOXICITY VALUES - INHALATION UNIT RISK FACTORS AND WEIGHT OF EVIDENCE FOR CHEMICALS OF CONCERN

Chemicals of Concern	Inhalation Unit Risk Factors		Weight of Evidence / Cancer Guideline - Description (1)	Source of Inhalation Unit Risk Factor	
	Value	Units (2)		Source(s) (2)	Date(s)
Total PCBs (high risk)	5.7E-04	µg/m3	Probable Human Carcinogen (B2)	IRIS	2015
Antimony (Metallic)	NA				
Benzo-a-anthracene	1.1E-04	µg/m3	Probable Human Carcinogen (B2)	IRIS	2015
Bennzo-a-pyrene	1.1E-03	µg/m3	Probable Human Carcinogen (B2)	IRIS	2015
Benzo-b-fluoroanthene	1.1E-04	µg/m3	Probable Human Carcinogen (B2)	IRIS	2015
Benzo-k-fluoroanthene	1.1E-04	µg/m3	Probable Human Carcinogen (B2)	IRIS	2015
Di-benzo-ah-anthracene	1.2E-03	µg/m3	Probable Human Carcinogen (B2)	IRIS	2015
Methyl mercury	NA		Possible Human Carcinogen (C)	IRIS	2015
Copper	NA				
(1) Cancer Weight of Evidence Classifications are based on EPA's Cancer Guidelines 1986 and 2005.					
(2) Abbreviations: NA = not available; µg/m3 = micorgrams/cubic meter; IRIS - Integrated Risk Information System					

TABLE 7.1 - Page 1 of 1 (Angler)
CALCULATED CANCER RISKS AND NONCANCER HAZARDS FOR RME INDIVIDUAL

Scenario Timeframe: Current / Future
Receptor Population: Angler
Receptor Age: Young Child

Medium	Exposure Medium	Exposure Point	Chemicals of Concern	Carcinogenic Risk					Noncarcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Fish	Fish	Fish	PCB-1254	2.9E-05				2.9E-05	Immune	2.5			2.5
			PCB-1260	8.4E-06				8.4E-06	Immune	8.6			8.6
			Methyl mercury						CNS	2.6			2.6
			Total	3.7E-05				3.7E-05		13.7			13.7
											Total HI - CNS		2.6
											Total HI - Immune System		11

Scenario Timeframe: Current / Future
Receptor Population: Angler
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemicals of Concern	Carcinogenic Risk					Noncarcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Fish	Fish	Fish	PCB-1254	3.7E-05				3.7E-05	Immune	5.4			5.4
			PCB-1260	1.1E-05				1.1E-05	Immune	1.6			1.6
			Methyl mercury						CNS	1.7			1.7
			Total	4.8E-05				4.8E-05		8.7			8.7
											Total HI - CNS		1.7
											Total HI - Immune System		7

Scenario Timeframe: Current / Future
Receptor Population: Angler
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemicals of Concern	Carcinogenic Risk					Noncarcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Fish	Fish	Fish	PCB-1254	5.5E-05				5.5E-05	Immune	4.8			4.8
			PCB-1260	1.6E-05				1.6E-05	Immune	1.4			1.4
			Methyl mercury						CNS	1.5			1.5
			Total	7.1E-05				7.1E-05		7.7			7.7
											Total HI - CNS		6.2
											Total HI - Immune System		1.5

TABLE 7.2 - Page 1 of 1 (Flintkote)
CALCULATED CANCER RISKS AND NONCANCER HAZARDS TO RME INDIVIDUAL

Scenario Timeframe: Current / Future
Receptor Population: Visitor/Trespasser
Receptor Population: Young Child

Medium	Exposure Medium	Exposure Point	Chemicals of Concern	Carcinogenic Risk					Noncarcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil and Sediment (0 to 2 Feet)	Surface Soil and Sediment (0 to 2 Feet)	Flintkote	Aroclor 1242	5.00E-07	3.0E-09	1.70E-07		6.73E-07	Immune	0.15	NA	0.05	0.2
			Aroclor 1248	5.80E-06	3.3E-08	1.90E-06		7.73E-06	Immune	1.70	NA	0.56	2.3
			Aroclor 1254	1.70E-06	7.3E-09	5.70E-07		2.28E-06	Immune	0.50	NA	0.17	0.7
			Aroclor 1260	2.50E-08	6.7E-11	8.20E-09		3.33E-08	Immune	0.01	NA	0.002	0.01
			Benzo(a)anthracene	2.60E-05	1.10E-08	8.10E-06		3.41E-05					
			Benzo(a)pyrene	2.00E-05	2.80E-11	6.20E-06		2.62E-05					
			Benzo(b)fluoroanthene	3.70E-05	5.10E-11	1.10E-05		4.80E-05					
			Benzo(k)fluoroanthene	4.50E-06	6.30E-11	1.40E-06		5.90E-06					
			Dibenzo(ah)anthracene	1.40E-05	2.20E-11	4.40E-06		1.84E-05					
			Total					1.4E-04		2.4		0.8	3.2
											Total HI - Immune Effects		3.2

Scenario Timeframe: Current / Future
Receptor Population: Visitor/Trespasser
Receptor Population: Adolescent

Medium	Exposure Medium	Exposure Point	Chemicals of Concern	Carcinogenic Risk					Noncarcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soils (0 to 2 Feet)	Flintkote	Aroclor 1242	3.20E-07	1.20E-08	4.50E-07		7.80E-07	Immune	4.60E-02	NA	6.60E-02	0.1
			Aroclor 1248	3.7E-06	1.30E-07	5.20E-06		9.0E-06	Immune	5.40E-01	NA	7.60E-01	1.3
			Aroclor 1254	1.1E-06	2.90E-08	1.60E-06		2.7E-06	Immune	1.60E-01	NA	2.30E-01	0.4
			Aroclor 1260	1.5E-08	2.70E-10	2.20E-08		3.8E-08	Immune	2.30E-03	NA	3.20E-03	0.006
			TOTAL	4.8E-06				4.8E-06					1.8

Scenario Timeframe: Future
Receptor Population: Outdoor Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemicals of Concern	Carcinogenic Risk					Noncarcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil (0 to 2 feet)	Flintkote	BENZO(A)ANTHRACENE	1.5E-05	1.40E-07	8.50E-06		2.4E-05	NA				
			BENZO(A)PYRENE	1.2E-05	3.50E-10	6.50E-06		1.8E-05	NA				
			BENZO(B)FLUORANTHENE	2.2E-05	6.40E-10	1.20E-05		3.3E-05	NA				
			DIBENZ(A,H)ANTHRACENE	8.4E-06	2.70E-10	4.60E-06		1.3E-05	NA				
			PCB - 1242	1.6E-06	2.00E-07	9.40E-07		2.7E-06	Immune	1.10E-01		6.60E-02	0.2
			PCB - 1248	1.8E-05	2.20E-06	1.10E-05		3.1E-05	Immune	1.30E+00		7.60E-01	2
			PCB - 1254	5.4E-06	4.90E-07	3.20E-06		9.1E-06	Immune	3.80E-01		2.20E-01	0.6
			PCB - 1260	7.7E-08	4.50E-09	4.60E-08		1.3E-07	Immune	5.40E-03		3.20E-03	0.01
			TOTAL	8.3E-05	3.10E-06	4.70E-05		1.3E-04		1.8		1.1	2.8

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemicals of Concern	Carcinogenic Risk					Noncarcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Subsurface soil (0 to 10 feet)	Flintkote	Antimony						Blood	2.3			2.3
			PCB - 1242	2.5E-07	9.60E-09	4.40E-08		3.0E-07	Immune	4.30E-01		7.70E-02	0.5
			PCB - 1248	1.7E-06	6.40E-08	3.10E-07		2.1E-06	Immune	3.00E+00		5.50E-01	3.6
			PCB - 1254	7.9E-07	2.20E-08	1.40E-07		9.6E-07	Immune	1.40E+00		2.50E-01	1.6
			PCB - 1260	1.3E-08	2.20E-10	2.30E-09		1.5E-08	Immune	2.20E-02		4.00E-03	0.03
			PCB - 1262	2.8E-09	4.80E-14	5.00E-10		3.3E-09	Immune	4.90E-03		8.80E-04	0.01
			TOTAL	2.8E-06	9.60E-08	5.00E-07		3.4E-06		7.2		0.9	8.0

* Cancer risks are presented as one significant digit consistent with EPA Guidance (USEPA 1989).

TABLE 7.3 - Page 1 of 3 (United Paperboard)
CALCULATED CANCER RISKS AND NONCANCER HAZARDS TO RME INDIVIDUAL

Scenario Timeframe: Current / Future
Receptor Population: Visitor/Trespasser
Receptor Population: Young Child

Medium	Exposure Medium	Exposure Point	Chemicals of Concern	Carcinogenic Risk					Noncarcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil (0 to 2 Feet)	United Paperboard	PCB - 1242	2.9E-07	1.80E-09	9.70E-08		3.9E-07	Immune	0.085		0.028	0.113
			PCB - 1248	2.3E-06	1.30E-08	7.60E-07		3.1E-06	Immune	0.67		0.22	0.89
			PCB - 1254	2.9E-06	1.20E-08	9.50E-07		3.9E-06	Immune	0.83		0.280	1.11
			PCB - 1260	4.6E-08	1.30E-10	1.50E-08		6.1E-08	Immune	0.01		0.005	0.0185
			TOTAL	5.5E-06	2.7E-08	1.82E-06		7.4E-06		1.60		0.5	2.1
												Total HI - Immune Effects	2.1

Scenario Timeframe: Current / Future
Receptor Population: Visitor/Trespasser
Receptor Population: Adolescent

Medium	Exposure Medium	Exposure Point	Chemicals of Concern	Carcinogenic Risk					Noncarcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil (0 to 2 Feet)	United Paperboard	PCB - 1242	2.9E-07	1.80E-09	9.70E-08		3.9E-07	Immune	0.085		0.028	0.113
			PCB - 1248	2.3E-06	1.30E-08	7.60E-07		3.1E-06	Immune	0.67		0.22	0.89
			PCB - 1254	2.9E-06	1.20E-08	9.50E-07		3.8E-06	Immune	0.830		0.280	1.11
			PCB - 1260	4.6E-08	1.30E-10	1.50E-08		6.1E-08	Immune	0.014		0.005	0.02
			TOTAL	5.5E-06	2.68E-08	1.81E-06		7.3E-06		1.6		0.5	2.1
												Total HI - Immune Effects	2.1

Scenario Timeframe: Future
Receptor Population: Indoor Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemicals of Concern	Carcinogenic Risk					Noncarcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil (0 to 2 feet) Dust Particles	United Paperboard	PCB - 1248	5.1E-07	1.30E-07	1.20E-06		1.8E-06	Immune	0.036		0.042	0.078
			PCB - 1254	4.0E-06	9.80E-07	4.70E-06		9.7E-06	Immune	0.28		0.33	0.61
			PCB - 1260	5.0E-06	9.00E-07	5.90E-06		1.2E-05	Immune	0.35		0.41	0.76
			PCB - 1268	8.1E-08	9.40E-09	9.60E-08		1.9E-07	Immune	0.0057		0.0067	0.0124
			TOTAL	9.6E-06	2.02E-06	1.19E-05		2.4E-05		0.7		0.8	1.5
												Total HI - Immune Effects	1.5

* Cancer risks are presented as one significant digit consistent with EPA Guidance (USEPA 1989).

TABLE 7.3 - Page 2 of 3 (United Paperboard)
CALCULATED CANCER RISKS AND NONCANCER HAZARDS TO RME INDIVIDUAL

Scenario Timeframe: Future
Receptor Population: Outdoor Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemicals of Concern	Carcinogenic Risk					Noncarcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil (0 to 2 feet)	United Paperboard	PCB - 1242	9.2E-07	1.20E-07	5.40E-07		1.6E-06	Immune	6.40E-02		3.80E-02	0.1
			PCB - 1248	7.2E-06	8.80E-07	4.30E-06		1.2E-05	Immune	0.5		0.3	0.8
			PCB - 1254	9.0E-06	8.10E-07	5.30E-06		1.5E-05	Immune	0.63		0.37	1.0
			PCB - 1260	1.5E-07	8.50E-09	8.60E-08		2.4E-07	Immune	0.01		6.00E-03	0.016
			Total	1.7E-05	1.82E-06	1.02E-05		2.9E-05		1.2		0.714	1.9
												Total HI - Immune Effects	1.9

* Cancer risks are presented as one significant digit consistent with EPA Guidance (USEPA 1989).

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemicals of Concern	Carcinogenic Risk					Noncarcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Subsurface soil (0 to 10 feet)	United Paperboard	Antimony						Blood	1.00			1.0
			PCB - 1242	8.7E-08	3.40E-09	1.60E-08		1.1E-07	Immune	0.15		0.03	0.2
			PCB - 1248	3.6E-06	1.30E-07	6.50E-07		4.4E-06	Immune	6.40		1.1	7.5
			PCB - 1254	8.8E-07	2.40E-08	1.60E-07		1.1E-06	Immune	1.50		0.28	1.8
			PCB - 1260	3.6E-07	6.30E-09	6.40E-08		4.3E-07	Immune	0.62		0.11	0.73
			Total	4.9E-06	1.64E-07	8.90E-07		6.0E-06		9.7		1.52	11.2
												Total HI - Immune Effects	10
												Total HI - Blood	1

* Cancer risks are presented as one significant digit consistent with EPA Guidance (USEPA 1989).

TABLE 7.3 - Page 3 of 3 (United Paperboard)
CALCULATED CANCER RISKS AND NONCANCER HAZARDS TO RME INDIVIDUAL

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemicals of Concern	Carcinogenic Risk					Noncarcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Subsurface soil (0 to 10 feet)	United Paperboard	Antimony						Blood	4.70			4.7
			COPPER						GI Tract	1.10			1.1
			BENZO(A)ANTHRACENE	2.3E-05	5.90E-08	7.10E-06		3.0E-05					
			BENZO(A)PYRENE	2.1E-04	1.70E-09	6.30E-05		2.7E-04					
			BENZO(B)FLUORANTHENE	2.7E-05	2.30E-10	8.50E-06		3.6E-05					
			BENZO(K)FLUORANTHENE	8.8E-07	7.30E-11	2.70E-07		1.2E-06					
			CHRYSENE	2.2E-07	1.90E-11	6.90E-08		2.9E-07					
			DIBENZ(A,H)ANTHRACENE	3.6E-05	3.30E-10	1.10E-05		4.7E-05					
			INDENO(1,2,3-C,D)PYRENE	1.1E-05	9.40E-11	3.50E-06		1.5E-05					
			PCB-1242	2.4E-06	8.60E-08	7.80E-07		3.3E-06	Immune	0.69		0.23	0.9
			PCB-1248	9.9E-05	3.40E-06	3.30E-05		1.4E-04	Immune	29.00		9.6	38.6
			PCB-1254	2.4E-05	6.10E-07	7.90E-06		3.3E-05	Immune	7.00		2.3	9.3
			PCB-1260	9.7E-06	1.60E-07	3.20E-06		1.3E-05	Immune	2.80		0.94	3.74
			Total	4.4E-04	4.32E-06	1.38E-04		5.9E-04		45.3	0.00	13.07	58.4
												Total HI - Immune Effects	52.6
												Total HI - Blood	4.7
												Total HI - Skin Vascular	0.2
												Total HI - GI Tract	1.1
												Total HI - CNS	0.4

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemicals of Concern	Carcinogenic Risk					Noncarcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Subsurface soil and Sediment (0 to 10 feet)	United Paperboard	PCB-1242	7.4E-07	2.90E-07	4.40E-07		1.5E-06	Immune	0.07		3.80E-02	0.1
			PCB-1248	3.1E-05	1.10E-05	1.80E-05		6.0E-05	Immune	2.70		1.6	4.3
			PCB-1254	7.5E-06	2.00E-06	4.40E-06		1.4E-05	Immune	0.65		0.39	1.0
			PCB-1260	3.0E-06	5.30E-07	1.80E-06		5.3E-06	Immune	0.26		0.16	0.42
			Total	4.2E-05	1.38E-05	2.46E-05		8.1E-05		3.7	0.00	2.19	5.9
												Total HI - Immune Effects	5.8

* Cancer risks are presented as one significant digit consistent with EPA Guidance (USEPA 1989).

TABLE 7.4 - Page 1 of 1 (Upson Park)
CALCULATED CANCER RISKS AND NONCANCER HAZARDS TO RME INDIVIDUAL

Scenario Timeframe: Current / Future
Receptor Population: Recreator
Receptor Age: Young Child

Medium	Exposure Medium	Exposure Point	Chemicals of Concern	Carcinogenic Risk					Noncarcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil (0 to 2 Feet)	Upson Park	PCB-1248	1.1E-05	3.60E-06	3.60E-06		1.4E-05	Immune	3.2		1	4.2
			PCB - 1254	7.4E-06	3.10E-08	2.50E-06		9.9E-06	Immune	2.2		0.72	2.9
			PCB - 1260	4.1E-08	1.10E-10	1.40E-08		5.5E-08	Immune	0.01		0.004	0.02
			TOTAL	1.8E-05	3.63E-06	6.11E-06		2.4E-05		5.41		1.7	7.1
											Total HI - Immune Effects		7.1

Scenario Timeframe: Current / Future
Receptor Population: Recreator
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemicals of Concern	Carcinogenic Risk					Noncarcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil (0 to 2 Feet)	Upson Park	PCB-1248	5.1E-06	1.90E-07	0.0000073		1.3E-05	Immune	0.74		1.1	1.84
			PCB - 1254	3.5E-06	9.40E-08	5.00E-06		8.6E-06	Immune	0.51		0.73	1.24
			PCB - 1260	1.9E-08	3.40E-10	2.80E-08		4.7E-08	Immune	0.003		0.004	0.01
			TOTAL	8.6E-06	2.84E-07	1.23E-05		8.6E-06		1.3		1.8	3.1
											Total HI - Immune Effects		3.1

Scenario Timeframe: Current / Future
Receptor Population: Outdoor Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemicals of Concern	Carcinogenic Risk					Noncarcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil (0 to 2 feet)	Upson Park	PCB-1248	1.7E-05	2.10E-06	1.00E-05		2.9E-05	Immune	1.2		0.7	1.9
			PCB - 1254	1.2E-05	1.00E-06	6.90E-06		2.0E-05	Immune	0.81		0.48	1.29
			PCB - 1260	6.4E-08	3.70E-09	3.80E-08		1.1E-07	Immune	0.0045		0.0027	0.0072
			PCB - 1268	2.9E-05	3.70E-09	3.70E-09		4.9E-05		2.0		1.2	3.2
											Total HI - Immune Effects		3.2

Scenario Timeframe: Current / Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemicals of Concern	Carcinogenic Risk					Noncarcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Subsurface soil (0 to 10 feet)	Upson Park	PCB-1248	1.5E-06	5.60E-08	2.70E-07		1.8E-06	Immune	2.6		0.47	3.1
			PCB - 1254	1.0E-06	2.90E-08	1.90E-07		1.2E-06	Immune	1.8		0.33	2.1
			PCB - 1260	1.1E-06	1.90E-08	2.00E-07		1.3E-06	Immune	1.9		0.34	2.2
			PCB - 1268	1.9E-07	3.50E-08	3.50E-08		2.6E-07	Immune	0.34		0.06	0.4
			Total	3.8E-06	1.39E-07	6.95E-07		4.6E-06		6.6		1.2	7.9
											Total HI - Immune Effects		7.9

* Cancer risks are presented as one significant digit consistent with EPA Guidance (USEPA 1989).

TABLE 8
REMEDIATION GOALS FOR SOIL

Properties:	
United Paperboard Property Flintkote Property White Transportation Property	
Chemicals of Concern	**Remediation Goal**
PCBs - Surface (0 to 2 ft)	1 ppm
PCBs - Subsurface	10 ppm
Lead	1,000 ppm

Properties:	
Upson Park	
Chemicals of Concern	**Remediation Goal**
PCBs - Surface and Subsurface	1 ppm
Lead	1,000 ppm

Source: 6 NYCRR Part 375, Environmental Remediation Programs, Subpart 375-6

Table 9.1 Cost Estimate Summary for the Selected Remedy: Combination Excavation and Capping, Flintkote Property

Item	Note	Quantity	Unit	Cost/Unit	Cost
Institutional Controls					
Environmental Easements		1	LS	$20,000	$20,000
Work Plan / Final Report	Includes submittals, meetings	1	LS	$25,000	$25,000
Site Preparation, Engineering and Access Controls					
Mobilization/Demobilization	Include site prep, trailers, staging ,etc. and demobilization	1	LS	$117,600	$117,600
Community Air Monitoring	Particulate meters	2	Ea	$8,692	$17,400
Decontamination Pad & Containment	For equipment, personnel, and departing site vehicles	1	Setups	$3,000	$3,000
Traffic Control (Labor)	For roads adjacent to the commercial properties, including Clinton St, Mill St, and Water St. Assume 1 person for 50% of project duration, $75/hr, 8hr/day	47	Day	$600	$28,200
Health and Safety requirements	Officer; assume on-site 100% of project duration	94	Day	$800.00	$75,200
Surveying	2-person crew @ $100/hr, 8hr/day; assume 50% of project duration	47	Day	$1,600.00	$75,200
Site Clearing (300 and 198-Parcels and Island)					
Cut and chip heavy trees	Large trees and dense vegetation at 198 parcel and on Island	1.6	Acre	$16,100	$26,600
Clear and Grub	Clear, Grub and haul	3.8	Acre	$9,175	$34,865
Monitoring Well Decomissioning	Five Micro Wells	95	LF	$5	$475
Monitoring Well Decomissioning	Two Overburden Wells	55	LF	$12	$660
Monitoring Well Decomissioning	Seven Bedrock Wells	220	LF	$18	$3,960
Grading	300-parcel, 198-parcel and the Island.	30	Day	$1,869	$56,082
Staging Area and Access Road Construction & Removal					
Staging Area and Access Road Construction	see Table 4-1a; assume 1/5th of cost	0.2	LS	$575,000	$115,000
Containment (300-Parcel)					
Geotextile Fabric	12 oz woven geotextile	10,245	SY	$1.42	$14,548
High Visibility Demarcation Layer		92,200	SF	$0.30	$27,700
Clean Fill	Unclassified fill, 18" lifts	6,682	Ton	$5.53	$36,929
Topsoil	6" lifts	2,228	Ton	$18.09	$40,298
Haul Fill & Topsoil	12 CY dump truck, 20 miles round trip, 0.4 load/hr	6,831	LCY	$15.25	$104,173
Spread Fill & Topsoil	Spread dumped material, no compaction; incl cut-back volume	6,831	LCY	$2.39	$16,326
Compact Fill & Topsoil	12" lifts, vibrating roller; incl cut-back volume	5,940	BCY	$0.95	$5,643
Finish grading, large area	Steep slopes	92	MSF	$29.50	$2,720
Hydroseeding large areas		10,245	SY	$0.82	$8,401

Table 9.1 Cost Estimate Summary for the Selected Remedy: Combination Excavation and Capping, Flintkote Property

Item	Note	Quantity	Unit	Cost/Unit	Cost
Soil Removal (Haz Areas: 198-Parcel and Island)					
Soil Excavation	Hydraulic Excavator, 2 C.Y. bucket; 165 C.Y./hr	17,215	BCY	$1.81	$31,160
Material Transportation On-site (from excavations to staging area)	12 CY Dump truck, 0.5 mi roundtrip, 3.6 loads / hr	19,797	LCY	$3.68	$72,900
Verification Sampling	PCBs and metals analysis, assumes 24-hr turnaround	120	EA	$254	$30,500
Disposal Sampling	PCBs, metals, and TCLP metals analysis, 24 hr turnaround	27	EA	$1,234	$33,400
Soil Stabilization and Replacement	see Table 4-1c; Assume 50% of the Hazardous soils from the 198 Parcel and Island can be stabilized and placed back on the 300 parcel and capped	9,899	LCY	$30.53	$302,179
Transport to Disposal Facility (Haz)	assumes transport of material from Eighteenmile Creek to Model City, NY, Assume 50% of the hazardous soils from the 198 Parcel and Island	12,911	Ton	$28.00	$361,519
Disposal at Disposal Facility (Haz)	Hazardous material either for PCBs or Lead	12,911	Ton	$190	$2,453,166
Backfill and Site Restoration (198 Parcel and Island Haz Area)					
Clean Fill	Unclassified fill, excavation volume less topsoil volume	24,083	Ton	$5.53	$133,098
Topsoil	6" lifts	1,740	Ton	$18.09	$31,472
Haul Fill & Topsoil	12 CY dump truck, 20 miles round trip, 0.4 load/hr	19,797	LCY	$15.25	$301,912
Spread Fill & Topsoil	Spread dumped material, no compaction; incl cut-back volume	19,797	LCY	$2.39	$47,316
Compact Fill & Topsoil	12" lifts, vibrating roller; incl cut-back volume	17,215	BCY	$0.95	$16,354
Finish grading, large area	Steep slopes	72	MSF	$29.50	$2,119
Hydroseeding large areas		7,981	SY	$0.82	$6,544
Plantings (Trees)	Assume Norway Maple is representative (Based on SRI)	115	Ea	$202.00	$23,300
				Capital Cost Subtotal	$4,702,919
				Adjusted Capital Cost Subtotal for Niagara Falls, New York Location Factor (1.021):	$4,801,700
				10% Legal, administrative, engineering fees, construction management:	$480,200
				20% Contingencies:	$1,056,400
				Capital Cost Total:	**$6,339,000**
Annual Costs					
Site Monitoring	Visual survey of soil cover, etc., assume 2-persons @ $100/hr; 10 hr/day	2	Events	$2,000	$4,000
Data Evaluation and Reporting		20	HR	$100	$2,000
				Annual Cost Subtotal:	$6,000
				Adjusted Capital Cost Subtotal for Niagara Falls, New York Location Factor (1.021):	$6,200
				10% Legal, Administrative and Engineering Fees:	$700
				20% Contingencies:	$1,400
				Annual Cost Total:	**$8,300**
				30-year Present Worth of Annual Costs:	**$103,000**

Table 9.1 Cost Estimate Summary for the Selected Remedy: Combination Excavation and Capping, Flintkote Property

Item	Note	Quantity	Unit	Cost/Unit	Cost
Periodic Costs (Every 5 Years)					
5-yr Review, Data Evaluation, and Reporting		80	HR	$100	$8,000
Cover Maintenance (replacing soil, geotextile)	Assume 5% of initial cover cost	1	LS	$12,900	$12,900
Institutional Controls	Maintain / Update Documentation	1	LS	$5,000	$5,000
				Periodic Cost Subtotal:	$25,900
				Adjusted Capital Cost Subtotal for Niagara Falls, New York Location Factor (1.021):	$26,500
				10% Legal, Administrative and Engineering Fees:	$2,700
				20% Contingencies:	$5,900
				Periodic Cost Total:	**$35,100**
				30-year Present Worth of Periodic Costs:	**$76,000**
				Total Project Cost	**$6,518,000**

Table 9.2 Cost Estimate Summary for the Selected Remedy: Excavation, White Transportation Property

Description	Comments	Quantity	Units	Unit Cost	Cost
Capital Costs					
Work Plan / Final Report	Includes submittals, meetings	1	LS	$25,000	$25,000
Site Preparation and Engineering Controls					
Mobilization/Demobilization	Include site prep, trailers, staging ,etc. and demobilization	1	LS	$5,900	$5,900
Health and Safety requirements	Officer; assume on-site 100% of project duration	22	Day	$800	$17,600
Community Air Monitoring	Particulate meters	2	Ea	$8,692	$17,400
Decontamination Pad & Containment	For equipment, personnel, and departing site vehicles	1	Setups	$3,000	$3,000
Surveying	2-person crew @ $100/hr, 8hr/day; assume 50% of project duration	11	Day	$1,600	$17,600
Traffic Control (Labor)	For roads adjacent to the commercial properties, including Clinton St, Mill St, and Water St. Assume 1 person for 50% of project duration, $75/hr, 8hr/day	11	Day	$600	$6,600
Fencing	Chain link fence rental, 6' high, around perimeter of sites	1,708	LF	$6.30	$10,800
Site Clearing of Excavation Areas					
Cut and chip heavy trees	Large trees and dense vegetation at excavation areas	0.03	Acre	$16,100	$500
Grub stumps and remove - heavy	Along creek banks and at excavation areas	0.03	Acre	$8,625	$300
Staging Area and Access Road Construction & Removal					
Staging Area and Access Road Construction	see Table 4-1a; assume 1/5th of cost	0.2	LS	$575,000	$115,000
Soil Removal					
Soil Excavation	Hydraulic Excavator, 2 C.Y. bucket; 165 C.Y./hr	110	BCY	$1.81	$200
Material Transportation On-site (from excavations to staging area)	12 CY Dump truck, 0.5 mi roundtrip, 3.6 loads / hr	127	LCY	$3.68	$500
Verification Sampling	PCBs and metals analysis, assumes 24-hr turnaround	2	EA	$254	$500
Disposal Sampling	PCBs, metals, and TCLP metals analysis, 24 hr turnaround	1	EA	$1,234	$1,300
Soil Stabilization, No Replacement	see Table 4-1c	0	LCY	$23.85	$0
Transport to Disposal Facility (Non-haz)	assumes 28 tons/load transport to Chaffee Landfill in Chaffee, NY	165	Ton	$20.46	$3,400
Disposal at Disposal Facility (Non-haz)	Non-hazardous material	165	Ton	$26.03	$4,300
Transport to Disposal Facility (Haz)	assumes transport of material from Eighteenmile Creek to Model City, NY	0	Ton	$28.00	$0
Disposal at Disposal Facility (Haz)	Hazardous material either for PCBs or Lead	0	Ton	$190	$0

Table 9.2 Cost Estimate Summary for the Selected Remedy: Excavation, White Transportation Property

Description	Comments	Quantity	Units	Unit Cost	Cost
Backfill and Site Restoration (of Excavated Area)					
Clean Fill (Material only)		138	Ton	$5.53	$800
Topsoil (Material)	6" of top soil at surface	27	Ton	$18.09	$500
Haul Fill & Topsoil	12 CY dump truck, 20 miles round trip, 0.4 load/hr	127	LCY	$15.25	$2,000
Spread Fill & Topsoil	Spread dumped material, no compaction; incl cut-back volume	127	LCY	$2.39	$400
Compact Fill & Topsoil	12" lifts, vibrating roller; incl cut-back volume	110	BCY	$0.95	$200
Finish grading, large area	Steep slopes	1	MSF	$29.50	$100
Hydroseeding large areas		122	SY	$0.82	$200
Plantings (Trees)	Assume Norway Maple is representative (Based on SRI)	2	Ea	$202.00	$400
				Capital Cost Subtotal:	$234,500
				Adjusted Capital Cost Subtotal for Niagara Falls, New York Location Factor (1.021):	$239,500
				10% Legal, administrative, engineering fees, construction management:	$24,000
				20% Contingencies:	$52,700
				Capital Cost Total:	**$317,000**
Periodic Costs (Every 5 Years)					
5-yr Review, Data Evaluation, and Reporting		80	HR	$100	$8,000
				Periodic Cost Subtotal:	$8,000
				Adjusted Capital Cost Subtotal for Niagara Falls, New York Location Factor (1.021):	$8,200
				10% Legal, Administrative and Engineering Fees:	$900
				20% Contingencies:	$1,900
				Periodic Cost Total:	**$11,000**
				30-year Present Worth of Periodic Costs:	**$24,000**
				2016 Total Present Worth Cost:	**$341,000**

Table 9.3 Cost Estimate Summary for the Selected Remedy: Excavation, United Paperboard Property

Description	Comments	Quantity	Units	Unit Cost	Cost
Capital Costs					
Work Plan / Final Report	Includes submittals, meetings	1	LS	$25,000	$25,000
Site Preparation and Engineering Controls					
Mobilization/Demobilization	Include site prep, trailers, staging ,etc. and demobilization	1	LS	$45,400	$45,400
Health and Safety requirements	Officer; assume on-site 100% of project duration	44	Day	$800	$35,200
Community Air Monitoring	Particulate meters	2	Ea	$8,692	$17,400
Decontamination Pad & Containment	For equipment, personnel, and departing site vehicles	2	Setups	$3,000	$6,000
Surveying	2-person crew @ $100/hr, 8hr/day; assume 50% of project duration	22	Day	$1,600	$35,200
Traffic Control (Labor)	For roads adjacent to the commercial properties, including Clinton St, Mill St, and Water St. Assume 1 person for 50% of project duration, $75/hr, 8hr/day	22	Day	$600	$13,200
Fencing	Chain link fence rental, 6' high, around perimeter of sites	1,708	LF	$6.30	$10,800
Site Clearing of Excavation Areas					
Cut and chip heavy trees	Large trees and dense vegetation at excavation areas	0.5	Acre	$16,100	$7,900
Grub stumps and remove - heavy	Along creek banks and at excavation areas	0.5	Acre	$8,625	$4,200
Staging Area and Access Road Construction & Removal					
Staging Area and Access Road Construction	see Table 4-1a; assume 1/5th of cost	0.2	LS	$575,000	$115,000
Soil Removal					
Soil Excavation	Hydraulic Excavator, 2 C.Y. bucket; 165 C.Y./hr	4,600	BCY	$1.81	$8,400
Material Transportation On-site (from excavations to staging area)	12 CY Dump truck, 0.5 mi roundtrip, 3.6 loads / hr	5,290	LCY	$3.68	$19,500
Verification Sampling	PCBs and metals analysis, assumes 24-hr turnaround	34	EA	$254	$8,700
Disposal Sampling	PCBs, metals, and TCLP metals analysis, 24 hr turnaround	8	EA	$1,234	$9,900
Soil Stabilization, No Replacement	see Table 4-1c	0	LCY	$23.85	$0
Transport to Disposal Facility (Non-haz)	assumes 28 tons/load transport to Chaffee Landfill in Chaffee, NY	1,200	Ton	$20.46	$24,600
Disposal at Disposal Facility (Non-haz)	Non-hazardous material	1,200	Ton	$26.03	$31,300
Transport to Disposal Facility (Haz)	assumes transport of material from Eighteenmile Creek to Model City, NY	5,700	Ton	$28.00	$159,600
Disposal at Disposal Facility (Haz)	Hazardous material either for PCBs or Lead	5,700	Ton	$190	$1,083,000

Table 9.3 Cost Estimate Summary for the Selected Remedy: Excavation, United Paperboard Property

Description	Comments	Quantity	Units	Unit Cost	Cost
Backfill and Site Restoration (of Excavated Area)					
Clean Fill (Material only)		6,388	Ton	$5.53	$35,400
Topsoil (Material)	6" of top soil at surface	512	Ton	$18.09	$9,300
Haul Fill & Topsoil	12 CY dump truck, 20 miles round trip, 0.4 load/hr	5,290	LCY	$15.25	$80,700
Spread Fill & Topsoil	Spread dumped material, no compaction; incl cut-back volume	5,290	LCY	$2.39	$12,700
Compact Fill & Topsoil	12" lifts, vibrating roller; incl cut-back volume	4,600	ECY	$0.95	$4,400
Finish grading, large area	Steep slopes	21	MSF	$29.50	$700
Hydroseeding large areas		2,356	SY	$0.82	$2,000
Plantings (Trees)	Assume Norway Maple is representative (Based on SRI)	34	Ea	$202.00	$6,900
				Capital Cost Subtotal:	$1,812,400
				Adjusted Capital Cost Subtotal for Niagara Falls, New York Location Factor (1.021):	$1,850,500
				10% Legal, administrative, engineering fees, construction management:	$185,100
				20% Contingencies:	$407,200
				Capital Cost Total:	**$2,443,000**
Periodic Costs (Every 5 Years)					
5-yr Review, Data Evaluation, and Reporting		80	HR	$100	$8,000
				Periodic Cost Subtotal:	$8,000
				Adjusted Capital Cost Subtotal for Niagara Falls, New York Location Factor (1.021):	$8,200
				10% Legal, Administrative and Engineering Fees:	$900
				20% Contingencies:	$1,900
				Periodic Cost Total:	**$11,000**
				30-year Present Worth of Periodic Costs:	**$24,000**
				2016 Total Present Worth Cost:	**$2,467,000**

Table 9.4 Cost Estimate Summary for the Selected Remedy: Excavation, Upson Park

Description	Comments	Quantity	Units	Unit Cost	Cost
Capital Costs					
Work Plan / Final Report	Includes submittals, meetings	1	LS	$25,000	$25,000
Site Preparation and Engineering Controls					
Mobilization/Demobilization	Include site prep, trailers, staging ,etc. and demobilization	1	LS	$60,000	$60,000
Health and Safety requirements	Officer; assume on-site 100% of project duration	44	Day	$800	$35,200
Community Air Monitoring	Particulate meters	2	Ea	$8,692	$17,400
Decontamination Pad & Containment	For equipment, personnel, and departing site vehicles	1	Setups	$3,000	$3,000
Surveying	2-person crew @ $100/hr, 8hr/day; assume 50% of project duration	22	Day	$1,600	$35,200
Traffic Control (Labor)	For roads adjacent to the commercial properties, including Clinton St, Mill St, and Water St. Assume 1 person for 50% of project duration, $75/hr, 8hr/day	22	Day	$600	$13,200
Fencing	Chain link fence rental, 6' high, around perimeter of sites	1,708	LF	$6.30	$10,800
Site Clearing of Excavation Areas					
Cut and chip heavy trees	Large trees and dense vegetation at excavation areas	1.0	Acre	$16,100	$15,700
Grub stumps and remove - heavy	Along creek banks and at excavation areas	1.0	Acre	$8,625	$8,400
Staging Area and Access Road Construction & Removal					
Staging Area and Access Road Construction	see Table 4-1a; assume 1/5th of cost	0.2	LS	$575,000	$115,000
Soil Removal					
Soil Excavation	Hydraulic Excavator, 2 C.Y. bucket; 165 C.Y./hr	7,000	BCY	$1.81	$12,700
Material Transportation On-site (from excavations to staging area)	12 CY Dump truck, 0.5 mi roundtrip, 3.6 loads / hr	8,050	LCY	$3.68	$29,700
Verification Sampling	PCBs and metals analysis, assumes 24-hr turnaround	68	EA	$254	$17,300
Disposal Sampling	PCBs, metals, and TCLP metals analysis, 24 hr turnaround	11	EA	$1,234	$13,600
Soil Stabilization, No Replacement	see Table 4-1c	0	LCY	$23.85	$0
Transport to Disposal Facility (Non-haz)	assumes 28 tons/load transport to Chaffee Landfill in Chaffee, NY	3,150	Ton	$20.46	$64,500
Disposal at Disposal Facility (Non-haz)	Non-hazardous material	3,150	Ton	$26.03	$82,000
Transport to Disposal Facility (Haz)	assumes transport of material from Eighteenmile Creek to Model City, NY	7,350	Ton	$28.00	$205,800
Disposal at Disposal Facility (Haz)	Hazardous material either for PCBs or Lead	7,350	Ton	$190	$1,396,500

Table 9.4 Cost Estimate Summary for the Selected Remedy: Excavation, Upson Park

Description	Comments	Quantity	Units	Unit Cost	Cost
Backfill and Site Restoration (of Excavated Area)					
Clean Fill (Material only)		9,476	Ton	$5.53	$52,400
Topsoil (Material)	6" of top soil at surface	1,024	Ton	$18.09	$18,600
Haul Fill & Topsoil	12 CY dump truck, 20 miles round trip, 0.4 load/hr	8,050	LCY	$15.25	$122,800
Spread Fill & Topsoil	Spread dumped material, no compaction; incl cut-back volume	8,050	LCY	$2.39	$19,300
Compact Fill & Topsoil	12" lifts, vibrating roller; incl cut-back volume	7,000	ECY	$0.95	$6,700
Finish grading, large area	Steep slopes	42	MSF	$29.50	$1,300
Hydroseeding large areas		4,711	SY	$0.82	$3,900
Plantings (Trees)	Assume Norway Maple is representative (Based on SRI)	68	Ea	$202.00	$13,800
				Capital Cost Subtotal:	$2,399,800
				Adjusted Capital Cost Subtotal for Niagara Falls, New York Location Factor (1.021):	$2,450,200
				10% Legal, administrative, engineering fees, construction management:	$245,100
				20% Contingencies:	$539,100
				Capital Cost Total:	**$3,235,000**
Periodic Costs (Every 5 Years)					
5-yr Review, Data Evaluation, and Reporting		80	HR	$100	$8,000
				Periodic Cost Subtotal:	$8,000
				Adjusted Capital Cost Subtotal for Niagara Falls, New York Location Factor (1.021):	$8,200
				10% Legal, Administrative and Engineering Fees:	$900
				20% Contingencies:	$1,900
				Periodic Cost Total:	**$11,000**
				30-year Present Worth of Periodic Costs:	**$24,000**
				2016 Total Present Worth Cost:	**$3,259,000**

Table 9.5 Cost Estimate Summary for the Selected Remedy: Excavation, Creek Channel

Description	Comments	Quantity	Units	Unit Cost	Cost
Capital Costs					
Work Plan / Final Report	Includes submittals, meetings	1	LS	$25,000	$25,000
Site Preparation					
Mobilization/Demobilization	Includes mobilizing equipment and personnel; assume trailers, site prep, staging, and access roads included in upland terrestrial OUs	1	LS	$196,000	$196,000
Health and Safety Requirements	Officer; assume on-site 100% of project duration	256	Day	$800	$204,800
Permits and Studies	Incl permits and supporting hydraulic and floodplain study	1	LS	$100,000	$100,000
Surveying	2-person crew @ $100/hr, 8hr/day; assume total of 20 days for pre-, during, and after construction surveys	20	Day	$1,600	$32,000
Traffic Control (Labor)	For roads adjacent to the commercial properties, including Clinton St, Mill St, and Water St. Assume 1 person for 50% of project duration, $75/hr, 8hr/day	128	Day	$600	$76,800
Staging Area and Access Road Construction & Removal					
Staging Area and Access Road Construction	see Table 4-1a; assume 1/5th of cost	0.2	LS	$575,000	$115,000
Bank Stabilization for Access Roads Constructed Along the Creek constructed as part of Creek Channel excavation					
Bank Erosion Control	see Table 4-1b; cost assessed per linear foot of bank	8,370	LF	$124.24	$1,039,900
Sediment Dewatering Pits					
Covered Enclosure - Delivery and Installation	Assume approx 150' x 50'	4	EA	$25,310	$101,300
Covered Enclosure - Rental	Assumes 2 enclosures to remain onsite during and between construction seasons	36	Mo	$4,314	$155,400
Excavation	1 CY bucket	1111	BCY	$18.45	$20,500
Liner	add 10% to quantity to account for anchoring and overlapping	14,300	SF	$2.11	$30,200
Drainage Piping	4" dia drainage piping	400	LF	$1.53	$700
Stone Bedding		185	BCY	$35.40	$6,600
Filter Fabric		14,300	SF	$2.21	$31,700
Sump/Manhole	6' deep manhole	4	EA	$2,257.00	$9,100
Pump	50 gallons per minute	4	EA	$1,600	$6,400
Wastewater Storage Tank	Rental of two 21,000 gal tanks	24	Mo	$2,100	$50,400
Wastewater Disposal	Assume disposal at local WWTP	1,100	kGal	$4.00	$4,400
Front End Loader	To manage material at the staging area; assume 100% of project duration	256	Day	$947.30	$242,600
Sediment Removal					
Creek Diversion	*Method assumes damming the creek in 6 sections, pumping dry, and diverting water around dammed sections*				
Temporary Dams	assume dam bags will be purchased for 2 temporary dams and relocated as necessary	2	EA	$2,301	$4,700
Dewatering Pumps	Pumps for dewatering dammed creek sections, 6" submersible pump, 400 gpm	3	EA	$7,000	$21,000
Rental of Diversion Pumps / Equipment	Costs are for monthly rental of (5) 8000-gpm pumpsets, including controls, valves, and influent piping	12	Mo	$87,170	$1,046,045
Transportation Costs	Delivery and pickup of diversion pumps / equipment	2	EA	$35,435	$70,869
Corrugated Plastic Pipes	60" diameter, to convey diverted water; assume 2 pipes are needed (based on flow to be diverted)	2,000	LF	$150	$300,000

Table 9.5 Cost Estimate Summary for the Selected Remedy: Excavation, Creek Channel

Description	Comments	Quantity	Units	Unit Cost	Cost
Installation / Relocation	*Assume 1 week to install / move dams, pumps, and equipment; assume 6 moves needed*				
Labor and Equipment	Includes costs for an excavator, 2 laborers, an operator, and a foreman	6	EA	$15,000	$90,000
Pump Setup (By Vendor)	Includes costs to connect pipe and set up pumps	6	EA	$31,638	$189,828
Turbidity Curtain		8,370	LF	$17.26	$144,500
Sediment Excavation	Assume use of excavator with clamshell bucket; 1 CY bucket	14,500	BCY	$18.45	$267,600
Material Transportation On-site (from creek to staging areas)	12 CY Dump truck, 0.5 mi roundtrip, 3.6 loads / hr	16,240	LCY	$3.68	$59,800
Paint Filter Test		23	EA	$50.00	$1,200
Disposal Sampling	PCBs and TCLP metals analysis; 1 day turnaround	23	EA	$1,078	$24,800
Transport to Disposal Facility (Non-haz)	assumes 28 tons/load transport to Chaffee Landfill in Chaffee, NY	14,250	Ton	$20.46	$291,600
Disposal at Disposal Facility (Non-haz)	assume non-hazardous material	14,250	Ton	$26.03	$371,000
Transport to Disposal Facility (Haz)	assumes transport of material to Model City, NY	7,500	Ton	$28.00	$210,000
Disposal at Disposal Facility (Haz)	disposal of hazardous material	7,500	Ton	$190	$1,425,000
Clinton Street Dam Removal					
Dam Demolition	Assume dam is a reinforced concrete structure 20 ft high.	100	LF	$915	$91,500
Transport to Disposal Facility (Non-Haz)	Assume disposal 28 tons/load to Chaffee Landfill, Chaffee, NY; add 50% to material for unknowns (dam thickness, internal material, foundation, etc.)	2,524	Ton	$20.46	$51,700
Disposal at Disposal Facility (Non-Haz)		2,524	Ton	$26.03	$65,800
Removal of Dewatering Pits					
Excavate Gravel	1 CY bucket	185	BCY	$18.45	$3,500
Transport to Disposal Facility (Non-haz)	assumes 28 tons/load transport to Chaffee Landfill in Chaffee, NY	139	Ton	$20.46	$2,900
Disposal at Disposal Facility (Non-haz)	assume non-hazardous material	139	Ton	$26.03	$3,700
Transport to Disposal Facility (Haz)	assumes transport of material to Model City, NY; assume half of the gravel in the sediment pits will need to be disposed of as hazardous	139	Ton	$28.00	$3,900
Disposal at Disposal Facility (Haz)	disposal of hazardous material	139	Ton	$190	$26,400
Creek Backfill and Restoration (Bank stabilization estimate includes restoration above bankfull elevation)					
Synthetic geotextile	Geotextile fabric; Assume extends 10' horizontally into the creek from the bankfull elevation; includes anchoring	9,300	SY	$1.42	$13,300
Clean Stone	Small to medium sized stone for repair of banks and anchoring geotextile fabric.	2,674	LCY	$64.50	$172,500
Plantings	live stakings one per foot; along both banks	8,370	LF	$2.05	$17,200
Replacement Hydraulic Controls - only necessary if dam is removed					
Engineered Rock Riffles	to control hydraulic gradient in place of Clinton Street Dam; assumed to have crest height of 24" and sloped downstream for 40 feet; assume 8 are needed				
Stone (Heavy)	DOT heavy sized	36	LCY	$71.44	$2,600
Stone (Light)	DOT light sized	356	LCY	$89.77	$32,000
Haul Material	12 CY dump truck, 20 miles round trip, 0.4 load/hr	391	LCY	$15.25	$6,000
Place / Spread Stone	Front end loader, 3 CY bucket	391	LCY	$15.45	$6,100

Table 9.5 Cost Estimate Summary for the Selected Remedy: Excavation, Creek Channel

Description	Comments	Quantity	Units	Unit Cost	Cost
Limited Sediment Removal (changed from Building C Sump/Trench to Building D turbines)					
Demolish/Remove Building C Sump/Trench and Building D Turbine	Demolish all buildings and remaining structures. Assumed to be half of previous Flintkote estimate.	1	LS	$150,000	$150,000
Non-Haz Material Transportation/Disposal	Debris	3,000	Ton	$46.48	$139,442
Non-Haz Material Transportation/Disposal	Non-haz sediment	1,000	Ton	$46.48	$46,481
Plug Inlet/Outfall Pipes	Materials	2	EA	$200.00	$400
Drainage Features (Outfall Pipe) located on the Flintkote Property					
Remove Sediments/ Grout In-Place	Three man crew (2 Laborers and a Forman)	1	Day	$1,731.70	$1,732
Close In-Place	Materials	1	EA	$500.00	$500
Non-Haz Sediment Transportation/Disposal	Non-haz sediment (1 Ton). Assume one truck/driver will be needed at the site for at least 4 hours	4	HR	$160.24	$641
				Capital Cost Subtotal:	$7,805,100
				Adjusted Capital Cost Subtotal for Niagara Falls, New York Location Factor (1.021):	$7,969,100
				10% Legal, administrative, engineering fees, construction management:	$797,000
				20% Contingencies:	$1,753,300
				Capital Cost Total:	**$10,519,000**
Annual Costs					
Site Monitoring	Visual survey of creek banks, etc., assume 2-persons @ $100/hr; 10 hr/day for 1 day per each of 2 events	2	Events	$2,000	$4,000
Data Evaluation and Reporting		20	HR	$100	$2,000
				Annual Cost Subtotal:	$6,000
				Adjusted Capital Cost Subtotal for Niagara Falls, New York Location Factor (1.021):	$6,200
				10% Legal, Administrative and Engineering Fees:	$700
				20% Contingencies:	$1,400
				Annual Cost Total:	**$8,300**
				30-year Present Worth of Annual Costs:	**$103,000**
Periodic Costs (Every 5 Years)					
Sediment Sampling	5 sediment samples; assume 5 locations/day, 2-persons @ $100/hr, 10hr/day	1	Events	$2,000	$2,000
Analytical Costs (PCBs and metals)	Samples from 5 sediment locations; standard turnaround	5	EA	$127	$700
Data Evaluation and Reporting		20	HR	$100	$2,000
Creek Bank Repair	Assume 5% of initial costs for bank stabilization	1	LS	$10,200	$10,200
				Periodic Cost Subtotal:	$14,900
				Adjusted Capital Cost Subtotal for Niagara Falls, New York Location Factor (1.021):	$15,300
				10% Legal, Administrative and Engineering Fees:	$1,600
				20% Contingencies:	$3,400
				Periodic Cost Total:	**$20,300**
				30-year Present Worth of Periodic Costs:	**$44,000**
				2016 Total Present Worth Cost:	**$10,666,000**

Table 10 Chemical-Specific ARARs, TBCs, and Other Guidance

Act/Authority	Criteria/Issues	Citation	Brief Description
Soil			
Environmental Conservation Law, Articles 1, 3, 27, and 52; Administrative Procedures Act, Articles 301 and 305; Clean Air Act	Inactive Hazardous Waste Disposal Site	6 NYCRR 375	Part 375-6.8 provides soil cleanup objectives used for this report.
	National Primary and Secondary Ambient Air Quality Standards	40 CFR 50	Establishes emission limits for six pollutants (SO_2, PM_{10}, CO, O_3, NO_2, and Pb).
	National Emission Standards for Hazardous Air Pollutants	40 CFR 61 40 CFR 61 Subpart M	Provides emission standards for 8 contaminants; identifies 25 additional contaminants, including PCE and TCE, as having serious health effects but does not provide emission standards for these contaminants.
Sediment			
No promulgated chemical-specific ARARs identified for sediment.			

Key:
CFR = Code of Federal Regulations
NYCRR = New York Codes, Rules and Regulations
PCE = perchloroethylene
TCE = trichloroethylene

Table 11 Location-Specific ARARs, TBCs, and Other Guidance

Act/Authority	Criteria/Issues	Citation	Brief Description
State Location-Specific Guidance			
Environmental Conservation Law	Floodplain Management Regulations Development Permits	6 NYCRR 500	Describes development permitting requirements for areas in floodplains
	Use and Protection of Waters	6 NYCRR 608	Regulates the modification or disturbance of streams
	Wild, Scenic, and Recreational Rivers	6 NYCRR 666	Regulations for administration and management
	Floodplains	6 NYCRR 502	Contains floodplain management criteria for state projects
Federal Location-Specific Guidance			
National Historical Preservation Act 16 USC Section 469	Preservation of archaeological and historical data	36 CFR Part 65	Action to recover and preserve artifacts
National Historical Preservation Act Section 106 (16 USC 470)	Historic landmarks, property, or projects owned or controlled by federal agencies	36 CFR Part 800	Preserve historic property, minimize harm to National Historic Landmarks
Floodplain Management	Executive Order No. 11988	40 CFR 6.302 (b) (2005)	Regulates activities in a floodplain

Key:
CFR = Code of Federal Regulations
NYCRR = New York Codes, Rules and Regulations
USC = United States Code

Table 12 Action-Specific ARARs, TBCs, and Other Guidance

Act/Authority	Criteria/Issues	Citation	Brief Description
Local Action-Specific Guidance			
Lockport City Code	Demolition of Buildings	Chapter 68	Involves permitting and requirements for removal of dams and structures within the Creek Channel
	Environmental quality review	Chapter 92	General regulations regarding environmental projects conducted within the city; requires enforcement of 6 NYCRR 617
	Noise	Chapter 125	Places restrictions on unnecessary noise during certain time periods
	Parks	Chapter 129	Regulates various activities conducted in city parks
	Sewers	Chapter 150	Regulates discharge of waters to city sewers
	Streets and Sidewalks	Chapter 158	Regulates alterations of roads and sidewalks including excavation, widening, etc.
	Trees	Chapter 176	Regulates cutting down and planting trees on public land
	Vehicles and Traffic	Chapter 183	Places restrictions on vehicle traffic throughout the city, and defines truck routes and weight limits on certain streets
	Water	Chapter 185	Places restrictions on access and use of city water mains
State Action-Specific Guidance			
New York State Vehicle and Traffic Law, Article 386; Environmental Conservation Law Articles 3 and 19.	Noise from Heavy Motor Vehicles	6 NYCRR 450	Defines maximum acceptable noise levels
Environmental Conservation Law, Articles 3 and 19	Prevention and Control of Air Contaminants and Air Pollution	6 NYCRR 200 - 202	Establishes general provisions and requires construction and operation permits for emission of air pollutants

Table 12 Action-Specific ARARs, TBCs, and Other Guidance

Act/Authority	Criteria/Issues	Citation	Brief Description
Environmental Conservation Law, Articles 1, 3, and 15	Dam Removal and Barrier Mitigation In New York State	6 NYCRR Part 673	Describes dam safety regulations, which regulate permitting for "application for permit for the construction, reconstruction or repair of a dam or other impoundment structure." Joint application package would include all applicable NYSDEC permits and permits for certain other agencies (Department of State, Office of General Services, and USACE)
Environmental Conservation Law, Article 19; also Public Health Law Articles 1271 and 1276 (Part 288 only)	Air Quality Classifications and Standards	6 NYCRR 256, 257	Part 256: New York Ambient Air quality Classification System Part 257: Air quality standards for various pollutants including particulates and non-methane hydrocarbons
Environmental Conservation Law, Articles 1, 3, 8, 19, 23, 27, 52, 54, and 70	Solid Waste Management Facilities	6 NYCRR 360	360-1: General provisions; includes identification of "beneficial use" potentially applicable to non-hazardous oily waste/soil (360-1.15). 360-2: Regulates construction and operation of landfills, including construction and demolition debris landfills
New York Waste Transport Permit Regulations	Permitting Regulations, Requirements, and Standards for Transport	6 NYCRR 364	The collection, transport and delivery of regulated waste, originating or terminating at a location within New York, will be governed in accordance with Part 364

Table 12 Action-Specific ARARs, TBCs, and Other Guidance

Act/Authority	Criteria/Issues	Citation	Brief Description
Environmental Conservation Law, Articles 3, 19, 23, 27, and 70	Hazardous Waste Management System - General	6 NYCRR 370	Provides definition of terms and general standards applicable to 6 NYCRR 370 - 374, 376
	Identification and Listing of Hazardous Waste	6 NYCRR 371	Identifies characteristic hazardous waste (PCBs and metals) and lists specific wastes
	Hazardous Waste Manifest System and Related Standards	6 NYCRR 372	Establishes manifest system and record keeping standards for generators and transporters of hazardous waste and for treatment, storage, and disposal facilities
	Hazardous Waste Treatment, Storage, and Disposal Facility Permitting Requirements	6 NYCRR 373	Regulates treatment, storage, and disposal of hazardous waste
	Standards for the Management of Specific Hazardous Wastes and Specific Types of Hazardous Waste Management Facilities	6 NYCRR 374	Subpart 374-1 establishes standards for the management of specific hazardous wastes
Environmental Conservation Law, Articles 1, 3, 27, and 52; Administrative Procedures Act Articles 301 and 305	Inactive Hazardous Waste Disposal Site	6 NYCRR 375	Identifies process for investigation and remedial action at state funded Registry sites; provides exception from NYSDEC permits
Environmental Conservation Law, Articles 3 and 27	Land Disposal Restrictions	6 NYCRR 376	Identifies hazardous wastes that are restricted from land disposal. Defines treatment standards for hazardous waste

Table 12 Action-Specific ARARs, TBCs, and Other Guidance

Act/Authority	Criteria/Issues	Citation	Brief Description
New York Environmental Quality Review Regulations		6 NYCRR 617	Implements provisions of SEQRA
Environmental Conservation Law, Articles 11 and 17	Classifications – Surface Waters and Groundwaters	6 NYCRR 701	Classifies waters of the state
	Surface Water and Groundwater Quality Standards and Groundwater Effluent Limitations	6 NYCRR 703	Provides qualitative and quantitative water quality standards based on water body classification
Implementation of SPDES Program in New York	General Permit for Stormwater	6 NYCRR 750 – 758	Regulates permitted releases into waters of the state
Environmental Justice and Permitting	Environmental Justice	Commissioner Policy 29	Policy incorporates environmental justice concerns into NYSDEC's public participation provisions and application of the State Environmental Quality Review Act
Federal Action-Specific Guidance			
Comprehensive Environmental Response, Compensation, and Liability Act of 1980 and Superfund Amendments and Reauthorization Act of 1986	National Contingency Plan	40 CFR 300, Subpart E	Outlines procedures for remedial actions and for planning and implementing off-site removal actions
Occupational Safety and Health Act	Worker Protection	29 CFR 1904, 1910, and 1926	Specifies minimum requirements to maintain worker health and safety during hazardous waste operations. Includes training requirements and construction safety requirements

Table 12 Action-Specific ARARs, TBCs, and Other Guidance

Act/Authority	Criteria/Issues	Citation	Brief Description
Executive Order	Delegation of Authority	Executive Order 12316 and Coordination with Other Agencies	Delegates authority contained in CERCLA and the NCP to federal agencies
Clean Air Act	National Primary and Secondary Ambient Air Quality Standards	40 CFR 50	Establishes emission limits for six pollutants (SO_2, PM_{10}, CO, O_3, NO_2, and Pb)
	National Emission Standards for Hazardous Air Pollutants	40 CFR 61	Provides emission standards for eight contaminants; Identifies 25 additional contaminants, including PCE and TCE, as having serious health effects but does not provide emission standards for these contaminants
Toxic Substances Control Act	Rules for Controlling PCBs	40 CFR 761	Provides guidance on storage and disposal of PCB-contaminated materials
RCRA	Criteria for Municipal Solid Waste Landfills	40 CFR 258	Establishes minimum national criteria for management of non-hazardous waste
	Hazardous Waste Management System - General	40 CFR 260	Provides definition of terms and general standards applicable to 40 CFR 260 - 265, 268
	Identification and Listing of Hazardous Waste	40 CFR 261	Identifies solid wastes that are subject to regulation as hazardous wastes
	Standards Applicable to Generators of Hazardous Waste	40 CFR 262	Establishes requirements (e.g., EPA identification numbers and manifests) for generators of hazardous waste
	Standards Applicable to Transporters of Hazardous Waste	40 CFR 263	Establishes standards that apply to persons transporting manifested hazardous waste within the United States

Table 12 Action-Specific ARARs, TBCs, and Other Guidance

Act/Authority	Criteria/Issues	Citation	Brief Description
	Standards Applicable to Owners and Operators of Treatment, Storage, and Disposal Facilities	40 CFR 264	Establishes the minimum national standards that define acceptable management of hazardous waste
	Standards for Owners of Hazardous Waste Facilities	40 CFR 265	Establishes interim status standards for owners and operators of hazardous waste treatment, storage, and disposal facilities
	Land Disposal Restrictions	40 CFR 268	Identifies hazardous wastes that are restricted from land disposal
	Hazardous Waste Permit Program	40 CFR 270, 124	The EPA administers hazardous waste permit program for CERCLA/Superfund Sites. Covers basic permitting, application, monitoring, and reporting requirements for off-site hazardous waste management facilities
Clean Water Act	EPA Pretreatment Standards	40 CFR 403	Establishes responsibilities of federal, state, and local government to implement National pretreatment standards to control pollutants that pass through to a POTW
Clean Water Act	Disposal of Dredge or Fill Material Guidelines	40 CFR 230, 231	Identifies potential effects and permitting requirements for the discharge of dredge or fill materials in waters of the United States or ocean waters

Table 12 Action-Specific ARARs, TBCs, and Other Guidance

Act/Authority	Criteria/Issues	Citation	Brief Description

Key:

ARAR	=	applicable or relevant and appropriate requirements
CERCLA	=	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	=	Code of Federal Regulations
EPA	=	(United States) Environmental Protection Agency
NCP	=	National Contingency Plan
NYCRR	=	New York Codes, Rules and Regulations
NYSDEC	=	New York State Department of Environmental Conservation
OSHA	=	Occupational Safety and Health Administration
OU	=	Operable Unit
PCB	=	polychlorinated biphenyl
PCE	=	perchloroethylene
POTW	=	Publicly Owned Treatment Works
RCRA	=	Resource Conservation and Recovery Act
SCG	=	standards, criteria, and guidelines
SEQRA	=	State Environmental Quality Review Act
SPDES	=	State Pollutant Discharge Elimination System
TCE	=	trichloroethylene
TOGS	=	Technical and Operational Guidance Series
USACE	=	United States Army Corps of Engineers

APPENDIX III

ADMINISTRATIVE RECORD INDEX

ADMINISTRATIVE RECORD INDEX OF DOCUMENTS

FINAL

08/30/2016 **REGION ID: 02**

Site Name: EIGHTEENMILE CREEK
CERCLIS ID: NYN000206456
OUID: 02
SSID: A269
Action:

DocID:	Doc Date:	Title:	Image Count:	Doc Type:	Addressee Name/Organization:	Author Name/Organization:
395952	8/30/2016	ADMINISTRATIVE RECORD INDEX FOR OU2 FOR THE EIGHTEENMILE CREEK SITE	4	ARI / Administrative Record Index		R02: (US ENVIRONMENTAL PROTECTION AGENCY)
407744	12/1/1983	NYSDEC PRELIMINARY INVESTIGATION OF THE FLINTKOTE SITE - PHASE I SUMMARY REPORT REGARDING THE EIGHTEENMILE CREEK SITE	73	RPT / Report	R02: (NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION)	R02: (ECOLOGICAL ANALYSTS INCORPORATED)
407747	5/30/1997	NYSDEC PHASE I ENVIRONMENTAL SITE ASSESSMENT REPORT OF FINDINGS - LOCATION 62 MILL STREET REGARDING THE EIGHTEENMILE CREEK SITE	5	RPT / Report		R02: (APEX CONSULTING)
687505	9/1/2000	NYSDEC SITE INVESTIGATION REPORT FOR THE EIGHTEENMILE CREEK SITE	130	RPT / Report		R02: (NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION)
407748	12/1/2001	NYSDEC FINAL REPORT - EIGHTEENMILE CREEK SEDIMENT STUDY FOR THE EIGHTEENMILE CREEK SITE	88	RPT / Report		R02: (NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION)
152779	11/1/2002	NYSDEC PHASE 1 ENVIRONMENTAL SITE ASSESSMENT REPORT FOR WHITE TRANSPORTATION AT THE EIGHTEENMILE CREEK SITE	209	RPT / Report	R02: (NIAGARA COUNTY DEPARTMENT OF PLANNING, DEVELOPMENT AND TOURISM)	R02: (TVGA CONSULTANTS)
152772	2/1/2004	NYSDEC SITE INVESTIGATION - SCOPE OF WORK, EIGHTEEN MILE CREEK CORRIDOR: NEW YORK STATE BARGE CANAL TO NORTH TRANSIT ROAD FOR EIGHTEENMILE CREEK SITE	33	RPT / Report		R02: (NYS DEC)
210446	7/1/2005	NYSDEC SITE INVESTIGATION REPORT - SITE INVESTIGATION/REMEDIAL ALTERNATIVES REPORT (SI/RAR) FOR THE EIGHTEENMILE CREEK SITE	691	RPT / Report	R02: (NIAGARA COUNTY DEPARTMENT OF PLANNING, DEVELOPMENT AND TOURISM)	R02: (TVGA CONSULTANTS)

ADMINISTRATIVE RECORD INDEX OF DOCUMENTS

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08/30/2016

REGION ID: 02

Site Name: EIGHTEENMILE CREEK
CERCLIS ID: NYN000206456
OUID: 02
SSID: A269
Action:

DocID:	Doc Date:	Title:	Image Count:	Doc Type:	Addressee Name/Organization:	Author Name/Organization:
407746	10/21/2005	NYSDEC FINAL REMEDIAL ALTERNATIVES REPORT - SITE INVESTIGATION / REMEDIAL ALTERNATIVES REPORT FOR THE FORMER FLINTKOTE SITE REGARDING THE EIGHTEENMILE CREEK SITE	69	RPT / Report	R02: (NIAGARA COUNTY DEPARTMENT OF PLANNING, DEVELOPMENT AND TOURISM)	R02: (NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION)
436198	3/1/2006	NYSDEC RECORD OF DECISION FOR THE FORMER FLINTKOTE PLANT SITE REGARDING THE EIGHTEENMILE CREEK SITE	53	RPT / Report		R02: (NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION)
152770	9/1/2006	NYSDEC REMEDIAL INVESTIGATION REPORT- EIGHTEEN MILE CREEK CORRIDOR FOR EIGHTEENMILE CREEK SITE	243	RPT / Report		R02: (NYS DEC)
407751	1/1/2007	NYSDEC FINAL REPORT FOR EIGHTEENMILE CREEK PCB SOURCE TRACKDOWN PROJECT FOR THE EIGHTEENMILE CREEK SITE	48	RPT / Report	R02: (NIAGARA COUNTY DEPARTMENT OF PLANNING, DEVELOPMENT AND TOURISM)	R02: (ECOLOGY AND ENVIRONMENT INCORPORATED)
407743	1/15/2007	NYSDEC PHASE I ENVIRONMENTAL SITE ASSESSMENTS - CORRIDOR SITES REGARDING THE EIGHTEENMILE CREEK SITE	50	RPT / Report	R02: (NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION)	R02: (ECOLOGY AND ENVIRONMENT ENGINEERING P.C.)
152775	3/1/2007	NYSDEC FINAL PROJECT MANAGEMENT WORK PLAN FOR THE SUPPLEMENTAL REMEDIAL INVESTIGATION AND FEASIBILITY STUDY AT THE EIGHTEENMILE CREEK SITE	123	WP / Work Plan	R02: (NYS DEC)	R02: (ECOLOGY AND ENVIRONMENT ENGINEERING P.C.)
152776	7/1/2009	NYSDEC FINAL JULY 2009 SUPPLEMENTAL REMEDIAL INVESTIGATION REPORT FOR THE EIGHTEENMILE CREEK SITE	624	RPT / Report	R02: (NYS DEC)	R02: (ECOLOGY AND ENVIRONMENT ENGINEERING P.C.)

ADMINISTRATIVE RECORD INDEX OF DOCUMENTS

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Site Name: EIGHTEENMILE CREEK
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DocID:	Doc Date:	Title:	Image Count:	Doc Type:	Addressee Name/Organization:	Author Name/Organization:
152777	7/1/2009	NYSDEC FINAL JULY 2009 ADDITIONAL INVESTIGATION ADDENDUM TO THE SUPPLEMENTAL REMEDIAL INVESTIGATION REPORT FOR THE EIGHTEENMILE CREEK SITE	170	RPT / Report	R02: (NYS DEC)	R02: (ECOLOGY AND ENVIRONMENT ENGINEERING P.C.)
407754	9/1/2009	NYSDEC ANALYTICAL REPORT - SITE NO. 932121 FOR THE EIGHTEENMILE CREEK SITE	327	RPT / Report	R02: (NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION)	R02: (TEST AMERICA)
436197	9/1/2009	NYSDEC FEASIBILITY STUDY REPORT FOR OU2 CORRIDOR FOR THE EIGHTEENMILE CREEK SITE	207	RPT / Report	R02: (NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION)	R02: (ECOLOGY AND ENVIRONMENT INCORPORATED)
436199	3/1/2010	NYSDEC RECORD OF DECISION FOR THE CORRIDOR SITE FOR NYS OU1, OU3, OU4, OU5, AND OU6 - STATE SUPERFUND PROJECT REGARDING THE EIGHTEENMILE CREEK SITE	79	RPT / Report		R02: (NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION)
407755	10/4/2010	NYSDEC RESULTS FROM THE SAMPLING OF ERIE CANAL SUSPENDED SEDIMENTS AND CREEK WATERS FOR PCBS FOR THE EIGHTEENMILE CREEK SITE	33	RPT / Report		R02: (NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION)
692657	9/30/2013	RECORD OF DECISION FOR OU1 FOR THE EIGHTEENMILE CREEK SITE	322	RPT / Report		R02: Mugdan, Walter, E (US ENVIRONMENTAL PROTECTION AGENCY)
436172	7/2/2014	REMEDIAL INVESTIGATION / FEASIBILITY STUDY WORK PLAN FOR OU2 - REVISION 01 FOR THE EIGHTEENMILE CREEK SITE	120	WP / Work Plan	R02: (US ENVIRONMENTAL PROTECTION AGENCY)	R02: (LOS ALAMOS TECHNICAL ASSOCIATES INCORPORATED (LATA))
436260	2/1/2015	PHASE IA LITERATURE REVIEW AND ARCHEOLOGICAL SENSITIVITY ASSESSMENT OU2 FOR THE EIGHTEENMILE CREEK SITE	72	RPT / Report	R02: (LOS ALAMOS TECHNICAL SERVICES, INC.)	R02: (HARTGEN ARCHEOLOGICAL ASSOCIATES INCORPORATED)

ADMINISTRATIVE RECORD INDEX OF DOCUMENTS

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08/30/2016 **REGION ID: 02**

Site Name: EIGHTEENMILE CREEK
CERCLIS ID: NYN000206456
OUID: 02
SSID: A269
Action:

DocID:	Doc Date:	Title:	Image Count:	Doc Type:	Addressee Name/Organization:	Author Name/Organization:
436262	7/1/2016	FINAL SUPPLEMENTAL REMEDIAL INVESTIGATION REPORT OU2 FOR THE EIGHTEENMILE CREEK SITE	463	RPT / Report	R02: (US ENVIRONMENTAL PROTECTION AGENCY), R02: (US ARMY CORPS OF ENGINEERS)	R02: (ECOLOGY AND ENVIRONMENT INCORPORATED)
436263	7/1/2016	HUMAN HEALTH RISK ASSESSMENT OU2 FOR THE EIGHTEENMILE CREEK SITE	723	RPT / Report	R02: (US ENVIRONMENTAL PROTECTION AGENCY), R02: (US ARMY CORPS OF ENGINEERS)	R02: (ECOLOGY AND ENVIRONMENT INCORPORATED)
436264	7/1/2016	FINAL BASELINE ECOLOGICAL RISK ASSESSMENT OU2 SUPPLEMENTAL REMEDIAL INVESTIGATION / FEASIBILITY STUDY FOR THE EIGHTEENMILE CREEK SITE	560	RPT / Report	R02: (US ENVIRONMENTAL PROTECTION AGENCY), R02: (US ARMY CORPS OF ENGINEERS)	R02: (ECOLOGY AND ENVIRONMENT INCORPORATED)
436196	8/18/2016	SCREENING LEVEL ECOLOGICAL RISK ASSESSMENT FOR OU2 FOR THE EIGHTEENMILE CREEK SITE	106	RPT / Report	R02: (US ENVIRONMENTAL PROTECTION AGENCY)	R02: (ECOLOGY AND ENVIRONMENT INCORPORATED), R02: (LOS ALAMOS TECHNICAL ASSOCIATES INCORPORATED (LATA))
393252	8/24/2016	FINAL SUPPLEMENTAL FEASIBILITY STUDY REPORT FOR OU2 FOR THE EIGHTEENMILE CREEK SITE	173	RPT / Report	R02: (US ENVIRONMENTAL PROTECTION AGENCY), R02: (US ARMY CORPS OF ENGINEERS)	R02: (ECOLOGY AND ENVIRONMENT INCORPORATED)
436180	8/30/2016	FINAL TIER 1 SEDIMENT SITE CONSIDERATION MEMORANDUM FOR OU2 FOR THE EIGHTEENMILE CREEK SITE	13	MEMO / Memorandum	R02: Yi, Ji-sun (US ENVIRONMENTAL PROTECTION AGENCY), R02: Ells, Steve (US ENVIRONMENTAL PROTECTION AGENCY)	R02: Kondrk, Jaclyn (US ENVIRONMENTAL PROTECTION AGENCY)
393244	8/30/2016	PROPOSED PLAN FOR OU2 FOR THE EIGHTEENMILE CREEK SITE	24	PUB / Publication		R02: (US ENVIRONMENTAL PROTECTION AGENCY)

APPENDIX IV

STATE LETTER OF CONCURRENCE

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Environmental Remediation, Office of the Director
625 Broadway, 12th Floor, Albany, New York 12233-7011
P: (518) 402-9706 | F: (518) 402-9020
www.dec.ny.gov

January 19, 2017

SENT VIA EMAIL ONLY

Mr. Walter E. Mugdan (mugdan.walter@epa.gov)
Director
Emergency and Remedial Response Division
United States Environmental Protection
Agency, Region 2
290 Broadway, Floor 19
New York, New York 10007-1866

RE: Eighteen Mile Creek Superfund Site, Site No. 932121
Record of Decision – OU2
New York State Concurrence

Dear Mr. Mugdan:

The New York State Department of Environmental Conservation (NYSDEC) and Department of Health (NYSDOH) have reviewed the Record of Decision (ROD) dated January 2017, for the subject site. We understand the remedy for this site addresses contaminated soil and sediment, designated as EPA Operable Unit 2 (NYSDEC Operable Units 01 through 05). The remedy includes:

- Bank-to-bank excavation of contaminated sediment from the Creek Corridor (NYSDEC OU 01);
- Stabilization of creek bank soil;
- Excavation of contaminated soil/fill at the United Paperboard Company (NYSDEC OU 03), Upson Park (NYSDEC OU 04), and White Transportation (NYSDEC OU 05) properties;
- A combination of excavation and capping of contaminated soil/fill at the former Flintkote Plant property (NYSDEC OU 02);
- Off-site disposal of excavated soil/fill and sediments;
- Since contaminated soil/fill will remain on the properties following remediation, institutional controls will be implemented and may include environmental easements/restrictive covenants, deed notices, and/or zoning restrictions to limit future use of the properties;

- Long-term monitoring will be conducted periodically to visually inspect the cover system and ensure remedy effectiveness;
- A Site Management Plan will be developed to provide for the proper management of the remedy at the properties post-construction; and
- A review of site conditions will be conducted no less often than once every five (5) years until cleanup levels are achieved.

Based on this information, we concur with the ROD for remediation of the Eighteen Mile Creek Superfund Site, EPA Operable Unit 2.

If you have any questions or need additional information, please contact Mr. Glenn May, the NYSDEC Project Manager, at (716) 851-7220.

Sincerelv.

Robert W. Schick, P.E.
Director
Division of Environmental Remediation

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M. Cruden, NYSDEC (michael.cruden@dec.ny.gov)
B. Putzig, NYSDEC (bart.putzig@dec.ny.gov)
G. May, NYSDEC, Region 9 (glenn.may@dec.ny.gov)

EIGHTEEN MILE CREEK SUPERFUND SITE

Operable Unit 2

RECORD OF DECISION

APPENDIX V

RESPONSIVENESS SUMMARY

RESPONSIVENESS SUMMARY
FOR THE
RECORD OF DECISION
EIGHTEEN MILE CREEK SUPERFUND SITE
OPERABLE UNIT 2
Lockport, New York

INTRODUCTION

This Responsiveness Summary provides a summary of the significant comments and concerns submitted by the public on the U.S. Environmental Protection Agency's August 2016 Proposed Plan for the Eighteen Mile Creek Superfund Site (Site), Operable Unit 2 (OU2), and the U.S. Environmental Protection Agency's responses to those comments and concerns. All comments summarized in this document have been considered in EPA's final decision in the selection of a remedy for OU2 at the Site.

SUMMARY OF COMMUNITY RELATIONS ACTIVITIES

The Proposed Plan for OU2 was released to the public on August 31, 2016, along with the Supplemental Remedial Investigation, the Supplemental Feasibility Study, the Baseline Human Health Risk Assessment (HHRA), and the Baseline Ecological Risk Assessment (BERA) reports for OU2. These documents were made available to the public at information repositories maintained at the Lockport Public Library, located at 23 East Avenue, Lockport, New York; the EPA Region 2 Office in New York City, and EPA's website for the Eighteen Mile Creek Site at https://www.epa.gov/superfund/eighteenmile-creek.

On August 31, 2016, EPA published a notice in the *Lockport Union Sun and Journal* informing the public of the commencement of the public comment period for the Proposed Plan, the upcoming public meeting on September 7, 2016, a description of the preferred alternatives, contact information for EPA personnel, and the availability of the above-referenced documents. The public comment period ran from August 31, 2016 to September 30, 2016. EPA held a public meeting on September 7, 2016 at 7:00 P.M. at the 4-H Training Center, Niagara County Fairgrounds at 4487 Lake Avenue, Lockport, New York, to inform officials and interested citizens about the Superfund process, to present the Proposed Plan for OU2 at the Site, including an explanation of the remedial alternatives and the preferred alternatives, and to respond to questions and comments from the attendees. Responses to the questions and comments received at the public meeting and in writing during the public comment period are included in this Responsiveness Summary.

SUMMARY OF COMMENTS AND EPA RESPONSES

Comments and/or questions were received at the public meeting, and five written comments were received during the comment period from August 31, 2016 to September 30, 2016. Copies of the comment letters are provided in Attachment E of this Responsiveness Summary. A summary of significant comments provided at the public meeting and in writing, as well as EPA's responses to them, are provided below.

The comments and responses have been organized into the following topics:

- **Human Health Issues**
- **Site Cleanup**
- **Nature and Extent of Contamination**
- **Other Issues**

HUMAN HEALTH ISSUES

Comment # 1: An individual inquired how the fish consumption advisory for Eighteen Mile Creek is managed.

Response to Comment # 1: Fish consumption advisories, including the advisory for the Eighteen Mile Creek, are issued by the New York State Department of Health (NYSDOH) and updated annually. Information concerning fish consumption advisories is contained in the "Health Advisories" section of the New York State Department of Environmental Conservation's (NYSDEC's) "New York Freshwater Fishing, Official Regulation Guide," which is provided when a fishing license is issued. In addition, information concerning the fish consumption advisory can also be found at: http://www.health.ny.gov/environmental/outdoors/fish/health_advisories/.

Comment # 2: The owner of the property located at 10 Water Street requested that EPA acquire the property as part of the remediation effort. The individual noted EPA's denial of previous requests to include the property as part of EPA's remedy for OU1, which provided for the acquisition of other properties located on Water Street. The owner now expressed concern that, due to the close proximity of the property to the areas requiring remediation, the next phase of the cleanup at the Site will result in truck traffic, contamination migrating into the air and contaminated debris making its way directly in front of the house. In addition, it was noted that the human health assessment identified an increased cancer risk to the recreational user at Upson Park, located across the street from the property and an area that would be remediated under EPA's preferred alternative. Therefore, in an effort to protect the health of the owner's young child, the property owner renewed the request for a buy-out package.

Response to Comment # 2: In November 2013, EPA conducted soil sampling at 10 Water Street and found low concentrations of some contaminants in some soil samples. However, the property owner was previously informed by EPA that, based on EPA's analysis of the data, there was no unacceptable risk found from exposure to the soil at the property and cleanup of the property was not warranted under the federal Superfund program.

EPA recognizes that the potential exists for dust generation in the surrounding community during the performance of work to remediate the Site and the need to properly manage the work to prevent or limit potential exposures during the remedial action. Proven procedures including engineering controls and safe work practices would be used to address potential impacts to the community. In addition, the appropriate air monitoring would be performed during the implementation of any

remedial action at the Site, to ensure the effectiveness of the measures employed to protect the surrounding community.

Regarding soil contamination present at Upson Park, the elevated concentrations of PCBs detected in soils are located in the subsurface along the banks of the Corridor, therefore, the contamination is not readily accessible by an individual visiting the recreational area of Upson Park. Therefore, acquisition of this property based upon its close proximity to the work that will be performed pursuant to this action is not warranted.

SITE CLEANUP

Comment # 3: Several commenters raised concerns regarding buried drums at the Van De Mark Chemical Company facility and the potential to impact the Eighteen Mile Creek.

Response to Comment # 3: The Van De Mark Chemical Company facility is being managed by NYSDEC pursuant to its authority under the Resource Conservation and Recovery Act Program (RCRA). For information related to this facility, contact Mike Hinton at NYSDEC, Division of Environmental Remediation, at 716-851-7220. EPA is coordinating closely with the NYSDEC to ensure that other sources of potential contamination to the Creek are being properly addressed and will not adversely impact the EPA's efforts to address contamination at the Eighteen Mile Creek Superfund Site. As part of its on-going investigation effort at the Site, EPA has conducted interviews with individuals with reported knowledge of disposal activities in the vicinity of the Creek.

Comment # 4: A commenter questioned whether remediation efforts at the Van De Mark Chemical Company facility were sufficient considering the limited access in certain areas of the property.

Response to Comment # 4: Refer to response to Comment # 3, above.

Comment # 5: An individual questioned why EPA is not acquiring the property located at 90 Water Street since the [drinking] water runs yellow at times.

Response to Comment # 5: Based on results from soil samples the EPA collected at the property in October 2014, EPA undertook a removal action and addressed the contaminated soil at the property through excavation and disposal off-Site at an approved facility. Unlike the properties that were acquired as part of OU1, this property is not expected to be subject to flooding, and therefore, is not expected to be re-contaminated from contamination in the Creek. As a result, acquisition of the property is not necessary. The property is serviced through the Lockport Water Company, a public water provider. For further information regarding analytical results for the water distributed in the system, or any other concerns regarding the quality of the drinking water, contact the Lockport Water Company at 716-439-6678. To view a copy of the Annual Drinking Water Quality Report, visit http://www.lockportny.gov/residents/city-departments/water. Copies

of the Annual Drinking Water Quality Reports are also available at the Lockport Public Library, Niagara County Courthouse, and the Lockport City Hall Water Office.

Comment # 6: An individual inquired about the fate of the excavated soils and whether the material would be incinerated.

Response to Comment # 6: As part of the remedy for OU2, soil excavated will be taken off-Site for disposal at an approved disposal facility (landfill). Based on the available information, the concentrations of contaminants in the soil are not high enough to require incineration. During the remedial design phase, EPA will evaluate whether some of the soils could be stabilized on-Site prior to disposal.

Comment # 7: An individual asked whether EPA would be diking the Creek during the sediment cleanup.

Response to Comment # 7: EPA anticipates that the sediments will be excavated "in the dry", meaning that the flow of water in portions of the Creek will be diverted while excavation in that section of the Creek is being performed. The specifications on how the work will be performed will be developed during the remedial design phase that will take place after the ROD is signed.

Comment # 8: Several people inquired when the construction would begin and how long the work would take.

Response to Comment # 8: Prior to the commencement of construction activities, the remedial design must be performed. During the remedial design, the detailed specifications on how the work will be performed are developed. EPA anticipates that the remedial design for OU2 could take between 1.5 to 3 years to complete. Construction of the Creek Channel component of the selected remedy is estimated to take approximately two years and construction activities at the Upson Park, White Transportation, former Flintkote Plant, and former United Paperboard Company properties are anticipated to each take 2 months, 1 month, 4 months, and 2 months, respectively.

Comment # 9: Commenters questioned why the fuel tank at the Liberty Asbestos Site has not been removed. The commenters also expressed their concern that the EPA did not remove the above-grade concrete foundation at the property, resulting in an eyesore that prevents the reuse of the property unless additional money is spent to clean it up.

Response to Comment # 9: The Liberty Asbestos Site, located at 89 Mill Street, is not part of the Eighteen Mile Creek Superfund Site. EPA utilized its removal program to address risks posed by the Site, namely asbestos and asbestos contaminated debris present at the property. The concrete foundation at the Liberty Asbestos Site, does not pose a human health nor environmental threat, and therefore could not be addressed by the removal action.

With respect to the the underground storage tank on the property, NYSDEC, with EPA's collaboration, removed the tank in December 2016. Under CERCLA, EPA is not authorized to spend Superfund monies to address fuel (petroleum) tanks. However, if there is a threat to or impact of a navigable waterway, EPA could take action under the Oil Pollution Act. For further

information on this matter, please contact Mary McIntosh at NYSDEC's Division of Environmental Remediation, at 716-851-7220.

Comment # 10: An individual noted that the millraces and Olcott Street Bridges will be removed and questioned how the OU2 propeties would look upon completion of the remedy.

Response to Comment # 10: The selected remedy includes restoration activities. At the Upson Park, former United Paperboard, White Transportation, and former Flintkote Plant properties, these activities include: backfilling of the excavated areas with clean fill and planting native grasses, shrubs, and/or trees; placement of a cover system over contaminated soil/fill between the access roads and the top of the embankment adjacent to the Creek Channel; installation of access roads (gravel and/or paved) to facilitate implementation of remedial activities in and around the Creek which will remain in place following remediation, except at Upson Park, and form part of the bank stabilization cover system; and paving of pre-existing roadways, parking lots, and access roads.

For the Creek Channel, the selected remedy calls for the removal of the dilapidated and unpermitted Clinton and William Street dams to facilitate the removal of the contaminated sediment. The Millrace adjacent to the former Flintkote Plant property will be excavated, as will the contaminated soil on the Island adjacent to the former Flintkote Plant property. The selected remedy includes restoration of the Creek bank through the placement of stone, topsoil, biodegradeable erosion fabric and live plantings. The area encompassing the Olcott Bridge is part of OU3 and will not be removed as part of this response action.

Comment # 11: An individual inquired about facilities being utilized for the disposal of material removed from the Site and whether sufficient capacity existed.

Response to Comment # 11: For cost estimating and planning purposed, the feasibility study used cost information obtained from the CWM, Model City, NY, disposal facility. At this time, EPA has not selected a disposal facility. Although uncertainty regarding capacity at a specific disposal facility can exist at a given time, EPA's evaluation of the national disposal capacity for hazardous wastes indicates that sufficient capacity is available to handle wastes expected to be generated at this Site. The transportation and off-Site disposal of remediation waste from the Site will be performed consisitent with EPA's Off-Site Rule; meaning any disposal facility utilized will have to be in compliance all applicable state and federal requirements.

Comment # 12: A commenter disagreed with EPA proposing Alternative CC2 (Sediment Excavation) as the preferred alternative to address the Creek Channel at OU2 of the Site. The commenter urged EPA to select Alternative CC3 (Sediment Excavation and Capping) because Alternative CC3 would be no less protective of human health and the environment, cost approximately 20% less, and EPA has selected remedial action alternatives similar to alternative CC3 at many other sites.

Response to Comment # 12: EPA determined that Alternative CC2 best satisfies the requirements of CERCLA and provides the best balance of tradeoffs among the remedial alternatives with respect to the NCP's nine evaluation criteria for OU2 at the Site. Although Alternative CC2 and

Alternative CC3 would each achieve the RAOs and provide protection of human health and the environment in a reasonable timeframe, at this Site the creek sediments contamination is relatively shallow, and the volume of contaminated sediment left in place under Alternative CC3 would be relatively small. While the bank-to-bank excavation of sediment in the Creek Channel under Alternative CC2 may be similarly protective over the long term when compared to Alternative CC3, Alternative CC2 would not require monitoring and maintenance over the long term of what would be a relatively small volume of contaminated sediments.

In addition, based on the comparison of overall effectiveness to cost, Alternative CC2 meets the statutory requirement that Superfund remedies be cost effective in that it represents reasonable value for the money to be spent.

Comment # 13: An individual inquired about EPA's plans to maintain the Water Street properties acquired as part of OU1.

Response to Comment # 13: EPA intends to maintain the fence and grass at the acquired properties as necessary until such time as the properties are remediated and put back to use.

NATURE AND EXTENT OF CONTAMINATION

Comment # 14: Several people expressed concern that the contamination at 205 Mill Street has not been addressed.

Response to Comment # 14: EPA's evaluation of the data collected at 205 Mill Street is on-going. On October 19, 2016, EPA collected additional soil samples at the property and at background locations for analysis. Upon completing the analysis and evaluation of the data, EPA will discuss the results with the property owner.

Comment # 15: Numerous people raised a concerned regarding a letter issued by NYSDEC, dated May 28, 2008, to residents living near the Eighteen Mile Creek Site. Some residents interpreted the letter to state that contamination was present on their property, and inquired as to why EPA was not taking an action at these properties.

Response to Comment # 15: The NYSDEC letter explicitly states that the only residential properties with a Class 2 designation are those residential properties on Water Street which EPA is addressing as part of OU1.

Comment # 16: A commenter questioned whether EPA considered the potential for contamination in the branches and tributaries of Eighteen Mile Creek to re-contaminate the Creek after the remediation has been completed.

Response to Comment # 16: This remedy addresses OU2, commonly referred to as the Creek Corridor, which is the approximately 4,000-foot segment of Creek that extends from the New York State Barge Canal to Harwood Street in the City of Lockport. There are two headwater branches

of the Creek; the East Branch and West Branch. Sediments in both of these branches will be excavated as part of this remedy for OU2. OU3 addresses the contaminated sediments in the Creek that are not addressed by OU2, down to its location of discharge into Lake Ontario in Olcott, New York. As part of the remedial investigation for OU3, EPA will evaluate data for the downstream portion of Eighteen Mile, including the tributaries and branches.

Comment # 17: Several people raised a concern that soil sampling has not been conducted at residential properties on Jackson Street and Harwood Street.

Response to Comment # 17: Based on the results of investigations conducted to date at the Site, the spread of contamination via flooding or direct deposition of the Creek is not expected to extend as far as Jackson and Harwood Streets. Therefore, EPA believes that additional sampling on Jackson and Harwood Street is not necessary at this time. If EPA later determines that there are other properties impacted by the Site (or which are impacting the Site), the Agency can take additional actions to address them at that time.

Comment # 18: An individual inquired about contamination in the Barge Canal and whether EPA considered the possibility that the Canal may re-contaminate the Creek.

Response to Comment # 18: Investigations of the Barge Canal in the project area concluded that Canal sediments do not appear to be a significant contributor of contamination to Eighteen Mile Creek. During the remedial design phase, an evaluation will be conducted of measures to mitigate potential impacts from the Canal to the Creek during maintenance activities at the Canal.

OTHER ISSUES

Comment # 19: An individual inquired about the anonymity of comments in the responsiveness summary.

Response to Comment # 19: An individual submitting written comments may remain anonymous if they so choose.

Comment # 20: An individual was concerned about the classification, storage, and fate of the soil being excavated from Newfane Inner Harbor in Olcott, New York.

Response to Comment # 20: The Town of Newfane obtained a permit from the NYSDEC to remove the dredged sediment from a storage area adjacent to the harbor and move it to the town's compost facility, where it was turned into a berm and covered with grass. Based on the analytical results for sampling conducted of the material dredged from the Olcott Harbor in 2015, the material was classified as non-hazardous. For more information, please contact David S. Denk of the NYSDEC at 716-851-7165.

Comment # 21: An individual questioned whether the Great Lakes Restoration Project Cooperative Extension's grant to install a floating wetland in the Creek would be affected by EPA's remedy.

Response to Comment # 21: EPA does not expect the OU2 remedy to impact the Cooperative Extension's project because the Area of Concern (AOC) for the Great Lakes Restoration Project is not located within the boundaries of OU2; rather the AOC is located further downstream. It is anticipated that the excavation of sediments in the Creek for OU2 will be done "in the dry", meaning the water will be diverted from the excavation area to an area further downstream. During the remedial design phase, EPA will develop the specifications on how the work will be conducted.

Comment # 22: An individual requested EPA consider preserving the turbine and surrounding structure at the former Flintkote Plant property, as it may have historical significance.

Response to Comment # 22: During the remedial design, EPA will be performing additional evaluations pursuant to Section 106 of the National Historic Preservation Act to further identify and record archeological features and deposits, including the turbine. Based on the findings, the appropriate measures will be taken into consideration.

Comment # 23: An individual sent a letter expressing their support of EPA's remedy.

Response to Comment # 23: Comment noted.

Comment # 24: An individual inquired whether or not a microbial community study is being performed at the Site to examine the upstream versus downstream microbial diversity before and after clean up.

Response to Comment # 24: During the remedial investigation for OU2, EPA performed benthic research, but did not examine the diversity. As part of this investigation, EPA did not perform any microbial work in OU2, however, benthic community studies may be of interest for particular areas of the OU3 remedial investigation.

ATTACHMENT A

PROPOSED PLAN

Eighteen Mile Creek Superfund Site
Operable Unit 2 – Creek Corridor
Niagara County, New York

August 2016

EPA ANNOUNCES PROPOSED PLAN

This Proposed Plan identifies the remedial alternatives considered to address soil and sediment contamination in the Creek Corridor, a discrete portion of the Eighteen Mile Creek Superfund Site (Site) in Lockport, New York, and identifies the preferred remedial alternative with the rationale for this preference.

This Proposed Plan was developed by the U.S. Environmental Protection Agency (EPA), the lead agency for the Site, in consultation with the New York State Department of Environmental Conservation (NYSDEC). EPA is issuing this Proposed Plan as part of its public participation responsibilities under Section 117(a) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA, also known as Superfund), as amended, and Section 300.430(f) and 300.435(c) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP).

The nature and extent of contamination for the Creek Corridor of the Site is described in the Supplemental Remedial Investigation (RI) Report, completed by EPA in August 2016. Additional supporting information can also be found in various NYSDEC studies and reports. The remedial alternatives summarized in this plan are described in EPA's Supplemental Feasibility Study (FS) Report, dated August 2016, in addition to the NYSDEC Remedial Alternatives Report for the Flintkote Property and the Feasibility Study Report for the Eighteen Mile Creek Corridor and Upland Properties, dated October 2005 and September 2009, respectively.

In order to satisfy federal regulations pertaining to selecting a remedy under CERCLA, EPA obtained additional information that has been included in the Administrative Record file of this action, as well as other documents. EPA encourages the public to review these documents to gain a more comprehensive understanding of the Site and the Superfund activities that have been conducted.

The purpose of this Proposed Plan is to inform the public of EPA's preferred alternative and to solicit public comments pertaining to all of the remedial alternatives evaluated, including the preferred alternative. The preferred alternative includes the following: bank-to-bank excavation of contaminated sediment from the Creek Corridor; stabilization of Creek bank soil; excavation of contaminated soil/fill at the White Transportation, United Paperboard Company, and Upson Park properties; a combination of excavation and capping of contaminated soil/fill at the former Flintkote Plant property; off-site disposal of excavated soil/fill and sediments; and institutional controls.

Changes to the preferred alternative, or a change from the preferred alternative to another remedial alternative described in this Proposed Plan, may be made if public comments or additional data indicate that such a change will result in a more appropriate remedial action. The final decision regarding the selected remedy will be made after EPA has taken into consideration all public comments. For this reason, EPA is soliciting public comments on all of the alternatives considered in the Proposed Plan and on the detailed analysis section of the Supplemental FS Report because EPA may select a remedy other than the preferred alternative.

MARK YOUR CALENDAR

PUBLIC COMMENT PERIOD:
August 31, 2016 – September 30, 2016
EPA will accept written comments on the Proposed Plan during the public comment period.

PUBLIC MEETING: September 7, 2016 at 7:00 pm
EPA will hold a public meeting to explain the Proposed Plan and all of the alternatives presented in the Feasibility Study. Oral and written comments will also be accepted at the meeting. The meeting will be held at the 4-H Training Center, Niagara County Fairgrounds, located at 4487 Lake Avenue, Lockport, NY.

COMMUNITY ROLE IN SELECTION PROCESS

EPA relies on public input to ensure that the concerns of the community are considered in selecting an effective remedy for each Superfund site. To this end, this Proposed Plan has been made available to the public for a public comment period which begins on August 31, 2016 and concludes on September 30, 2016.

A public meeting will be held during the public comment period at the 4-H Training Center, Niagara County Fairgrounds, 4487 Lake Avenue in Lockport in on September 7 at 7:00 p.m. At that meeting, EPA will present the conclusions of the Supplemental RI/FS, elaborate further on the reasons for recommending the preferred alternative, and receive public comments.

Comments received at the public meeting, as well as written comments, will be documented in the Responsiveness Summary Section of the Record of Decision (ROD), where significant comments will be responded to. The ROD is a document that formalizes the selection of the remedy.

Written comments on the Proposed Plan should be addressed to:

Jaclyn Kondrk
Remedial Project Manager
Western New York Remediation Section
U.S. Environmental Protection Agency
290 Broadway – 20th Floor
New York, New York 10007-1866
Telephone: (212) 637-4317
Email: Kondrk.Jaclyn@epa.gov

INFORMATION REPOSITORIES

Copies of the Proposed Plan and supporting documentation are available at the following information repositories:

Lockport Public Library
23 East Avenue, Lockport, New York 14094
Telephone: (716) 433-5935
Hours of operation:
Mon. –Thurs.: 9 AM – 9 PM
Fri.: 9 AM – 6 PM, Sat.: 9 AM – 5 PM
Sun.: 12:30 PM – 5 PM

USEPA – Region II
Superfund Records Center
290 Broadway, 18th Floor
New York, New York 10007-1866
(212) 637-4308
Hours: Monday – Friday: 9 AM to 5 PM

EPA's website for the Eighteen Mile Creek Site:
www.epa.gov/superfund/eighteenmile-creek

SCOPE AND ROLE OF ACTION

Site remediation activities are sometimes separated into different phases, or operable units (OUs), so that remediation of different aspects of a site can proceed separately, resulting in a more efficient and expeditious cleanup of the entire site. EPA is addressing the Eighteen Mile Creek Site in three OUs. A Site location map is provided as Figure 1.

This Proposed Plan addresses OU2, commonly referred to as the Creek Corridor, which is the approximately 4,000-foot segment of Eighteen Mile Creek (Creek) that extends from the New York State Barge Canal (Canal) to Harwood Street in the City of Lockport. OU2 addresses the contaminated soil at the following adjacent properties: the former Flintkote Plant property; Upson Park; the White Transportation property; and the former United Paperboard Company property. OU2 also addresses contamination within the Creek Channel, which is defined as the sediment within the discrete segment of the Creek. The Creek Channel also includes sediment within the Millrace, which is a small segment of the Creek that splits and flows around an area of soil and fill on the Former Flintkote Plant property. The area of soil and fill is known as the Island. An OU2 Site map is provided as Figure 2.

OU1 addresses the risks associated with the residential soil contamination at nine residential properties located on Water Street and the threats posed from the deteriorating building at the former Flintkote Plant. In September 2013, EPA issued a ROD for OU1. Pursuant to the ROD, the residents at the five occupied residential properties have been permanently relocated, the residences have been acquired, and the structures have been demolished. In addition, the building at the former Flintkote Plant has been demolished. As indicated in the OU1 ROD, the portion of that remedial action involving the soil excavation at the nine residential properties will be performed during cleanup of the sediments in the Creek Corridor to prevent the sediment and soil in the Creek from re-contaminating the above-referenced residential properties.

OU3 addresses the groundwater within the Creek Corridor, as well as contaminated sediments in the Creek that are not addressed by OU2, down to its location of discharge into Lake Ontario in Olcott, New York.

SITE BACKGROUND

Site Description

The Site is located in Niagara County, New York and includes contaminated sediments, soil, and groundwater in and around the Creek.

The headwaters of the Creek consist of an East and West Branch which begin immediately north of the Canal. Water from the Creek's East Branch originates at the spillway on the south side of the Canal, where it is directed northward underneath the Canal and the Mill Street Bridge through a culvert. Water from the West Branch originates from the dry dock on the north side of the Canal and then flows northward. The East and West Branches converge just south of Clinton Street in Lockport and then flow north beneath Clinton Street on the former United Paperboard Company property. There is a dam located in the Creek Channel behind the former United Paperboard Company building, referred to as the Clinton Street Dam, and the ponded water behind the dam is commonly referred to as Mill Pond. On the former Flintkote Plant property, the Creek Channel splits and forms the Millrace, which flows around the Island. Most of the flow follows the channel on the west side of the Island. The Creek flows north for approximately 15 miles and discharges to Lake Ontario in Olcott, New York.

Site Geology and Hydrology

The Creek Channel varies in size from tens of feet wide or less to the south, to more than 50 feet wide in Mill Pond and is located within a well-incised, steeply sloped channel for a portion of its length within the Creek Corridor. In many areas, the Creek Channel bed along the center of the channel is comprised mostly of coarse sand and various sizes of gravel, stone, and rubble. Water depth in the Creek Channel varies from a few inches in the southern-most point of the West Branch to around 10 feet in the center of Mill Pond.

The Creek draws much of its flow from the Canal, but it also receives contributions from upstream areas within the watershed of the Creek and surface runoff during precipitation events or spring snow melts. Drainage within the watershed can be described generally as flowing to the north.

The Creek Corridor has four distinct geologic units. These units, in order of increasing depth, are summarized as follows:

- Topsoil described as a dark brown silty soil with varying amounts of natural organic matter (e.g., leaves and rootlets).

- Fill material consisting primarily of various colored ash and cinder material containing glass, coal, coke, slag, buttons, metal, ceramic, rubber and brick. Where encountered, the thickness of the fill material ranges from approximately 1 to 25 feet;

- A glaciolacustrine deposit consisting primarily of mottled, brown to reddish brown, silty clay and clayey silt containing traces of fine grained sand and fine gravel. This deposit directly overlies bedrock, and where encountered, ranges in thickness from 0.1 to more than 28 feet; and

- Light to dark gray dolostone bedrock with interbedded gray clay underlying the southern portion of the site, and marbleized red and white sandstone underlying the northern portion of the Site. Depth to bedrock at the Site ranges from 1.6 to more than 28 feet, with the greater depths generally associated with the thicker fill areas.

Groundwater underlying the Creek Corridor area occurs in both the soil and fill material above the bedrock (the overburden) and the upper fractured bedrock, and flows toward the Creek along some portion of the Corridor.

Site History

The Creek Corridor has a long history of industrial use dating back to the 19th Century when it was used as a source of hydropower. Various plants operated at the properties within the Creek Corridor.

The former United Paperboard Company property is located at 62 and 70 Mill Street and operated between the late 1880s and early 1890s as a lumber company, and then as a paper company from the late 1890s until at least 1948. The industrial history of the property after 1948 is unknown. The portion of the property near the Clinton Street/Mill Street intersection is currently occupied by Duraline Abrasives and contains one warehouse building on 62 Mill Street. Ash is observed at the surface in many locations on the property.

The White Transportation property consists of four adjoining parcels at 30 through 40 Mill Street. The property was used to store tractor-trailer trucks and other equipment associated with trucking from 1948 until the late 1990s, when operations ceased. When White Transportation closed, tractor-trailers were located throughout the property, many of which contained drums and miscellaneous debris. The trailers and related drums have been removed, but miscellaneous debris remains scattered throughout the property and slag material is observed at the surface.

Upson Park is about 5.9 acres in size and is located on Clinton Street. In the mid-1880s, the Upson Park property was used by a canal boat building company. By 1892 the canal boat company was no longer in operation, but a pulp mill and pulp company were operating on the property. The pulp mill operated until sometime between 1919 and 1928, while the pulp company operated until at least 1948. The

history of the property after that time is unknown. Ash similar to that at other properties within the Creek Corridor is observed at the surface along the Creek. Upson Park is a public park along the Canal used for walking, picnicking and other passive recreational activities.

The former Flintkote Plant property is approximately six acres in size and consists of two adjoining parcels at 198 and 300 Mill Street. The former Flintkote Company began operations as a manufacturer of felt and felt products in 1928, when the property was purchased from the Beckman Dawson Roofing Company. In 1935, Flintkote began production of sound-deadening and tufting felt for installation and use in automobiles. Manufacturing of this product line continued until December 1971, when operations ceased and the plant closed. Aerial photographs suggest that by 1938, fill was disposed in the section of 300 Mill Street between the Creek and the Millrace in an area known as the Island.

SUMMARY OF PREVIOUS NYSDEC INVESTIGATIONS

In 1999, NYSDEC conducted an investigation of the former Flintkote Plant property. The results of the investigation are presented in a September 2000 report entitled, "*Site Investigation Report, Former Flintkote Plant Site.*" The investigation revealed that the former Flintkote Plant property received various wastes, refuse, and debris over the years. Much of the waste material was visible at the surface and along the embankments of the Creek, which runs through the former Flintkote Plant property, and the Millrace. The subsurface investigation revealed that most of the waste material at the former Flintkote Plant property is ash containing glass, coal, coke, slag, ceramic, bottles, brick, buttons, and wood.

In 2003, Niagara County, under NYSDEC's Environmental Restoration Program, conducted an additional investigation at the former Flintkote Plant property. As part of this study, soil, fill, groundwater, surface water, sediment, and waste samples were collected from the property to characterize the nature and extent of contamination. The sampling revealed the presence of approximately 46,500 cubic yards of ash fill at the property and elevated concentrations of polychlorinated biphenyls (PCBs), metals, and semi-volatile organic compounds (SVOCs) including polynuclear aromatic hydrocarbons (PAHs) in the soil and sediment in the building's basement. Moreover, a trench and sump which extended below the basement floor were found to contain contaminated sediment. The field activities and findings of both the 1999 and 2003 investigations are described in Niagara County's July 2005 "*Site Investigation Report.*" These investigations, however, did not characterize the soil or determine the extent of suspected contamination beneath the large abandoned former Flintkote building, because the building was dilapidated, unsafe for personnel to enter, and too confining to employ drilling equipment. In March 2006, NYSDEC selected a remedy under state law for the entire former Flintkote Plant property. With the placement of the Eighteen Mile Creek Site on the National Priorities List (NPL) in 2012, which included the former Flintkote Plant property, that state remedy has not been implemented, and EPA and NYSDEC expect that the 2006 remedy will be superseded by NPL remedies. As discussed previously, EPA issued a ROD requiring the demolition of the building at the former Flintkote Plant property in September 2013, and that portion of the remedy has been completed.

In April 2005, NYSDEC initiated an investigation of the former United Paperboard Company property, Upson Park, the White Transportation property, and the Creek Channel. The results of the investigation are presented in a September 2006 report entitled, "*Remedial Investigation Report,*" the July 2009 reports entitled, "*Supplemental Remedial Investigation (SRI) Report*" and "*Additional Investigation Addendum to the Supplemental Remedial Investigation Report."* These investigations documented the presence of fill on these properties, with surface and subsurface soil and fill contaminated with PCBs, metals and SVOCs.

In March 2010, NYSDEC selected a remedy under state law that included the former United Paperboard Company property, the White Transportation property, Upson Park, the Creek Channel, and the Millrace. For the reasons cited above, the State remedy has also not implemented that remedy. The March 2010 NYSDEC remedy also included the Water Street residential properties. As discussed previously, EPA selected a remedy for the Water Street properties in September 2013, and a portion of the remedy has been completed. As discussed above, EPA plans to address the residential property soil remediation portion of the OU1 remedy concurrent with the implementation of an OU2 Creek Corridor remedy.

RESULTS OF EPA's SUPPLEMENTAL REMEDIAL INVESTIGATION

EPA commenced its supplemental investigation of OU2 in 2014, which resulted in the Supplemental Remedial Investigation Report, dated August 2016. This report provides the analytical results of additional soil, fill, sediment, and groundwater samples collected to further characterize the nature and extent of contamination at this OU.

Soil
Soil sampling activities were conducted in phases between 2014 and 2016. At the former Flintkote Plant property, in addition to drilling soil borings in 2014, test pits were excavated after EPA removed the building in 2015. EPA collected surface and subsurface samples of soil and fill from vaults inside the footprint of the building and beneath the building foundations that were not previously accessible for sampling. The sampling revealed maximum concentrations of PCBs, lead, and the PAH (benzo(A)anthracene) at 33 ppm, 2,480 ppm, and 4.6 ppm, respectively.

At Upson Park, soil samples were collected to further delineate an area with elevated PCB concentrations. The sampling revealed maximum concentrations of PCBs and lead, at 250 ppm and 2,080 ppm, respectively.

In addition, surface soil samples were collected at the former Flintkote Plant property, Upson Park, and the former United Paperboard Company property in support of the invertebrate bioaccumulation studies as part of the ecological risk assessment. The results of this study are described in the baseline ecological risk assessment section on page 8. Additional soil sampling was not conducted at the White Transportation Company property as part of EPA's Supplemental RI, due to lack of suitable ecological habitat.

Sediment
To support the Baseline Ecological Risk Assessment (BERA), sediment samples were collected from the Creek Corridor in areas with elevated chemical concentrations in sediment identified during previous NYSDEC investigations which indicated that there was the potential for both acute and chronic toxicity impacts. Toxicity testing was performed to determine if ecological impacts exist. Acid volatile sulfides/simultaneously extracted metals (AVS/SEM) and organic carbon in sediment were also measured to help assess the bioavailability of divalent metals including cadmium, copper, lead, nickel, zinc, monovalent silver, and mercury. Surface sediment (0 to 0.5 feet beneath the sediment water interface) and surface water samples were collected in the Creek Channel at the same locations to assess the correlation of chemical parameters with toxicity testing and provide additional data for the BERA. The results of the BERA are described in the ecological risk assessment section on page 8.

Fish
Fish were collected from the Creek Corridor and background locations in May 2015. Fish tissue samples were used to assess the bioaccumulation exposure pathway from the sediment to fish in support of the baseline human health risk assessment (BHHRA) and BERA. The target fish species were forage sunfish for the BERA and adult largemouth bass (game fish) for the BHHRA. Fewer fish tissue samples were collected than originally planned due to insufficient numbers of suitable species present for game fish and forage fish. As a result, the range of fish species collected for analysis was expanded to include silver redhorse, smallmouth bass, and walleye for fillet analysis. The fish analysis indicated that concentrations of PCBs, mercury, lead, and the pesticide dichloro-diphenyl-trichloroethane (DDT) in fish were at a maximum concentration of 0.83 ppm, 0.18 ppm, 0.78 ppm, and 0.11 ppm, respectively.

The New York State Department of Health (NYSDOH) issued a fish consumption advisory for Eighteen Mile Creek in 1994 after the State found elevated levels of PCBs during sampling. The NYSDOH advisory, which is still in effect, recommends that men, women, and children should not eat any fish from Eighteen Mile Creek.

Surface Water
Surface water samples collected within the Creek Corridor as part of EPA's Supplemental RI did not reveal the presence of PCBs. However, other contaminants such as metals, pesticides, and SVOCs were detected.

Groundwater
As part of EPA's Supplemental RI, additional shallow groundwater monitoring wells were installed within the Creek Corridor to further characterize the volatile organic compound (VOC) contamination and identify gradient and flow directions of groundwater. Groundwater monitoring well installation and sampling results are provided in EPA's Supplemental RI Report. As discussed in the Scope and Role of Action section, groundwater is not the subject of this Proposed Plan and will be addressed in OU3.

PRINCIPAL THREAT WASTE

EPA's findings to date indicate the presence of principal threat wastes at the former Flintkote Plant property and Upson Park, associated with elevated concentrations of PCBs. Based upon EPA's guidance, principal threats at industrial sites include soils contaminated at concentrations greater than or equal to 500 ppm PCBs. For residential areas, principal threats will generally include soils contaminated at concentrations greater than 100 ppm PCBs. At the former Flintkote Plant property, currently zoned for industrial use, PCBs were detected at a maximum concentration of 626 ppm. At Upson Park, currently an open recreation space area, PCBs were detected at a maximum concentration of 390 ppm. A detailed explanation of principle threat wastes can be found in the box, "What is a Principle Threat?"

WHAT IS A "PRINCIPAL THREAT?"

The NCP establishes an expectation that EPA will use treatment to address the principal threats posed by a Site wherever practicable (NCP Section 300.430(a)(1)(iii)(A)). The "principal threat" concept is applied to the characterization of "source materials" at a Superfund site. A source material is material that includes or contains hazardous substances, pollutants, or contaminants that act as a reservoir for migration of contamination to ground water, surface water, or air, or acts as a source for direct exposure. Contaminated ground water generally is not considered to be a source material; however, Non-Aqueous Phase Liquids (NAPLs) in groundwater may be viewed as source material. Principal threat wastes are those source materials considered to be highly toxic or highly mobile that generally cannot be reliably contained, or would present a significant risk to human health or the environment should exposure occur. The decision to treat these wastes is made on a site-specific basis through a detailed analysis of the alternatives using the nine remedy selection criteria. This analysis provides a basis for making a statutory finding that the remedy employs treatment as a principal element.

RISK SUMMARY

As part of the Supplemental RI for OU2, EPA conducted a BHHRA and a BERA to estimate the current and future effects of contaminants on human health and the environment. A baseline risk assessment is the analysis of the potential adverse human health and ecological effects caused by hazardous substance releases from a site, assuming no further actions to control or mitigate exposure to these hazardous substances are taken.

In addition, in December 2015, the NYSDOH, under a cooperative agreement with the U.S. Department of Health and Human Services, Agency for Toxic Substances and Disease Registry conducted a public health assessment for the Site. A copy of the public health assessment is available in the Administrative Record for this action.

Human Health Risk Assessment

The BHHRA evaluated potential health effects that could result from exposure to sediment, soil and fill, surface water and fish at OU2. The BHHRA evaluated potential risks to receptors under current and future land use scenarios. The current NYSDOH fish consumption advisory for the Eighteen Mile Creek was not considered in the assessment since the BHHRA does not consider such an institutional control in the development of potential exposure scenarios.

The former Flintkote Plant property, the White Transportation property, and the former United Paperboard Company property are zoned as commercial/industrial use. The Creek Channel abuts these properties. Upson Park, a park land used for recreational purposes, also abuts the Creek Channel. The Creek Channel is not used for commercial purposes but is accessible for recreational uses, such as fishing. The City of Lockport, in its Comprehensive Plan and Tourism Focus Area Nomination Study, also identified additional park land and mixed waterfront uses as potential future use changes for the properties addressed by this action at the Site.

Consistent with EPA policy and guidance, cancer risks and noncancer health hazards were evaluated for the reasonable maximum exposed (RME) individual and the central tendency exposed (CTE) individual. The RME is considered the maximum exposure that is reasonably estimated to occur at a site and is not a worst-case scenario. The CTE, which is the average exposure to an individual, is not provided in this Proposed Plan, as the RME is the basis for decisions under Superfund. However, this additional characterization of CTE is included in the BHHRA for OU2, which is available in the Administrative Record of this action.

A four-step human health risk assessment process was used for assessing Site-related cancer risks and noncancer hazards. The four-step process is comprised of: Hazard Identification of Chemicals of Potential Concern (COPCs), Exposure Assessment, Toxicity Assessment, and Risk Characterization. For additional information, refer to the box, "What is Human Health Risk and How is it Calculated".

Potential current and future receptors who may be exposed to the Creek Channel include the following: anglers who may fish in the Creek Channel and consume their catch or share it with family members; recreational users who may contact surface soil and sediment in the Creek Channel; and recreational users and outdoor workers who may be exposed to surface soil and sediment at Upson Park.

Potential current and future receptors who may be exposed to the former United Paperboard Company property, the White Transportation property, or the former Flintkote Plant property include the following: construction workers who may contact exposed soils at depths during future construction; site visitors/trespassers and outdoor workers who may contact exposed surface soil; future workers who may be exposed to dust through inhalation of particulates in indoor air derived from surface soil; and future residents who may contact subsurface soils brought to the surface during construction without appropriate management of the soil.

The following tables summarize the noncancer hazards and cancer risks exceeding the cancer risk range (10^{-4} to 10^{-6}) or

a Hazard Index (HI) greater than 1 for the receptors described above. Each table also identified the COCs for the pathways. A more detailed discussion of the exposure pathways and estimates of risk can be found in the BHHRA for OU2 in the Administrative Record of this action.

WHAT IS HUMAN HEALTH RISK AND HOW IS IT CALCULATED?

Human Health Risk Assessment: A Superfund baseline human health risk assessment is an analysis of the potential adverse health effects caused by hazardous substance releases from a site in the absence of any actions to control or mitigate these releases under current- and anticipated future-land uses. A four-step process is utilized for assessing site-related human health risks for reasonable maximum exposure (RME) scenarios.

Hazard Identification: In this step, the chemicals of potential concern (COPCs) at the site in various media (*i.e.*, soil, fish, surface water, and air) are identified based on such factors as toxicity, frequency of occurrence, and fate and transport of the contaminants in the environment, concentrations of the contaminants in specific media, mobility, persistence, and bioaccumulation.

Exposure Assessment: In this step, the different exposure pathways through which people might be exposed to the contaminants in air, water, soil, etc. that were identified in the previous step are evaluated. Examples of exposure pathways include incidental ingestion of and dermal contact with contaminated soil and ingestion of and dermal contact with contaminated fish. Factors relating to the exposure assessment include, but are not limited to, the concentrations in specific media that people might be exposed to and the frequency and duration of that exposure. Using these factors, a "reasonable maximum exposure" RME scenario, which portrays the highest level of human exposure that could reasonably be expected to occur, is calculated.

Toxicity Assessment: In this step, the types of adverse health effects associated with chemical exposures, and the relationship between magnitude of exposure and severity of adverse effects are determined. Potential health effects are chemical-specific and may include the risk of developing cancer over a lifetime or other noncancer health hazards, such as changes in the normal functions of organs within the body (*e.g.*, changes in the effectiveness of the immune system). Some chemicals are capable of causing both cancer risks and noncancer health hazards.

Risk Characterization: This step summarizes and combines outputs of the exposure and toxicity assessments to provide a quantitative assessment of site risks for all COPCs. Exposures are evaluated based on the potential risk of developing cancer and the potential for noncancer health hazards. The likelihood of an individual developing cancer is expressed as a probability. For example, a 10^{-4} cancer risk means a "one-in-ten-thousand excess cancer risk;" or one additional cancer may be seen in a population of 10,000 people as a result of exposure to Site contaminants under the conditions identified in the Exposure Assessment. Current Superfund regulations for exposures identify the range for determining whether remedial action is necessary as an individual excess lifetime cancer risk of 10^{-4} to 10^{-6}, corresponding to a one-in-ten-thousand to a one-in-a-million excess cancer risk. For noncancer health effects, a "hazard index" (HI) is calculated. The key concept for a noncancer HI is that a "threshold" (measured as an HI of less than or equal to 1) exists below which noncancer health hazards are not expected to occur. The goal of protection is 10^{-6} for cancer risk and an HI of 1 for a noncancer health hazard. Chemicals that exceed a 10^{-4} cancer risk or an HI of 1 are typically those that will require remedial action at a site and are referred to as chemicals of concern, or COCs, in the final remedial decision document or Record of Decision.

Table 1. Summary of noncancer hazards and cancer risks associated with the consumption of fish (ingestion of fish) from the Creek Channel under current and future scenarios.

Receptor	Hazard Index	Cancer Risk
Recreational User – Consuming Fish Tissue		
Young Child	14.0	3.8×10^{-5}
Adolescent	8.6	4.8×10^{-5}
Adult	7.7	7.1×10^{-4}
COCs in fish were PCBs and mercury.		

Table 2. Summary of noncancer hazards and cancer risks associated with exposure to surface and subsurface soil at Upson Park under current and future scenarios. The exposures pathways direct contact (dermal contact and ingestion) and inhalation of particulates and volatilized chemicals).

Receptor	Hazard Index	Cancer Risk
Recreational User – Exposed to Surface Soils		
Young Child	7.1	2.4×10^{-5}
Adolescent	3.1	2.1×10^{-5}
Outdoor Worker – Exposed to Surface Soils		
Adult	3.2	4.9×10^{-5}
Construction Worker – Exposed to Subsurface Soils		
Adult	7.9	4.6×10^{-6}
COC was PCBs.		

Table 3. Summary of noncancer hazards and cancer risks associated with exposure to surface soils and sediment at the former Flintkote Plant property under current and future scenarios. The exposures pathways direct contact (dermal contact and ingestion) and inhalation of particulates and volatilized chemicals).

Receptor	**Hazard Index**	**Cancer Risk**
Visitor/Trespasser – Exposed to Surface Soils		
Young Child	3.1	1.4×10^{-4}
Adolescent	1.8	1.3×10^{-5}
Outdoor Worker – Exposed to Surface Soils		
Adult	2.8	1.5×10^{-4}
Construction Worker – Exposed to Subsurface Soils		
Adult	8.1	3.4×10^{-6}
COCs in soils and sediments for the visitor/trespasser were PCBs and PAHs (bennzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoroanthene, and dibenzo(ah)anthracene. The risk drivers for the construction worker was antimony and PCBs.		

Table 4. Summary of noncancer hazards and cancer risks associated with surface and subsurface soil at the United Paperboard Company property. The exposures pathways include direct contact (dermal contact, ingestion, and inhalation of particulates and volatilized chemicals).

Receptor	Hazard Index	Cancer Risk
Visitor/Trespasser – Exposed to Surface Soils		
Young Child	2.1	7.3×10^{-6}
Adolescent	1.2	8.5×10^{-6}
Indoor Worker – Exposed to Dust Particulates		
Adult	1.5	2.3×10^{-5}
Outdoor Worker – Exposed to Surface Soils		
Adult	1.9	2.9×10^{-5}
Construction Worker – Exposed to Subsurface Soils		
Adult	10.0	6.0×10^{-6}
COC was PCBs.		
Future Resident – Exposed to Soils Brought to Surface During Construction If not Properly Managed		
Young Child	59	6.0×10^{-4}
Adult	5.7	8.1×10^{-5}
COCs were benzo(A)pyrene, PCBs, antimony, and copper.		

Lead

In addition to the risks discussed above, lead is evaluated based on comparison of the concentrations to specific screening levels for residential and industrial properties. Lead above EPA's residential lead screening level (400 ppm) was found in soil at the former United Paperboard Company property. Concentrations above EPA's commercial/industrial lead screening level (800 ppm) were found at the Creek Channel, the White Transportation property, and the former Flintkote Plant Company property. Exposure to these concentrations may result in an increased potential for adverse health effects. The evaluation of lead data at the White Transportation property yielded an average concentration less than the residential screening level of 400 ppm. However, sampling results in one area of the property along the Creek bank revealed lead concentrations of 3,750 ppm, 2,590 ppm, and 1,030 ppm; resulting in an average surface lead concentration for that area of 2,457 ppm, exceeding the residential and industrial soil screening levels for lead.

Ecological Risk Assessment

In 2015, as part of the Supplemental RI/FS, EPA initiated an ecological risk assessment, consisting of a screening-level evaluation and BERA to evaluate whether adverse effects to ecological receptors (*i.e.*, organisms and their respective habitats) are occurring or may occur as a result of exposure to contaminants present at OU2. As described in the Site Background section above, the area comprising OU2 consists of a mix of partially paved commercial properties that abut the heavily vegetated Creek Channel along with the Creek Channel.

As part of the BERA, additional sampling and testing was conducted at the Site to investigate bioaccumulation of contaminants from soil and sediment into invertebrates that reside in those media. These data were used to develop site-specific bioaccumulation factors to invertebrates, which were subsequently used in food chain modeling to calculate the risk to upper trophic level receptors. In addition, sediment and surface water toxicity tests were conducted to determine the potential for both chronic (growth and reproduction) and acute (survival) impacts to aquatic and benthic organisms. Surface water toxicity tests indicated that contaminant levels in surface water in the Creek Channel are not great enough to adversely affect aquatic life. Sediment toxicity tests identified one location with contaminant levels great enough to adversely affect benthic aquatic organisms. This additional sampling and toxicity tests are described further in the EPA's Supplemental Remedial Investigation section above.

An ecological risk assessment quantifies risk to different potentially exposed ecological receptors as a Hazard Quotient (HQ). If an HQ is calculated to be equal to or less than 1, then no adverse health effects are expected as a result of exposure. If the HQ is greater than 1, then adverse health effects are possible. The results of both the food chain modeling used to calculate risks to wildlife, along with screening of media to assess the risk to benthic and plant communities, identified contaminants of concern based upon the calculation of an HQ, as described in the text box, "What is Ecological Risk and How is it Calculated". The contaminants that resulted in the greatest HQs for the greatest number of ecological receptors were PCBs, copper, lead, and PAHs. Copper and lead were found to pose a potential risk to terrestrial plants, soil invertebrates, benthos, and terrestrial and aquatic dependent wildlife. PCBs were found to pose the greatest potential risk to aquatic-dependent receptors, with HQs that were several orders of magnitude greater than 1 for the tree swallow and little brown bat, and one to two orders of magnitude greater than 1 for benthos.

Conclusion

It is the lead agency's current judgment that the Preferred Alternative identified in this Proposed Plan, or one of the other active measures considered in the Proposed Plan, is necessary to protect public health or welfare or the environment from actual or threatened releases of hazardous substances into the environment.

REMEDIAL ACTION OBJECTIVES

Remedial action objectives (RAOs) are specific goals to protect human health and the environment. These objectives are based on available information and standards such as applicable or relevant and appropriate requirements (ARARs), to-be-considered (TBC) guidance, and site-specific risk-based levels. There are no federal or New York state cleanup standards for PCB-contamination in sediment.

WHAT IS *ECOLOGICAL* RISK AND HOW IS IT CALCULATED?

A Superfund baseline ecological risk assessment is an analysis of the potential adverse health effects to biota caused by hazardous substance releases from a site in the absence of any actions to control or mitigate these under current and future land and resource uses. The process used for assessing site-related ecological risks includes:

Problem Formulation: In this step, the contaminants of potential ecological concern (COPECs) at the site are identified. Assessment endpoints are defined to determine what ecological entities are important to protect. Then, the specific attributes of the entities that are potentially at risk and important to protect are determined. This provides a basis for measurement in the risk assessment. Once assessment endpoints are chosen, a conceptual model is developed to provide a visual representation of hypothesized relationships between ecological entities (receptors) and the stressors to which they may be exposed.

Exposure Assessment: In this step, a quantitative evaluation is made of what plants and animals are exposed to and to what degree they are exposed. This estimation of exposure point concentrations includes various parameters to determine the levels of exposure to a chemical contaminant by a selected plant or animal (receptor), such as area use (how much of the site an animal typically uses during normal activities); food ingestion rate (how much food is consumed by an animal over a period of time); bioaccumulation rates (the process by which chemicals are taken up by a plant or animal either directly from exposure to contaminated soil, sediment or water, or by eating contaminated food); bioavailability (how easily a plant or animal can take up a contaminant from the environment); and life stage (e.g., juvenile, adult).

Ecological Effects Assessment: In this step, literature reviews, field studies or toxicity tests are conducted to describe the relationship between chemical contaminant concentrations and their effects on ecological receptors, on a media-, receptor- and chemical-specific basis. In order to provide upper and lower bound estimates of risk, toxicological benchmarks are identified to describe the level of contamination below which adverse effects are unlikely to occur and the level of contamination at which adverse effects are more likely to occur.

Risk Characterization: In this step, the results of the previous steps are used to estimate the risk posed to ecological receptors. Individual risk estimates for a given receptor for each chemical are calculated as a hazard quotient (HQ), which is the ratio of contaminant concentration to a given toxicological benchmark.
In general, an HQ above 1 indicates the potential for unacceptable risk. The risk is described, including the overall degree of confidence in the risk estimates, summarizing uncertainties, citing evidence supporting the risk estimates and interpreting the adversity of ecological effects.

The following RAOs have been established for OU2:

- Reduce the cancer risks and noncancer health hazards for people eating fish from Eighteen Mile Creek by reducing the concentration of PCBs and other Site-related contaminants in fish;
- Reduce and/or eliminate risks to ecological receptors by reducing exposure to contaminated soil/fill and sediments;
- Reduce or eliminate potential human exposure to contaminated soil/fill at the former Flintkote Plant property, the White Transportation property, and former United Paperboard Company property to levels that are protective of commercial/industrial use and protective of the environment;
- Reduce or eliminate exposure to contaminated soil/fill at Upson Park to levels that are protective of recreational use, and protective of the environment;
- Reduce or eliminate the migration of contamination in soil/fill from the Flintkote Plant property, the White Transportation property, the former United Paperboard Company property, and Upson Park to adjacent properties, the Eighteen Mile Creek, and groundwater; and
- Reduce or eliminate the potential for migration of contaminants from the Creek to adjacent properties.

PRELIMINARY REMEDIATION GOALS

Table 5 identifies the Preliminary Remediation Goals (PRGs) for soil/fill at OU2 of the Site.

Table 5. PRGs for Primary COCs for Soil/Fill

Properties: • Former Flintkote Plant • Former United Paperboard Company • White Transportation	
Chemicals of Concern	PRG
PCBs – surface (0 to 2 feet)	1 ppm
PCBs – subsurface	10 ppm
Lead	1,000 ppm

(**Table 5.** Continued)

Property: • Upson Park	
Chemicals of Concern	PRG
PCBs – surface and subsurface	1 ppm
Lead	400 ppm

Source: 6 NYCRR Part 375, Environmental Remediation Programs, Subpart 375-6

As indicated in the Scope and Role of Action section, a separate investigation is underway for OU3, addressing contaminated sediments not addressed by this action (OU2), in the remainder of the Creek from the north end of the Creek Corridor in Lockport to the Creek's location of discharge into Lake Ontario in Olcott, New York. Investigations to date have identified that the highest levels of PCBs in sediments are found within the Creek Corridor, such that the Creek Corridor may be acting as a source of PCBs to the lower reaches of the Creek. Because further studies are required to fully understand the nature and extent of contamination in Eighteen Mile Creek, this OU2 action is not expected to fully address the fish consumption RAO.

For this Proposed Plan, EPA has identified a Sediment Action Level of 1 ppm for PCBs in sediments as the concentration triggering the bank-to-bank excavation of all sediment in the Creek Channel. As part of the OU3 remedial investigation, a comprehensive evaluation will be conducted of the entire length of the Creek, including the Creek Channel, to develop final remediation goals for contaminated sediments; therefore, this action is considered an interim remedy for sediments.

SUMMARY OF REMEDIAL ALTERNATIVES

Section 121(b)(1) of CERCLA, 42 U.S.C. §9621(b)(1), mandates that remedial actions must be protective of human health and the environment, cost-effective, comply with ARARS, and utilize permanent solutions and alternative treatment technologies and resource recovery alternatives to the maximum extent practicable. Section 121(b)(1) also establishes a preference for remedial actions that employ, as a principal element, treatment to reduce permanently and significantly the volume, toxicity, or mobility of the hazardous substances, pollutants, and contaminants at a site. Section 121(d), further specifies that a remedial action must attain a level or standard of control of the hazardous substances, pollutants, and contaminants that at least attains ARARs under federal and state laws, unless a waiver can be justified pursuant to CERCLA §121(d)(4), 42 U.S.C. §9621(d)(4).

Detailed descriptions of all of the remedial alternatives for addressing the contamination associated with OU2 can be found in the EPA and NYSDEC FS Reports, dated August 2016 and September 2009, respectively. In this Proposed Plan, as discussed below, EPA has considered alternatives for soil contamination at the four properties along the Creek Corridor separately from the alternatives to address the sediments in the Creek Channel itself.

The construction time for each alternative reflects only the actual time required to construct or implement the action and does not include the time required to design the remedy, negotiate the performance of the remedy with any potentially responsible parties, or procure the contracts for design and construction.

While principal threat wastes have been identified at Upson Park and on the former Flintkote Plant property, the soil volumes at these properties are relatively small. On-site treatment of these contaminated soils was evaluated in the FS, but with the exception of potential stabilization measures for lead, the FS did not recommend in-situ stabilization measures for PCBs due to the heterogeneous nature of the subsurface soil/fill. Ex-situ measures were not presented in this Proposed Plan, because it would not be cost effective given the small volume, and because there is limited land available for placement of an on-site treatment facility that is not within the floodplain of Eighteen Mile Creek.

Additionally, because each of the soil remedial alternatives evaluated will result in some contaminants remaining at the OU2 properties above levels that would allow for unrestricted use and unlimited exposure, a review of conditions at the Site will be conducted no less often than once every five years. If justified by the review, additional response actions might be implemented.

Remediation of the Properties

Remedial alternatives were developed to address soil contamination, including floodplain soil, at the former Flintkote Plant, the White Transportation property, the former United Paperboard Company property, and Upson Park. For the purposes of evaluating alternatives, each property is designated with the following property-specific identification:

A: former Flintkote Plant
B: White Transportation
C: former United Paperboard Company
D: Upson Park

Common Elements

With the exception of the no action alternative, all of the soil alternatives include common components as follows:

Bank Stabilization:
To ensure the stabilization of banks between the properties and the Creek Channel, contaminated soil/fill between the access roads and the top of the embankment adjacent to the Creek Channel would be covered in place with a demarcation layer and two-foot thick stone and clean soil. This cover system would extend approximately ten feet beyond the top of the embankment, and would be constructed flush with the surrounding topography to promote precipitation runoff. The Creek bank would be restored through the placement of stone, topsoil, biodegradeable erosion control fabric and live plantings. During the remedial design, the composition and thickness of the individual capping materials would be evaluated to promote reliability and efficacy of the cover system.

Institutional Controls:
Since contaminated soil above levels that allow for unrestricted use/unlimited exposure would remain on the properties following remediation, institutional controls would be implemented and may include environmental easements/restrictive covenants, deed notices, and/or zoning restrictions to limit future use of the properties.

Long-Term Monitoring:
Long-term monitoring would be conducted periodically to visually inspect the cover system, restoration success, and ensure remedy effectiveness. Fish tissue monitoring for human health and ecological exposure will be included in the monitoring plan.

Site Management Plan:
A Site Management Plan would be developed to provide for the proper management of the remedy and any use restrictions at the properties post-construction. Because each of the alternatives evaluated would result in soil contamination remaining at the OU2 properties, particularly at depth, that would not allow for unrestricted use and unlimited exposure, the Site Management Plan would include measures to prevent the transfer of deeper soil to the surface during post-construction activities. The Site Management Plan would also provide for the proper implementation, management, and maintenance of institutional controls.

Cultural Resource Investigation:
Based on the results of the Stage lA Cultural Resource Investigation conducted by EPA as part of the Supplemental RI for OU2, a Phase IB field reconnaissance survey would be conducted, including shovel testing along the Creek Channel, to further identify and record archeological features and deposits.

Soil Alternatives

Alternative S1: No Action
The NCP requires that a "No Action" alternative be developed as a baseline for comparison with the other alternatives. Under this alternative, EPA would take no action to prevent exposure to the soil contamination and the contaminated soil would be left in place. This alternative would not include the maintenance of any existing measures at the former Flintkote Plant property, (i.e., temporary fencing and limited gravel cover installed subsequent to the demolition of the building pursuant to the OU1 ROD).

S1A: former Flintkote Plant

Capital Cost:	$0
Annual O&M Costs:	$0
Present-Worth Cost:	$0
Construction Time:	Not Applicable

S1B: White Transportation

Capital Cost:	$0
Annual O&M Costs:	$0
Present-Worth Cost:	$0
Construction Time:	Not Applicable

S1C: former United Paperboard Company

Capital Cost	$0
Annual O&M Costs:	$0
Present-Worth Cost:	$0
Construction Time:	Not Applicable

S1D: Upson Park

Capital Cost:	$0
Annual O&M Costs:	$0
Present-Worth Cost:	$0
Construction Time:	Not Applicable

Alternative S2: Limited Action
This alternative would provide institutional controls and minimal engineering controls to prevent exposure to contaminated soils and would include long-term monitoring. Physical barriers, such as fencing with warning signs, would be installed at the property to limit exposure to contaminated soil/fill. Long-term maintenance would be required and would include periodic inspections and repairs (as appropriate) of the fencing and warning signs.

S2A: former Flintkote Plant

Capital Cost:	$77,000
Annual O&M Costs:	$112,000
Present-Worth Cost:	$189,000
Construction Time:	2.5 Months

S2B: White Transportation

Capital Cost:	$50,000
Annual O&M Costs:	$109,000
Present-Worth Cost:	$159,000
Construction Time:	2.5 Months

S2C: former United Paperboard Company

Capital Cost:	$115,000
Annual O&M Costs:	$116,000
Present-Worth Cost:	$231,000
Construction Time:	2.5 Months

S2D: Upson Park

Capital Cost:	$98,000
Annual O&M Costs:	$114,000
Present-Worth Cost:	$212,000
Construction Time:	2.5 Months

Alternative S3: Capping

This alternative would provide engineering and institutional controls to prevent exposure to contaminated soil and to prevent erosion of contaminated soil/fill into the Creek Channel. The cap would consist of a demarcation layer and a two-foot soil cover for soil/fill exceeding the PRGs identified in Table 5.

Under this alternative, some soil/fill may require excavation and off-site disposal to facilitate the construction of access roads (gravel and/or paved) that would be utilized to facilitate implementation of proposed remedial activities for the Creek. The layout of these roads would be determined during the remedial design. The access roads would remain in place following remediation of the Creek, except at Upson Park, and form part of the bank stabilization cover system. Existing roadways, parking lots, and access roads would be asphalt paved following the construction of the soil cover. Excavated soil/fill would be transported off-Site for proper disposal at a RCRA or TSCA regulated landfill, as appropriate, based on the concentrations of contaminants in the excavated soil/fill. If necessary, in order to meet the requirements of the disposal facilities, contaminated material would be treated prior to land disposal.

Long-term maintenance would be required and would include periodic inspections and repairs (as appropriate) of the cap.

S3A: former Flintkote Plant

Capital Cost:	$1,303,000
Annual O&M Costs:	$163,000
Present-Worth Cost:	$1,466,000
Construction Time:	3 Months

S3B: White Transportation

Capital Cost:	$821,000
Annual O&M Costs:	$177,000
Present-Worth Cost:	$998,000
Construction Time:	3 Months

S3C: former United Paperboard Company

Capital Cost:	$990,000
Annual O&M Costs:	$192,000
Present-Worth Cost:	$1,182,000
Construction Time:	3 Months

S3D: Upson Park

Capital Cost:	$1,340,000
Annual O&M Costs:	$224,000
Present-Worth Cost:	$1,564,000
Construction Time:	3 Months

Alternative S4: Excavation

This alternative includes the excavation of contaminated soil/fill exceeding the PRGs identified in Table 5 and off-Site disposal at a Resource Conservation and Recovery Act (RCRA) or Toxic Substances Control Act (TSCA) regulated landfill, as appropriate, based on the concentrations of contaminants in the excavated soil/fill. If necessary, in order to meet the requirements of the disposal facilities, contaminated material would be treated prior to land disposal. During the remedial design further evaluations would be conducted to determine whether lead contaminated soil/fill could be treated and stabilized on-site, prior to off-site disposal.

Under this alternative, access roads (gravel and/or paved) would be constructed to facilitate implementation of proposed remedial activities of the Creek. The access roads would remain in place following remediation, except at Upson Park, and form part of the bank stabilization cover system.

Verification samples would be collected following excavation to confirm that all contaminated soil/fill in excess of the PRGs has been removed. At the Flintkote Plant property, temporary shoring along the Millrace would be required to facilitate the removal of contaminated soil adjacent to the Creek Channel and the turbine discovered during the demolition of the building conducted during the implementation of the remedy for OU1. Once excavation activities have been completed, the temporary shoring would be removed, and clean soil would be used as backfill, with the top six inches consisting of topsoil that would be planted with native grasses, shrubs, and/or trees. Following excavation and backfill to grade, pre-existing roadways, parking lots, and access roads would be asphalt paved. The approximate areas requiring excavation are shown on Figure 3.

S4A: former Flintkote Plant

Capital Cost:	$11,307,000
Annual O&M Costs:	$24,000
Present-Worth Cost:	$11,331,000
Construction Time:	9 Months

S4B: White Transportation

Capital Cost:	$317,000
Annual O&M Costs:	$24,000
Present-Worth Cost:	$341,000
Construction Time:	1 Month

S4C: former United Paperboard Company

Capital Cost:	$2,443,000
Annual O&M Costs:	$24,000
Present-Worth Cost:	$2,467,000
Construction Time:	2 Months

S4D: Upson Park

Capital Cost:	$3,235,000
Annual O&M Costs:	$24,000
Present-Worth Cost:	$3,259,000
Construction Time:	2 Months

Alternative S5: Combination Excavation and Capping

This alternative consists of the excavation of contaminated soil/fill containing PCBs and lead at contaminants greater than 50 ppm and 1,000 ppm, respectively, the backfill to grade of excavated areas, and transportation off Site for proper disposal at a RCRA or TSCA regulated landfill, as appropriate, based on the concentrations of contaminants in the excavated soil/fill. If necessary, in order to meet the requirements of the disposal facilities, contaminated material would be treated prior to land disposal. During the remedial design, further evaluations would be conducted to determine whether lead contaminated soil/fill could be treated and stabilized on-site, prior to off-site disposal.

Contaminated soil/fill with PCB concentrations below 50 ppm, but greater than the PRGs identified in Table 5 of this Proposed Plan, would also then be covered with a two-foot soil cover. The approximate areas that would be excavated and capped are shown on Figure 4. In some instances, contaminated soil could be re-used on-site. For example, soil with contaminant concentrations below the specified action levels that had been excavated to remove more contaminated soil located at depth might be reused as fill under the clean soil cover.

Under this alternative, access roads (gravel and/or paved) would be constructed to facilitate implementation of proposed remedial activities at the Creek. The access roads would remain in place following remediation, except at Upson Park, and form part of the bank stabilization cover system. Existing roadways, parking lots, and access roads would be asphalt paved following excavation and construction of the soil cover.

S5A: former Flintkote Plant

Capital Cost:	$6,339,000
Annual O&M Costs:	$179,000
Present-Worth Cost:	$6,518,000
Construction Time:	4 Months

S5B: White Transportation

Capital Cost:	$331,000
Annual O&M Costs:	$142,000
Present-Worth Cost:	$473,000
Construction Time:	1 Month

S5C: former United Paperboard Company

Capital Cost:	$2,341,000
Annual O&M Costs:	$146,000
Present-Worth Cost:	$2,487,000
Construction Time:	2 Months

S5D: Upson Park

Capital Cost:	$2,291,000
Annual O&M Costs:	$233,000
Present-Worth Cost:	$3,154,000
Construction Time:	2 Months

Creek Channel (CC) Alternatives

Alternative CC1: No Action

As mentioned above, the NCP requires that a "No Action" alternative be developed as a baseline for comparing other remedial alternatives. Under this alternative, there would be no physical remedial measures to address contamination in the Creek Channel. This alternative does not include any monitoring or institutional controls.

Capital Cost:	$0
Annual O&M Costs:	$0
Present-Worth Cost:	$0
Construction Time:	Not Applicable

Alternative CC2: Sediment Excavation

This alternative consists of the bank-to-bank removal of all contaminated sediment, estimated at 14,500 cubic yards, covering approximately a distance of 4,000 feet in the Creek Channel followed by backfilling to pre-dredging grade. Under this alternative, PCBs would be used as an indicator compound with a Sediment Action Level of 1 ppm to ensure that RAOs are achieved. For the purposes of this Proposed Plan, bank full width is defined as width at which water begins to leave the Creek Channel and discharge to the floodplain. The areas that would be excavated are shown on Figure 3, and would include the

Creek Channel from the Canal to approximately Harwood Street, including the East Branch, West Branch, and the Millrace. To facilitate the removal of contaminated sediment, the dilapidated and unpermitted Clinton and William Street dams would be removed. During the remedial design, methods to manage and/or divert flows in the Creek from the Canal during sediment removal would be further evaluated. In addition, measures would be evaluated during the remedial design to mitigate the potential impact from the Canal to the Creek during maintenance activities at the Canal.

The contaminated sediment would be removed and dewatered at a facility constructed at the Site before being transported off-site for proper disposal at a RCRA or TSCA regulated landfill, as appropriate, based on the concentrations of contaminants in the material. If necessary, in order to meet the requirements of the disposal facilities, contaminated material would be treated prior to land disposal.

Gravel access roads, up to 20 feet in width, would be constructed along the Creek Corridor to be utilized in the remediation of the Creek sediment. The access roads would remain in place and be re-graded following sediment remediation and form part of a bank stabilization cover system and allow for appropriate bank restoration.

Backfill material would be comprised of clean material. The Creek bank would be restored through the placement of stone, topsoil, biodegradeable erosion control fabric, and live plantings. During the remedial design, the composition and thickness of the individual capping materials would be evaluated to promote reliability and efficacy of the cover system. In addition, a floodplain and hydraulic study would also be conducted during the remedial design to determine the types and locations of rock riffle grade control structures that would be constructed in the Creek to control flow, reduce the potential for erosion and scour of the banks, and reduce the potential for downstream flooding.

Long-term monitoring would be conducted to demonstrate the effectiveness in meeting the remedial action objectives. Institutional controls in the form of informational devices, such as fish consumption advisories, would be implemented to limit exposure to contamination. Fish consumption advisories are implemented and managed by the NYSDOH.

Capital Cost:	$10,519,000
Annual O&M Costs:	$147,000
Present-Worth Cost:	$10,666,000
Construction Time:	2 Years

Alternative CC3: Sediment Excavation and Capping
This alternative includes the remedial measures included in Alternative CC2, but includes the capping of sediment between Clinton Street and the Clinton Street Dam rather than the excavation and off-site disposal of contaminated sediments in this approximately 40,000 ft^2 area (refer to Figure 3). The cap would be 36 inches thick and would include the following layers: chemical isolation layer; bioturbation layer; and an erosion protection layer. This alternative would also include the restoration of the Clinton Street Dam and maintenance of the cap.

Because this alternative would also result in contaminants remaining above levels that allow for unrestricted use and unlimited exposure in the Creek Chanel, CERCLA requires that the Site be reviewed at least once every five years. If justified by the review, additional response actions may be implemented.

Capital Cost:	$7,934,000
Annual O&M Costs:	$174,000
Present-Worth Cost:	$8,108,000
Construction Time:	2 Years

EVALUATION OF ALTERNATIVES

A detailed description of how EPA evaluates remedial alternatives can be found in the box, “Evaluation Criteria for Superfund Remedial Alternatives”.

Overall Protection of Human Health and the Environment

A threshold requirement of CERCLA is that the selected remedial action be protective of human health and the environment. An alternative is protective if it reduces current and potential risk associated with each exposure pathway at a site to acceptable levels.

Soil
Alternative S1 (No Action) is not protective of human health and the environment because it does not eliminate, reduce, or control risk of exposure to contaminated soil/fill. Alternative S2 (Limited Action) would provide protection of human health, in as far as the engineering controls could be maintained. Alternative S3 (Capping) would provide greater protection of human health and the environment from future exposure to contaminated soil/fill than Alternative S2 through the placement of cover material, and through institutional controls. Alternative S4 (Excavation) would remove soil/fill with concentrations of contaminants above the PRGs and, therefore, would provide the highest level of protection to human and ecological receptors from contact with contaminants. Alternative S5 (Excavation and Capping) would be protective of human health since contaminated soil/fill would either be removed from the

properties or contained in place, and through institutional controls. However, contaminated soil/fill would remain in place above the PRGs. Under Alternatives S3, S4, and S5, the two-foot bank stabilization cover system would reduce the risk of erosion and exposure to contaminated soil along the banks of the Creek Corridor. The two-foot thick bank stabilization cover system would significantly reduce exposure of ecological receptors to site-related contaminants and address any potential for site-related contaminants to enter the Creek Corridor. In addition, upland soil at the properties provides limited ecological function. There would be no local human health or environmental impacts associated with off-site disposal in Alternatives S4 or S5 because the contaminants would be removed from the Site to a secure disposal facility.

Creek Channel

Alternative CC1 (No Action) is not protective of human health and the environment because it does not eliminate, reduce, or control risk of exposure to contaminated sediment. Alternative CC2 (Excavation) involves the bank-to-bank excavation of all sediments in the Creek Channel and, therefore would provide the highest level of protection to human and ecological receptors from contact with contaminants. Alternative CC3 (Combined Excavation and Capping) would also provide protection of human health and the environment, however, monitoring and maintenance of the cap would be required for protection.

There would be no local human health or environmental impacts associated with off-site disposal in Alternatives CC2 or CC3 because the contaminants would be removed from the Site to a secure disposal facility.

Compliance with Applicable or Relevant and Appropriate Requirements (ARARs)

Compliance with ARARs is the other threshold requirement for remedy selection under CERCLA regulations.

Soil

New York State's 6 NYCRR Part 375 is an ARAR, a TBC, or an 'other guidance' to consider in addressing contaminated soil at OU2. Alternative S1 would not achieve cleanup levels for soil since no measures would be implemented and contaminants in the soil/fill, which exceed the cleanup levels, would remain in place. Alternatives S3 through S5 would either cap or remove, or a combination thereof, the soil/fill exceeding the PRGs at each of the properties.

RCRA and TSCA are federal laws that mandate procedures for managing, treating, transporting, storing, and disposing of hazardous wastes and PCBs, respectively. All portions of RCRA that are applicable or relevant and appropriate to the proposed remedy for the Site would be met by Alternatives S2 through S5 and all portions of TSCA would be met by Alternatives S2 through S5.

EVALUATION CRITERIA FOR SUPERFUND REMEDIAL ALTERNATIVES

Overall Protectiveness of Human Health and the Environment evaluates whether and how an alternative eliminates, reduces, or controls threats to public health and the environment through institutional controls, engineering controls, or treatment.

Compliance with Applicable or Relevant and Appropriate Requirements (ARARs) evaluates whether the alternative meets federal and state environmental statutes, regulations, and other requirements that pertain to the Site, or whether a waiver is justified.

Long-term Effectiveness and Permanence considers the ability of an alternative to maintain protection of human health and the environment over time.

Reduction of Toxicity, Mobility, or Volume (TMV) of Contaminants through Treatment evaluates an alternative's use of treatment to reduce the harmful effects of principal contaminants, their ability to move in the environment, and the amount of contamination present.

Short-term Effectiveness considers the length of time needed to implement an alternative and the risks the alternative poses to workers, the community, and the environment during implementation.

Implementability considers the technical and administrative feasibility of implementing the alternative, including factors such as the relative availability of goods and services.

Cost includes estimated capital and annual operations and maintenance costs, as well as present-worth cost. Present-worth cost is the total cost of an alternative over time in terms of today's dollar value. Cost estimates are expected to be accurate within a range of +50 to -30 percent.

State/Support Agency Acceptance considers whether the State agrees with EPA's analyses and recommendations, as described in the RI/FS and Proposed Plan.

Community Acceptance considers whether the local community agrees with EPA's analyses and preferred alternative. Comments received on the Proposed Plan are an important indicator of community acceptance.

Creek Channel

There are currently no federal or state promulgated standards for contaminant levels in sediments. There are, however, other federal or state advisories, criteria, or guidance (which are used as TBC criteria). Specifically, NYSDEC's "Screening and Assessment of Contaminated Sediment Guidance" (2014) sediment screening values are a TBC criteria. Because the contaminated sediments would not be addressed under Alternative CC1, the PCB sediment action level would not be achieved. Alternative CC2 would achieve the sediment action level through the bank-to-bank removal of sediment. Alternative CC3 would achieve the sediment action level through a combination of isolation and removal of sediment.

Because there is no active remediation associated with the sediment for Alternative CC1, action-specific and location-specific ARARs do not apply. Alternatives CC2 and CC3 are expected to comply with action-specific and location-specific ARARs for water quality monitoring during excavation of sediments and wastewater discharge resulting from sediment dewatering.

Pursuant to Section 106 of the National Historic Preservation Act (NHPA), a Stage 1B Cultural Resource Investigation would be performed during the design phase to evaluate the existence of cultural and archaeological resources within the Creek Corridor that could be impacted by the implementation of this alternative.

RCRA and TSCA are federal laws that mandate procedures for managing, treating, transporting, storing, and disposing of hazardous wastes and PCBs, respectively. All portions of RCRA that are applicable or relevant and appropriate to the proposed remedy for the Site would be met by Alternatives CC1 through CC3 and all portions of TSCA would be met by Alternatives CC1 and CC3.

Long-Term Effectiveness and Permanence

Soil

Alternatives S1 provides no reduction in risk. Alternative S2 relies on fencing and institutional controls to limit access, but it would not reduce risk should exposure occur. Alternative S3 would not be as permanent or effective over the long-term as Alternatives S4 or S5 because the cap would require periodic maintenance. Alternative S5 would be more effective and permanent than Alternative S3 because soil/fill containing the highest concentrations of contaminants would be removed, and the remaining material would be capped. The material removed would be taken to an approved off-site disposal facility and treated, if required. Off-site treatment/disposal of the contaminated soil at a secure, permitted hazardous waste facility is reliable because the design of such facilities includes safeguards intended to ensure the reliability of the technology and the security of the waste material. Under Alternative S4, long-term risks would be eliminated because the contaminated soil/fill exceeding the PRGs would be permanently removed and taken to an approved off-site disposal facility, where it would be treated, if required. Bank stabilization would help to promote long-term permanence through the restoration of riparian habitat. Alternatives S2, S3, S4, and S5 also rely on institutional controls and long-term monitoring of the bank stabilization measures to reduce future health risks associated with exposure to contaminated soil.

Creek Channel

Alternatives CC1 provides no reduction in risk. Under Alternative CC2, long-term risks would be eliminated because all of the sediment would be permanently removed and taken to an approved off-site disposal facility. Alternative CC3 would reduce risk by a combination of excavation and capping. Alternative CC3 would not be as permanent or effective over the long-term as Alternative CC2 because some contaminated sediment would remain in place. Proper design, placement, and maintenance of the cap are required for its effectiveness, continued performance, and reliability. Cap monitoring and maintenance programs would provide for reasonable reliability. Though PCBs isolated under the cap would migrate into the cap very slowly through molecular diffusion, they would not be expected to compromise the integrity of the cap.

Alternatives CC2 and CC3 also rely on institutional controls and long-term monitoring to reduce future health risks. The fish consumption advisory would continue to provide some measure of protection of human health until concentrations in fish are reduced to the point where the fish consumption advisory can be relaxed or lifted by NYSDOH.

The NYSDEC RI report concluded that Canal is not a significant contributor of contamination to the Creek sediments within the Corridor. However, the investigation also concluded that one-time events, such as pulling the Canal plug (allows water to drain from the Canal to the Creek) could have the potential to cause contaminated sediments to be released to the Creek. The FS assumed that a sediment release from pulling the Canal plug could be avoided through operational changes (i.e. use of pumps) to prevent such a potential slug release to the Creek. Under Alternatives CC2 and CC3, measures would be evaluated during the remedial design to mitigate the potential impact from the Canal to the Creek.

Reduction of Toxicity, Mobility, or Volume through Treatment

Soil

Alternative S1 and S2 would not achieve any reduction in toxicity, mobility, or volume because contaminated soil/fill would remain in place. Alternative S3 would provide a reduction in mobility and the exposure to contaminants through capping, but it would not reduce the volume or toxicity of the contaminants at the Site. Under Alternative S4, the mobility, volume, and exposure to contaminants would be reduced through the removal and disposal of the soil/fill at an approved off-site facility. Furthermore, off-site treatment, if required, would reduce the toxicity and volume of the contaminated soil/fill prior to land disposal. Alternative S5 would use a combination of capping and removal to achieve a reduction in mobility, volume, and exposure to contaminants at the Site. Under Alternative S5, the exposure to contaminants would be reduced through capping and the mobility and volume of soil/fill containing the highest concentrations of contaminants would be reduced through removal and off-site disposal. If off-site treatment is required, it would reduce the toxicity and volume of the contaminated soil/fill prior to land disposal. Under Alternatives S4 and S5, the on-site stabilization of lead contaminated soil/fill prior to off-site disposal would be evaluated further during the remedial design. On-site treatment would reduce the toxicity of the treated material, however, the addition of a stabilization agent would result in an increase in volume.

Creek Channel

Alternative CC1 would not achieve any reduction in toxicity, mobility, or volume because contaminated sediment would remain in place. Alternative CC2 would reduce the mobility, volume, and exposure to contaminants through the removal and disposal of the sediments at an approved off-site facility. Alternative CC3 employs a combination of excavation and capping. As a result, mobility and exposure to sediments in the Creek Channel at Mill Pond is achieved through isolation of contaminants beneath the cap and through the removal and disposal of the remaining sediments in the Creek Channel at an approved off-Site facility.

Short-Term Effectiveness

Soil

Alternative S1 (No Action) would not create new adverse short-term impacts. Minimal impacts would be expected for Alternative S2 resulting from the installation of fencing. Alternative S3 would present less of an impact than S4 and S5 to the surrounding community since contaminated soils would not be significantly disturbed during the cap construction. However, Alternative S3 would cause some increase in truck traffic and noise in the surrounding community due to the installation of the cap.

Alternatives S4 and S5 would cause an increase in truck traffic, noise, and potentially dust in the surrounding community due to excavation of contaminated soil. These impacts would be greater for Alternative S4 due to the increased volume of soil/fill that would be excavated and transported off-site. Alternatives S4 and S5 would also cause additional exposure to contaminated soil being excavated and handled by workers during the performance of construction activities. Under Alternatives S2, S3, S4, and S5, the construction of the bank stabilization cover system would result in additional short-term risks resulting from the construction activities and exposure to additional contaminated soil being handled to facilitate the construction of the access roads and bank stabilization cover system.

However, proven procedures including engineering controls, personal protective equipment, and safe work practices would be used to address potential impacts to workers and the community. For example, the work would be scheduled to coincide with normal working hours on week days, and no work would occur on weekends or holidays. In addition, trucking routes with the least disruption to the surrounding community will be utilized. Appropriate transportation safety measures would be required during the shipping of the contaminated material to the off-site disposal facility.

The risk of release during implementation of Alternatives S2 through S5 is principally limited to wind-blown soil transport or surface water runoff. Any potential environmental impacts associated with dust and runoff would be minimized with proper installation and implementation of dust and erosion control measures and by performing the excavation and off-site disposal with appropriate health and safety measures to limit the amount of material that may migrate to a potential receptor.

No time is required for construction of Alternative S1 (No Action). Time required for implementation of Alternative S2 (Limited Action) is estimated to take 10 months. Alternative S3 (Capping), Alternative S4 (Excavation), and Alternative S5 (Combination Excavation and Capping) are estimated to take 9 months, 14 months, and 9 months, respectively.

Creek Channel

Alternative CC1 (No Action) would not create new adverse short-term impacts. Under Alternatives CC2 and CC3, several short-term impacts on the community and workers would be expected. These include dust, noise, and potential exposure during handling and transportation of contaminants. To minimize short-term impacts, site access

would be restricted during construction and remediation activities. Proven procedures including engineering controls, personal protective equipment, and safe work practices would be in place to protect the workers and surrounding community. In addition, trucking routes with the least disruption to the surrounding community would be utilized. Appropriate transportation safety measures would be required during the shipping of the contaminated material to the off-site disposal facility.

The risk of release of contaminants into the water column during implementation of Alternatives CC2 and CC3 would be minimized by damming and diverting the Creek Channel to allow excavation and capping of sediment under near dry conditions.

No time is required for construction of Alternative CC1. Time required for implementation of Alternative CC2 is estimated to take two years. Alternative CC3 is also estimated to take two years.

Implementability

Soil

Alternative S1 would be the easiest alternative to implement, as there are no construction activities to implement. Alternatives S2, S3, S4, and S5 would use technologies known to be reliable and that can be readily implemented. These approaches have been used at other sites and have been shown to be reliable in addressing contaminated soil. Alternative S2 would be easier to implement than Alternative S3 because it only involves the installation of fencing along the upland soils rather than the placement of a cap. Alternatives S4 and S5 would be the most difficult to implement because they require the use of heavy equipment to remove large volumes of contaminated soil/fill along steep slopes in some areas. Where necessary, shoring would be used to manage steep slopes. At the former Flintkote Plant property, the steep slope along Mill Street and excavation around the turbine adjacent to the Creek potentially pose the need for additional engineering measures to effectively perform excavation activities. Alternative S5 involves a combination of capping and removal, and it would be slightly easier to implement than Alternative S4 because less material would be removed using heavy equipment.

The personnel required to operate the heavy equipment would require appropriate Occupational Safety and Health Administration (OSHA) certifications (e.g., hazardous waste worker), in addition to being certified in the operation of heavy equipment. Such individuals are readily available. Off-site hazardous and nonhazardous treatment/disposal facilities for the disposal of the contaminated soils are available, so disposal would be feasible.

Creek Channel

Alternative CC1 would be the easiest alternative to implement, as there are no construction activities to implement. Under Alternatives CC2 and CC3, the design and construction methods of both capping and dredging are relatively standard. However, implementation of the dredging component is complicated by limited site access and steep slopes. Under Alternative CC3, the area amenable to capping in the Creek Corridor is limited due to the shallow water depth in significant portions the Creek Corridor. With a deeper water depth, the placement of a cap in the area upstream of the Clinton Street Dam is technically feasible. Since the area targeted for capping is limited, this alternative would not involve large quantities of capping material and the necessary materials are expected to be available. Conditions in the area upstream of Clinton Street Dam targeted for capping are not expected to impact the ability to properly place the cap material nor significantly impact the depth of open water.

Although the management of Creek flows poses implementation challenges, methods could be readily implemented using standard construction equipment and materials. For cost-estimating and planning purposes, EPA's Supplemental FS assumed in-channel Creek flow diversion using fabric dam bags during sediment removal. During the remedial design, alternative measures could be evaluated. Off-site disposal facilities for the disposal of the excavated sediments are available, so disposal would be feasible.

Cost

The estimated capital cost, operation and maintenance (O&M), and present worth cost are discussed in detail in EPA's Supplemental FS. The cost estimates are based on the best available information. Alternative S1 and CC1 have no cost because no activities are implemented. The present worth cost for Alternatives S1 through S5 and Alternatives CC1 through CC3 are provided in Table 6 below. The present-worth costs for each of the alternatives at each property are as follows:

Table 6. Present-Worth Cost of Alternatives

Alternative	Soil				Sediment
	Flintkote Property	**White Transportation**	**United Paperboard**	**Upson Park**	**Creek Channel**
Soil					
S1 - No Action	$0	$0	$0	$0	
S2 - Limited Action	$189,000	$159,000	$231,000	$212,000	
S3 - Capping	$1,466,000	$998,000	$1,182,000	$1,564,000	
S4 - Excavation	$11,331,000	**$341,000**	**$2,467,000**	**$3,259,000**	
S5 - Combination Excavation and Capping	**$6,518,000**	$473,000	$2,487,000	$3,154,000	
Sediment					
CC1 - No Action					$0
CC2 - Excavation					**$10,666,000**
CC3 - Excavation and Capping					$8,108,000

Note: The preferred alternative for each property is shown in bold.

State/Support Agency Acceptance

NYSDEC concurs with the preferred alternative.

Community Acceptance

Community acceptance of the preferred alternative will be evaluated after the public comment period ends and will be described in the Responsiveness Summary section of the Record of Decision for this OU. The Record of Decision is the document that formalizes the selected of the remedy for an OU.

PREFERRED REMEDY AND BASIS FOR PREFERENCE

Basis for the Remedy Preference

For the OU2 soil alternatives, EPA is proposing the combination of Alternative S4 (Excavation) for the former United Paperboard Company, the White Transportation, and Upson Park properties; Alternative S5 (Combination Excavation and Capping) for the former Flintkote Plant property, and Alternative CC2 (Sediment Excavation) as the preferred alternative for the Creek Channel at OU2 of the Site because these alternatives would effectively achieve the remedial action objectives. The combination of excavation, capping, monitoring and maintenance, and institutional controls ensures protectiveness. The estimated present worth of the preferred alternative remedy is $23.3 million.

The environmental benefits of the preferred alternative may be enhanced by consideration, during the design, of technologies and practices that are sustainable in accordance with the both the EPA Region 2's Clean and Green Energy Policy and NYSDEC's Green Remediation Policy[1]. This would include consideration of green remediation technologies and practices.

At the former United Paperboard Company, the White Transportation, and Upson Park properties, Alternative S4 is preferred because it is expected to achieve substantial and long-term risk reduction through excavation and off-site disposal, and allow the properties to be used for the reasonably anticipated future land use. Alternative S4 reduces the risk within a reasonable time frame, at comparable cost to the other alternatives, and provides for long-term reliability of the remedy. At the former Flintkote Plant property, Alternative S5 is preferred due to the challenges posed by the steep slope along Mill Street and the significantly larger volume of soil that would require excavation at depth adjacent to the Creek Channel under Alternative S4. After removing contaminated soil, proper placement of the cap would ensure effective remediation at the former Flintkote Plant property by preventing direct contact with or migration of contaminants in deeper soil that would be left in place. Under this alternative, no contaminated soil or fill with PCBs above 10 ppm would be left on the Flintkote property. Alternative S5 is not expected to impact the reasonably-anticipated future land use at the former Flintkote Plant property.

[1] See http://www.epa.gov/greenercleanups/epa-region-2-clean-and-green-policy and http://www.dec.ny.gov/docs/remediation_hudson_pdf/der31.pdf

Alternative CC2 is preferred for the Creek Channel because the bank-to-bank excavation of sediment would be more protective over the long term and not require monitoring and maintaining of the cap at Mill Pond in perpetuity.

Based upon the information currently available, EPA believes the preferred alternative meets the threshold criteria and provides the best balance of tradeoffs among the other alternatives with respect to the balancing criteria. EPA expects the preferred alternative to satisfy the following statutory requirements of CERCLA §121(b): 1) is protective of human health and the environment; 2) complies with ARARs; 3) is cost effective; 4) utilizes permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. The preferred alternative may satisfy the preference for treatment, since, if necessary, in order to meet the requirements of the disposal facilities, contaminated material would be treated prior to land disposal. In addition, during the remedial design further evaluations would be conducted to determine whether lead contaminated soil/fill could be treated and stabilized on-site, prior to off-site disposal. Long-term monitoring and five-year reviews would be performed to assure the protectiveness of the remedy. With respect to the two modifying criteria of the comparative analysis, state acceptance and community acceptance: NYSDEC concurs with the preferred alternative; community acceptance will be evaluated upon the close of the public comment period.

L:\Buffalo\eighteenmile\Mxds\2016_Aug\Figure_1_Site_Location_Map.mxd - 8/30/2016

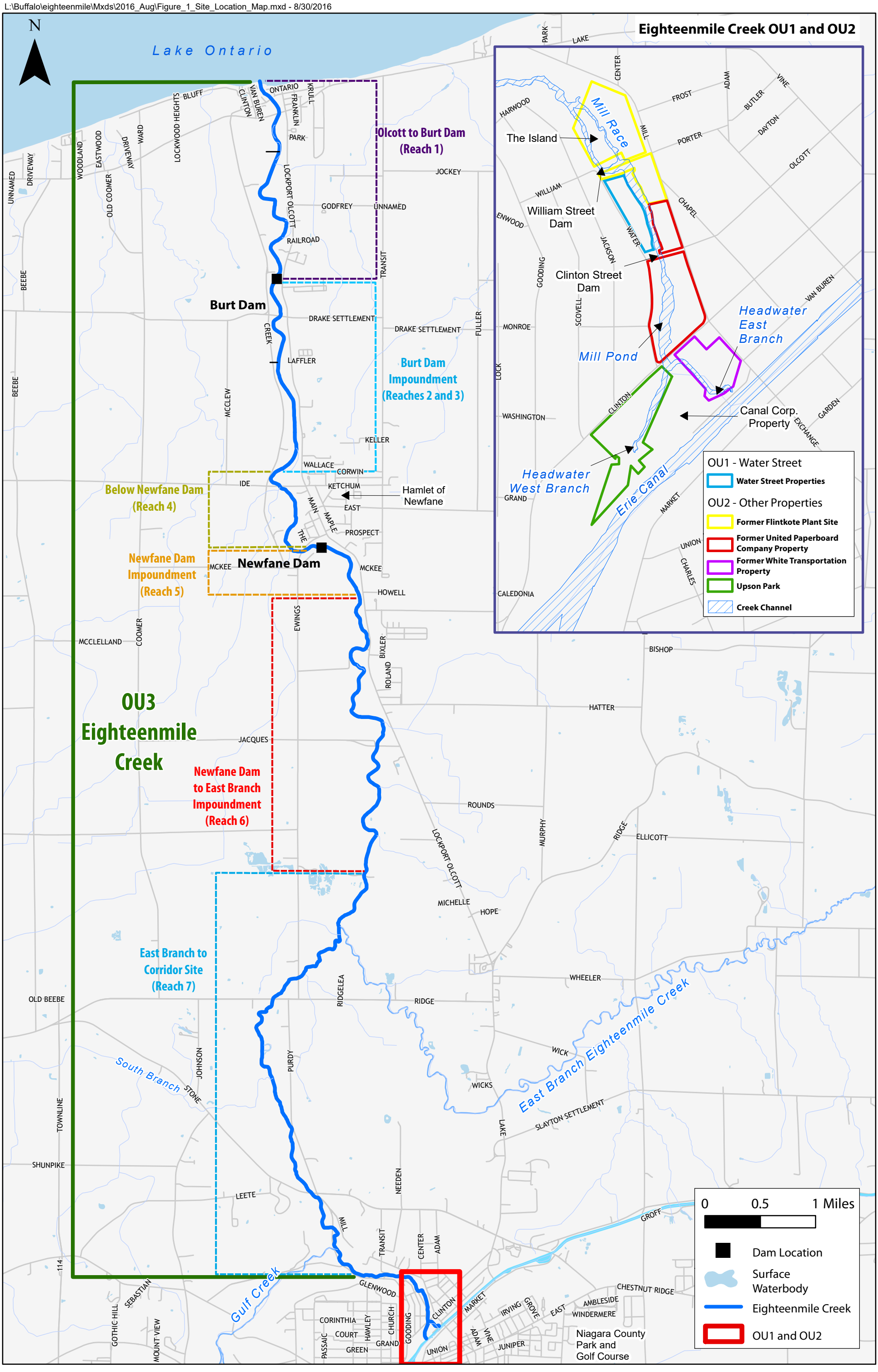
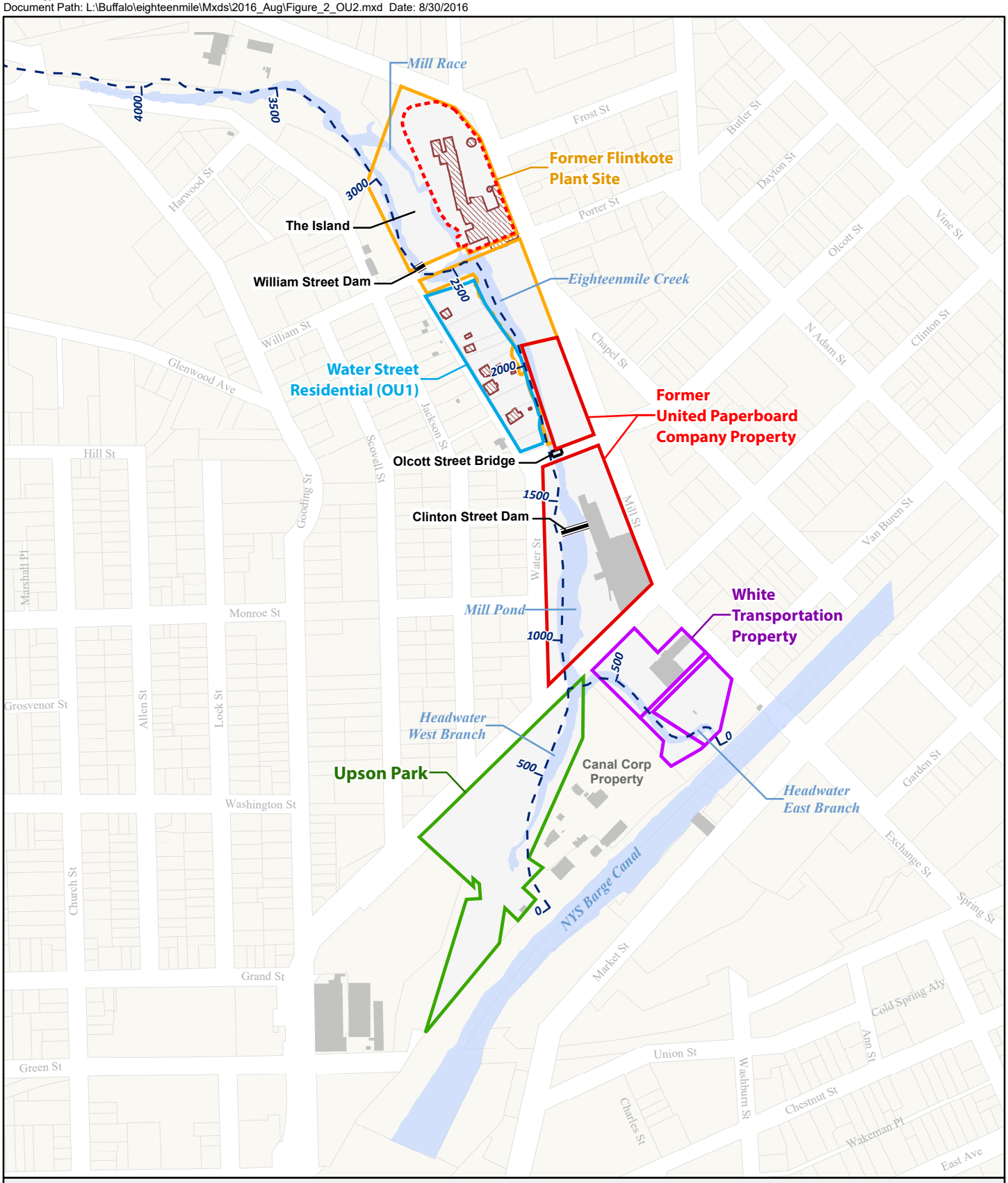


Figure 1 Site Location Map, Eighteenmile Creek Superfund Site
Lockport, NY

Document Path: L:\Buffalo\eighteenmile\Mxds\2016_Aug\Figure_2_OU2.mxd Date: 8/30/2016



Eighteenmile Creek / Headwater East Branch Centerline (500-ft marker)

Building

Former Building Footprint

Demolition Area

Tax Parcels

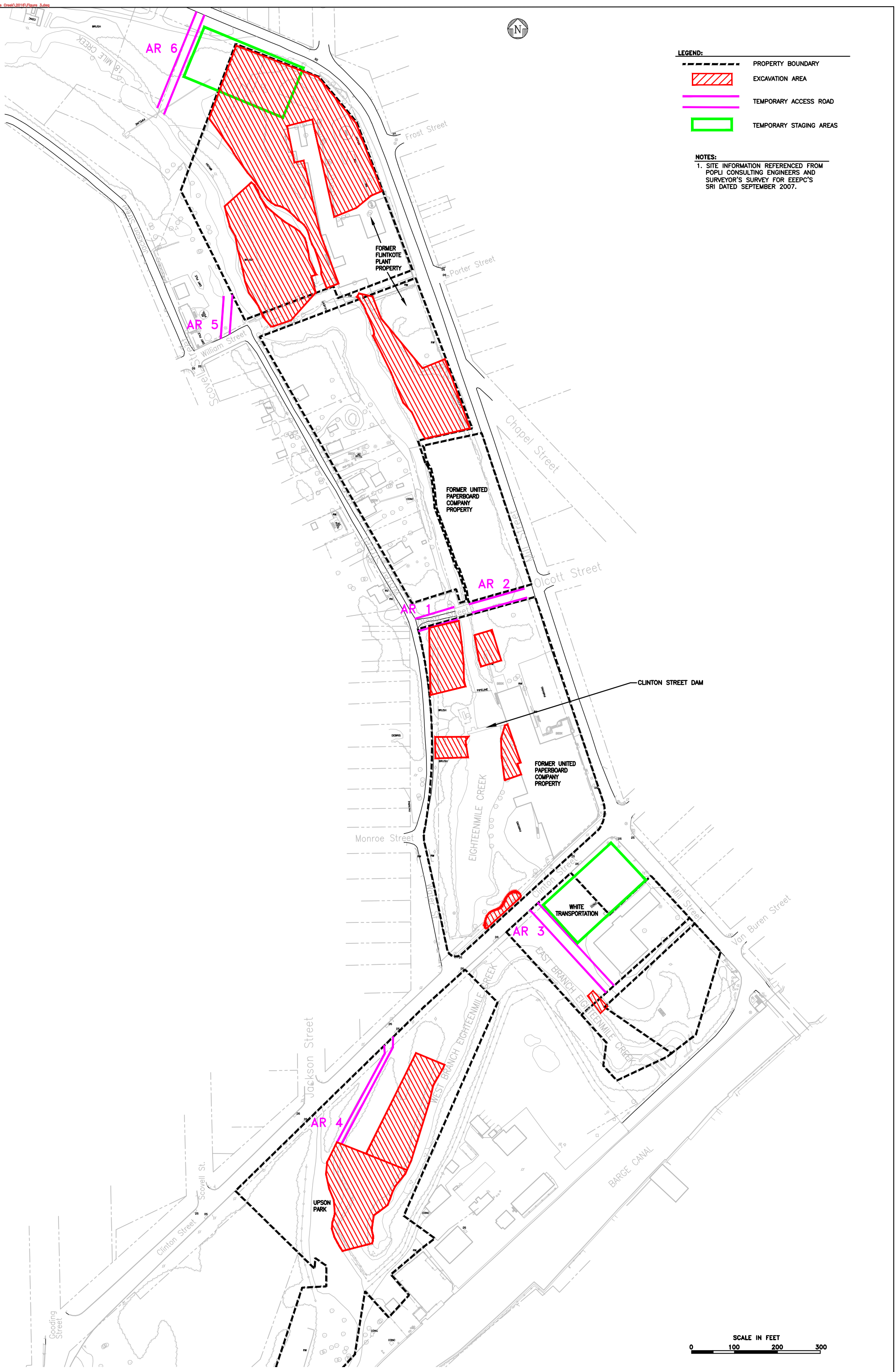
Figure 2 OU2 Eighteenmile Creek Lockport, New York

0 200 400 800 Feet

N

Data Source: Esri 2012, Niagara County 2014.

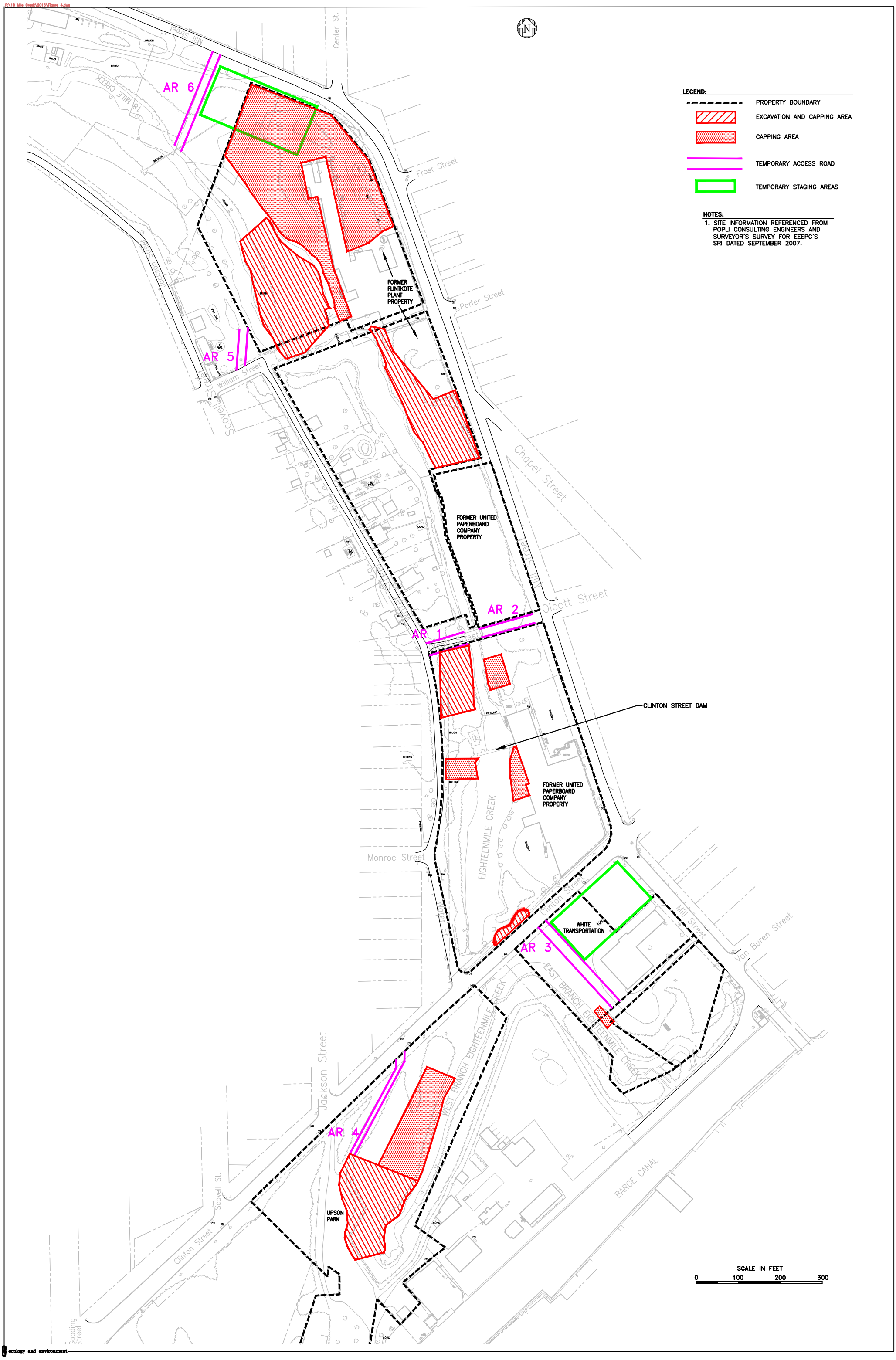
P:\18 Mile Creek\2016\Figure 3.dwg



ecology and environment

Figure 3 Alternative S4: Excavation, OU2 Eighteenmile Creek Corridor Site Lockport, New York

F:\18 Mile Creek\2018\Figure 4.dwg



ecology and environment

Figure 4 **Alternative S5: Combined Excavation and Capping, OU2 Eighteenmile Creek Corridor Site Lockport, New York**

ATTACHMENT B

PUBLIC NOTICE

YMCA to offer youth creative programs

Fall classes start Sept. 12

YMCA Camp Kenan is offering three critical thinking and creativity workshops this fall at the Lockport Family YMCA. These programs will run during both the Fall 1 — Sept. 12 through Oct. 29 — and Fall 2 — Oct. 31 through Dec. 17 — sessions.

• The Camp Crafts and Nature Projects workshop is a hands-on, full participation class where youth will create various art projects using natural and/or traditional materials for craft projects while learning, creating, exploring and playing together. These classes are designed for youth to develop and express creativity through artistic endeavors.

Each week a different project will be featured and facilitated by YMCA trained staff members. Sessions run on Monday and Wednesday and are divided by age group. Ages 6 through 8 years old take place from 5:30 to 6 p.m.; 9 to 11 years old from 6:15 to 6:45 p.m. and 12 through 14 from 7 to 7:30 p.m.

• The Creativity 101! program is a hands-on, full participation class where youth will develop problem solving and critical thinking skills while learning, creating, exploring and playing together. This class is designed for youth to develop hand-eye coordination, creativity, tactile responses and more. Participants will use various building and sculpting materials such as LEGO bricks, clay, blocks, etc.

There will be two sections available during each session: the Junior Creators — ages 6 to 8 — and the Advanced Creators — ages 9 to 11. Junior Creators meet on Tuesdays and Thursdays from 6 to 6:30 p.m. and Advanced Creators from 6:45 to 7:15 p.m.

• Creative Writing Workshops will be hosted at the YMCA for youth ages 9 to 17. These workshops will provide participants the opportunity to enhance their creative minds with instructor-led writing exercises and workshops. Writers will have the opportunity to create and share their work each class and receive feedback on improving their skills. Writing utensils and a notebook will be provided for all participants. This class is designed for youth to enhance their imagination and self-expression while improving writing skills.

There will be two classes held during both the Fall 1 and 2 sessions. The Young Writers session — ages 9 to 12 — will meet on Saturday mornings from 9:30 to 11 a.m. The Writers session — ages 13 to 17 — will meet on Saturdays from 11:15 a.m. to 12:45 p.m.

For all three programs, the cost is $20 for Lockport Family YMCA members and $40 for program members.

For more information on these programs or to register, visit www.LockportYMCA.com or call Camp Kenan Director Luke Kantor at 622-8484.

LOTTERY NUMBERS

MIDDAY: NUMBERS 2-3-0, Lucky Sum: 5; WIN4 2-2-2-4, Lucky Sum: 10.
EVENING: NUMBERS 8-1-6, Lucky Sum: 15; WIN4 6-5-3-2, Lucky Sum: 16.
PICK 10: 8-15-16-19-20-21-28-29-31-44-47-51-58-61-63-64-65-74-78-80.
MONDAY'S LATE NUMBERS
TAKE 5: 13-15-22-26-38.
CASH 4LIFE: 5-21-25-31-55. Cash Ball: 4.

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CLEARING THE DEBRIS

JOED VIERA/STAFF PHOTOGRAPHER

Convenient One Stop, a convenience store and apartment building located at the corner of Hawley and Green streets, has been completely demolished. The structure caught fire May 5 and the cause was determined to be electrical in nature. The building was declared a loss. Since that time, permission to demolish the existing structure has been given by the city. Plans to rebuild the convenient store portion of the building only are underway, but delays have prevented the project from going before the Zoning Board of Appeals. At the earliest, this project will appear at the ZBA's September meeting.

Sunday night fire ravages Prentice Street home

CITY: *No one injured in two-family house blaze.*

BY KALEY LYNCH
kaley.lynch@lockportjournal.com

Fire broke out in a two-family Prentice Street home Sunday evening.

Lockport Fire Department crews responded to the call at about 8 p.m. Sunday and found smoke coming from the building with a fire burning in the rear of the structure.

The residents of both apartments were evacuated safely.

According to a Lockport Fire Department press release, the fire inside the building was well advanced and had spread through the walls of both apartments and into the attic space.

Firefighters ventilated the roof of the home to relieve extreme heat and smoke in the upstairs apartment, but were hampered by a large amount of rubbish in the upstairs apartment.

South Lockport Volunteer Fire Company assisted at the scene.

The scene was cleared by midnight. The damage estimate is $40,000 for the structure, as well as an additional $12,000 for the building's contents.

The residents of the building sought shelter with family and friends for the night.

The cause of the fire remains under investigation, LFD said.

Lockport firefighters were also dispatched to 100 Genesee St. Sunday night for a commercial fire alarm sounding at the same time as the Prentice Street fire was being battled. Wrights Corners Volunteer Fire Company assisted in this call, and it was determined that there was a fault in the alarm system.

POLICE REPORTS

City of Lockport

POSSESSION: Natasha M. Stahli, 34, 99 Minard St., was charged with seventh degree possession of a controlled substance Monday. She was taken to Judge William Watson for a hearing.

DWI: Amy L. Krueger, 39, 9 Shaeffer St., was charged Sunday with driving while intoxicated, two charges of lane violation, violating a traffic device and failure to signal following a South Transit traffic stop. She was scheduled for judge William Watson's 9 a.m. Monday hearing.

HARASSMENT: Scott A. Lockhart, 37, 154 Locust St., Apt. 4, was charged Tuesday with second-degree harassment, first-degree criminal contempt and third-degree menacing. Police reports state that Lockhart allegedly pressed his knees into a female's body and neck while threatening to "knock her out" and "kill her and the dog." The incident is said to have been a violation of a valid limited order of protection. Lockhart is being held on $5,000 bail and is due in court today.

ASSAULT: Harold E. Bergquist, 46, 279 Grand St., was charged Tuesday with third-degree assault. Police reports state that he allegedly punched a female in the head and face four times while holding her down. He was released on $250 bail and is due in court today.

Town of Lockport

DWI: James L. Griggs, 32, Tonawanda, was charged Monday by State Police with driving while intoxicated at about 11:21 p.m. on Transit Road. Griggs was released to a third party.

LARCENY: Anthony E. Luke, 48, 6594 Dysinger Road was charged Sunday with two counts of petit larceny. Sheriff's reports state that Luke allegedly stole $46.90 worth of merchandise from Walmart Super Center, 5735 S. Transit Road. While in police custody, Walmart management notified police that Luke was also connected with a larceny that occurred April 2. Luke allegedly admitted to the April larceny and was given an appearance ticket. For the recent larceny he was released on $250 bail and is due in court Sept. 1.

POSSESSION: George G. Matheis, 33, of Lockport, was charged Sunday with fifth degree possession of stolen property by New York State Police. He was released on an appearance ticket.

SUSPENDED REGISTRATION: Steven Robinson, 49, 6293 Corwin Station, Newfane, was charged Friday with operating a motor vehicle with suspended registration and no insurance following a Beattie Avenue traffic stop. He was released and scheduled to appear in Town of Lockport Court 9 a.m. Sept. 15.

Cambria

DWI: Thomas J. Kerr, 28, 5836 Murphy Road, was charged Saturday with driving while intoxicated and reckless driving. Sheriff's reports state that patrol responded to the 4600 block of Cambria Wilson Road at about 10:26 p.m., where a male was driving recklessly in the a parking lot doing "donuts and burnouts" around pedestrians. Patrol interviewed the driver, Kerr, who reportedly told police he had consumed three or four beers throughout the night. He was given a series of field sobriety tests, which he failed. He was held on $750 bail and is due in court Sept. 7.

CORRECTION

A police report published in the Aug. 27 edition of the Lockport Union-Sun & Journal was incorrect.

Christopher Tagg, 29, 123 Willow St., Apt. 5, was charged Thursday with six counts of petit larceny, three counts of sixth degree conspiracy, three counts of fourth degree criminal mischief and criminal tampering following a Lockport Police Department investigation into his actions while employed at Lockport Fuel on South Transit Street. He was held for arraignment in Judge William Watson's court. He was also charged with third degree menacing while being treated at Eastern Niagara Hospital for chest pains following his arrest after LPD says he threatened to burn an officer's home down.

Stephen Tagg, 61, of 123 Willow St., Apt. 1, was charged Thursday with sixth degree conspiracy and petit larceny. He was also arraigned before Judge William Watson.

Correction policy

The Lockport Union-Sun & Journal is committed to accurate news coverage. Call the newsroom at 439-9222, ext. 6238, to let us know about factual errors in news coverage. We will correct errors promptly in this position.

U.S. Environmental Protection Agency to Hold Public Meeting for Cleanup of the Second Phase at the Eighteen Mile Creek Superfund Site, Niagara County, Lockport, New York

The United States Environmental Protection Agency (EPA) announces the opening of a 30-day public comment period on the Proposed Plan, which addresses the cleanup of contaminated sediment and soil in the Creek Corridor at the Eighteen Mile Creek Superfund site in Lockport, Niagara County, New York. As part of the public comment period, EPA will hold a public meeting on September 7, 2016 at 7:00 p.m., at the 4-H Training Center, Niagara County Fairgrounds, located at 4487 Lake Avenue, Lockport, NY. The meeting, which will address the proposed cleanup plan, will allow community members to comment on the Proposed Plan and other cleanup alternatives that were considered by EPA.

The proposal for the second phase calls for the dredging and off-site disposal of contaminated sediment in the Creek Corridor, which is approximately one mile in length and extends from the New York State Barge Canal to Hardwood Street in the City of Lockport. EPA also proposes excavation and off-site disposal to address contaminated soil at Upson Park, White Transportation, and former United Paperboard Company properties; a combination of excavation and capping of contaminated soil at the former Flintkote Plant property; off-site disposal of excavated soil/fill; and institutional controls.

The Proposed Plan is available at www.epa.gov/superfund/eighteenmile-creek or by calling Michael Basile, EPA's Community Involvement Coordinator, at (716) 551-4410 and requesting a copy by mail.

Documents supporting the preferred alternative are in the administrative record at the Lockport Public Library, 23 East Avenue Lockport, NY and at EPA Records Center, 290 Broadway, 18th floor, New York, NY.

Written comments regarding EPA's preferred remedy must be submitted by September 30, 2016, to Jaclyn Kondrk, Remedial Project Manager, U.S. EPA, 290 Broadway, 20th Floor, New York, NY 10007-1866, email: kondrk.jaclyn@epa.gov

ATTACHMENT C

PUBLIC MEETING TRANSCRIPT

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

EIGHTEEN MILE CREEK SUPERFUND SITE

SECOND PHASE - PROPOSED PLAN

PUBLIC MEETING

Wednesday, September 7th, 2016

7:00 PM

4-H Training Center

Niagara County Fairgrounds

4487 Lake Road

Lockport, New York 14094

APPEARANCES (USEPA REGION 2):

MICHAEL BASILE, Community Involvement Coordinator

JACLYN KONDRK, Remedial Project Manager

PIETRO MANNINO, Remediation Section Chief

MEETING REPORTER: Carrie A. Fisher

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MR. BASILE: Good evening, everyone. My name is Mike Basile. I am the community involvement coordinator for the United States Environmental Protection Agency, and I would like to welcome you to the Eighteen Mile Creek Superfund Public Meeting here in Lockport.

I want to just explain a few of the ground rules for the meeting and introduce a few people that are in the audience that won't have a speaking role.

What's going to take place tonight is we're going to present to you the proposed plan for the second phase of Eighteen Mile Creek. Our project manager we'll be introducing very shortly will do that. I ask that you look at the presentation, make any mental comments to yourself, and we're going to do questions and answers at the end. So I just ask you to hold your questions and answers until the presentation is over.

We have a court stenographer here this evening. The court stenographer will be compiling minutes for the proceeding. During

the question and answer period, I will have a microphone. I will come to you, just ask you to state your name and spell your name so that Carrie, the court stenographer, will be able to document that.

A few folks that I would like to introduce that will not have speaking roles are Matt Forcucci and Angie Martin from the New York State Department of Health, right here. Scott Collins is the remedial action plan coordinator for Eighteen Mile Creek. Scott is at the back of the room, and of course with that display. We have a gentleman that came in from New York City with our project manager. He may be speaking this evening, Mr. Pete Mannino. He is the Western New York remedial branch chief, Pete.

And we have some elected officials in the audience that I would like to recognize. We have had excellent support from all elected officials from both federal, state, and local. And this evening we have from your city, the City of Lockport, Joe Oates, First Ward

Alderman; Mark Devine, the Third Ward Alderman; Rick Abbott, the Fifth Ward Alderman; and Anita Mullane, Second Ward Alderman. Will you raise your hand so the folks know you're here? Very good.

We have a great deal of interest from the City of Lockport. Had the opportunity a week and a half ago to brief your mayor, and your mayor has been onboard with us from day one at Eighteen Mile Creek through Phase 1 and Phase 2.

I want to say a special thanks because a meeting like this doesn't just happen. We have a team of people that I would like to call and have special thanks to Ecology and the Environment, Marsha Galloway and her team in the back. Thank you, Marsha, for everything you have done to make this meeting the success that it will be. Thank you.

At this time, I would like to call upon the remedial project manager that will give you a presentation on the proposed alternative for the Eighteen Mile Creek Second Phase. Her

name is Jaclyn Kondrk. Please give her your attention. Thank you.

MS. KONDRK: Thank you, Mike. Good evening, everyone. Thank you for being here tonight. My name is Jackie Kondrk. I am the remedial project manager for the site.

So first I would like to give you a little overview of Superfund or CERCLA which stands for the Comprehensive Environmental Response -- thank you. Sorry. It stands for the Comprehensive Environmental Response, Compensation and Liability Act. It was passed in 1980 to respond to uncontrolled hazardous waste sites. It also provides funding to clean up these sites and empowers us to require responsible parties to help pay for these activities.

Here is an overview of the Superfund process. First, a site is discovered. We perform a preliminary assessment and a site investigation. The site is then evaluated to be listed on the National Priorities List and at that time it would become an official

Superfund site.

We perform a remedial investigation to look at the extent, the nature of the contamination at the site. Then we form a feasibility study to look at the different methods we could use to clean up the site. Then we issue a proposed plan which is what we're here to talk about tonight. And after we hear the community's comments and concerns, we take all that into account and we issue a Record of Decision which documents our selected remedy for the site.

Then we get into the remedial design and the remedial action phase which is when we sit down with the contractors, we go over how this is actually going to work. Then we implement that. We do the construction. We have the construction completion phases where we go in and we do some monitoring to make sure the remedy is effective. And then the ultimate goal is to have the site deleted from the National Priorities List and to be reused by the community.

So a little site history. The Eighteen Mile Creek has been used for a number of different industries, and it was also used for hydropower phase industries dating back to the 19th Century and has contributed to some contamination in the creek.

The New York State Department of Environmental Conservation conducted numerous studies on Eighteen Mile Creek before the site was handed over to the EPA and listed on the National Priorities List in 2012. So EPA has conducted supplemental investigations to build on what the State has done already.

So this is an overview of the site. Tonight we're here to talk about Operable Unit 2 which you can see at the bottom here is highlighted in this red box and then blown up at the top. It includes the former Flintkote property, United Paperboard, White Transportation, and Upson Park. It also includes all of the sediments within the Creek Corridor. This is what we call the Creek Corridor, this segment here off of Region 2,

just another name for it.

Then we have Operable Unit 1 which you can also see in this box is the residential properties along Water Street and that was -- a portion of that has already been completed. Then we have Operable Unit 3 which begins where Operable Unit 2 left off. It starts at the top of Harwood Street and continues all the way down to its discharge in Lake Ontario. So, again, tonight we're here just to talk about Operable Unit 2.

So the current status, Operable Unit 1, we issued a Record of Decision in 2013 and that included the relocation of several residents on Water Street and five of those homes were demolished along with the former Flintkote Plant that was demolished and the soil on the residential properties will actually be addressed as part of Operable Unit 2 so we can clean up the creek first and prevent the recontamination of the soils on those properties.

So here is just a bigger picture of OU2 so

you can see the layout and different properties that I mentioned earlier and you can also see Operable Unit 1 in there is the Water Street residential properties. So you have Flintkote, United Paperboard, White Transportation, Upson Park, and the creek sediments.

So the current status of Operable Unit 2, EPA conducted supplemental remedial investigations to build on what the State has done. We collected surface water, ground water, soil and sediment samples. We collected some fish samples, and we performed an ecological risk assessment and a human health risk assessment.

So as a result in the remedial investigation, these are the maximum concentrations that we found at each of the properties in Operable Unit 2. And as you can see, there are some pretty elevated levels of our main contaminants of concern which are lead and PCBs. We also collected some sediment samples from the creek to use these

results for our risk assessments.

We collected some fish tissue, and these are the maximum concentrations that were found in the fish. We collected multiple different species, and this is kind of an overall average of that study.

We also conducted human health risk assessment -- oh, I am sorry. I am missing a slide. So we also looked at groundwater at the site. We installed several additional wells so that we could further investigate flow at the site. And although there is information in the investigation documents, the groundwater will actually be addressed in Operable Unit 3.

So under Superfund we conduct human health risk assessments and ecological risk assessments, and these are used as the basis for all decisions that we make in Superfund. So for human health risk assessment we looked at current and future land use scenarios, and we have looked at the toxicity of the chemicals that are found in the soil and fish

and sediment and we look at how people are exposed. So are they eating the chemicals through the fish, or are they coming in contact to it on their skin.

And so we looked at these different scenarios and evaluated these things and we determined that there is a risk to human health from eating the fish or from being in contact with the soils at the mentioned properties that I mentioned earlier.

So we also do an ecological risk assessments. We collected several additional samples to support this risk assessment, and we determined that there were contaminate levels in soil and sediment that were great enough to affect a number of different animals.

So in order to address these risks that we have found, we developed these specific goals to protect human health and the environment and they're called remedial action goals. These goals are outlined in the proposed plan, and they're intended to prevent the migration

of contaminates and prevent the -- prevent or eliminate risk to animals and humans.

So the proposed plan also lists the remedial alternatives or clean-up options that we have considered for the site. They're separated for the soil versus the sediment so first I am going to go through all of the alternatives that we have considered before I go through the EPA's preferred remedial alternative.

So for the soil first we have Alternative 1 is called no action, and it's a baseline that we compare all of the other alternatives to. And under this alternative, we would not take any action. Alternative 2, limited action, there would be institutional controls such as deed restrictions and also some engineering controls like fences and warning signs but no real remedial activities would take place under that alternative.

Then we looked at capping which is a soil barrier that would be installed to protect people from being in contact with the soil.

Then we have Alternative 4 which is excavation which we would be taking out the soil that exceeds the remediation goal concentrations. And Alternative 5 would be a combination of excavating the areas that are higher concentrations and capping the areas of lower concentrations.

So there is some common elements between some of the soil alternatives, Numbers 3, 4, and 5, so these do not apply to the no action alternative or the limited action alternatives. For 3, 4, and 5, the common elements are bank stabilization which involves a two-foot cover along the embankments. It also includes institutional controls like the deed restrictions I mentioned earlier. It includes a site management plan that makes sure that the post construction activities are done properly and long-term monitoring like visually inspecting the caps and cultural resource investigations that would document any archeological findings that might be present at the site.

So EPA selected preliminary remediation goals for cleaning up the soil at Operable Unit 2, and they're different for the commercial properties versus the recreational properties. So the difference here is for the commercial properties we're allowing on the subsurface below two feet would be 10 parts per million for PCBs and the lead would be cleaned up to 1,000 parts per million. For the recreational property, Upson Park, we're cleaning the surface soil and the subsurface soil all to 1 part per million and the lead to 400 parts per million so it's a little bit mor conservative for the recreational properties at Upson Park versus the commercial properties.

So these are the alternatives that we had looked at for the sediment in the Creek Corridor. As I mentioned, the first alternative is no action. It's just the baseline. Alternative 2 is excavation, would be removing the sediment in the Creek Corridor. Alternative 3 would be a

combination of removing sediment and capping. So EPA selected a sediment action level of 1 part per million for PCBs and the OU2 Creek Corridor, and that would trigger the full back-to-back excavation of all sediments in the creek, in the Creek Corridor.

So consistent with all the Superfund sites across the country, we evaluate all of these remedial alternatives against these nine criteria. The first two are called threshold criteria which means they must be met. It must be protective of human health and the environment, and it must meet all federal, state, and environmental regulations which is what we call ARARs.

Numbers 3 through 5 are what we call balancing criteria and they have different trade offs and we weigh them against each other based upon site specific data and conditions to make sure the right remedy is selected. And the last two are called modifying criteria because based on new information or comments and concerns from the

State or the community we might select a different response than originally anticipated.

So after evaluating these alternatives against the nine criteria, EPA's identified the following preferred remedial alternatives: We have identified excavation for Upson Park, the former United Paperboard Company and the White Transportation property, and we have selected the combination of excavation and capping for the former Flintkote Plant property and excavation of the sediments in the Creek Corridor.

Just the cost associated with the preferred alternative, you can see the soil is separated from the sediment but the total project cost would be $22.8 million. These other costs are what it costs to start it, what it costs over the years, and then the total present worth costs and then they're added together.

So the next steps in the process are we're accepting written comments to the proposed

plan for Operable Unit 2 until September 30th. Then we will be preparing a Record of Decision with our final selected remedy and the Record of Decision will include EPA's responses to your comments including verbal comments that we receive at this meeting tonight.

So there is additional information available that we encourage you to check out. It's available at three different places. It's here in the Lockport Library. It's also at the EPA Record Center in New York, and it's also available on the website. So you can find all of the results from our risk assessments, remedial investigation, you can check out the proposed plan, all the information is right there for you on our website.

You can address any written comments to me. This is my contact information. You can send them through mail or email until September 30th, and this presentation can be found also on our website.

At this time, I think we would like to

open it up to questions and answers.

MR. BASILE: Marsha, is there anything special with this microphone that we need to know?

Before we get into the questions and answers, I think it's important to know that we quick-listed this site on the National Priorities List in 2012. 2013 we came to you with the first phase. The first phase was completed in 2015. And here we are in 2016 and I have to tell you, working at EPA for the last 30 years this has been light years ahead of the schedule that we typically are involved in at a Superfund site and I sincerely mean that.

We had a project manager that stood before us here in this room by the name of Tom Taccone who is retired and now Jaclyn. This is her first shot at a public meeting, and I think she deserves a round of applause for doing an excellent job.

I think Phase 1 went extremely well, and I am sure those that live in the vicinity of the

Flintkote building are happy to see that gone and the poor folks that were living on Water Street who endured some very large rain events whose cellars were constantly flooded, it didn't make much sense to do any remediation on Eighteen Mile Creek and watch these poor people be flooded and flooded again, carrying contamination into their property. Not only were they bought out but of course they have since relocated and those homes are down.

I am sure you have some questions about Jaclyn's presentation. Just raise your hand. I will come to you with the mic. Remember that I just need you to state your name and spell your name for the court reporter.

MR. MCGRATH: Yeah, my name is Jim McGrath and I grew up in the north end of Lockport. When I was a young kid, I played on the banks of Rattlesnake Hill and we used to watch that creek run different colors every other day.

You showed us what you're doing here by Clinton Street hill. Have you got down to

VanDeMark Chemical and these other companies that are still down there by Rattlesnake Hill? What is the status there?

My other question is why can't you get that other house on Water Street, the people out of there, that somebody said their water runs yellow at times? I don't understand why they can't be helped there like the other people were helped.

MS. KONDRK: I believe the VanDeMark is actually part of OU3; is that right?

MR. MANNINO: Actually, so this is a question that actually came up during our public meeting for Operable Unit 1. VanDeMark Chemical is being addressed under the Resource Conservation and Recovery Act program, RCRA, and so there is -- at the last meeting for Operable Unit 1 some folks identified other facilities in the area that they were concerned about, and so what we had stated at that time and I will repeat tonight is that there are various sites or facilities within the City of Lockport that are being addressed

by other programs. And we're going to continue to coordinate with those other programs to ensure that the actions or the remedies that are implemented at those facilities ensure their protectiveness of the remedy that Jackie has identified tonight.

With respect to your question about the additional property on Water Street, the properties that were acquired and the folks that were relocated on Water Street there were a total of nine parcels, five of which had homes on them. Those are the ones that actually had contamination on their property and that flooding would potentially recontaminate those properties if they were addressed.

You may recall what we did initially on those properties through our removal program was to cover some of the contaminated areas as a measure until we could have our final remedy in place. And so subsequent to that, the properties have been acquired, demolished, and there is soil cover and some stone to

prevent any erosion on those properties.

I believe the property that you're referring to was handled under our removal program where there was some limited contamination and we removed that contamination and so there is no further need for any additional work from the EPA with respect to that particular property. And so that property was handled differently than the other nine parcels because of the conditions that were present.

MR. BASILE: Next question.

MS. HOLLAND: Can I read a statement or is this just questions?

MR. BASILE: It's questions and answers, but if it's short.

MS. HOLLAND: Okay. Liz Holland. I am the other house on Water Street, and he is actually being relocated by the city because they can't provide him with adequate water. I am on the corner here by AR3 and AR4 dig sites.

I just wanted to show a picture of my

two-year-old daughter. Behind her you can see the Creek Corridor that's about to be completely removed and have sediment contaminated soils spread all over my front yard. We didn't walk to this site. This is my front yard. This is her with Upson Park behind us. That is still my front yard. This one I just wanted to show because she is cute so I wanted to include an additional picture.

So I just wanted to read a brief statement. In October of 2008, I purchased my home. Nothing was disclosed to me in the property disclosure report prior to purchase nor was I made aware of the DEC letter. Typically you're looking for the quality of the school district and the walkability of the neighborhood, not if your house happens to be sitting in the midst of a Superfund site.

In fact, I can thank the former city treasurer for alerting me to the environmental issues in that area. The day after I had already completed the sale, he said to me make sure you know what's going on environmentally

in that area. Once I was alerted to the existence of the DEC letter, I contacted a lawyer. I was told the letter was not sent certified, nothing can be done. As an aside, I spoke with another lawyer since and in fact something could have been done but that three-year statute of limitations has long since passed.

In the first go around of the remediation in this area, it was announced that the Water Street residential properties were being purchased. Everyone could pat themselves on the back that the residents were protected.

There is only one problem, both myself and another young family are still there. They also have a young child at that property. We were not bought out. Luckily for that family, the City has been unable to provide adequate water for their property so they will move them. It's cheaper to do so.

I asked for testing of my soil in three separate public hearings. Finally once I contacted Senator Schumer's office my soil was

finally tested. I was given a report that although there was some contamination on my property, it should be expected living in a city environment will provide you with some contamination and there is no immediate risk.

So I returned to living my life though I was now stuck with a house probably worth next to nothing due to the proximity of the Superfund site. I requested to be included in the buy-out plan with the other Water Street properties and was denied. Your soil isn't contaminated, you will be fine.

Set aside the health risk for just one second, if you review everything up until this point, I am the only one in this situation who did everything right. I bought a property in good faith that I am financially tied to and cannot leave without devastating my financial livelihood, something that as an officer of a local bank I really cannot do that.

I now have a two-year old little girl. We are entering a phase of this clean-up effort where once again contaminates will be in the

air. Trucks will be coming in and out of my neighborhood and contaminated debris will make its way directly in front of my house. In 2014 both of my dogs passed away suddenly from cancer within months of each other. Coincidence? Maybe or maybe not. My house stands right in the middle of excavation sites AR3 and AR4. I brought pictures of my little girl which I showed you earlier.

I want to read a quick note from the Buffalo News article that I read this morning. "A health assessment based on recreational users at Upson Park shows a slightly more than 2 in 100,000 increased cancer risk and between three and seven times higher risks for other health hazards including organ or immune function through direct exposure or inhalation of particles and chemicals." I just want to reiterate that part, inhalation of particles and chemicals. The levels for a small child are arguably higher.

I am publically requesting for the fourth time to be included in a buy-out package as

part of this remediation effort. The current market value of my home will have a drop in the bucket effect on the overall budget for this plan.

All of the money I have invested in my home to improve it over the last eight years means nothing to me to protect the health of my little girl. I want all the folks in charge making decisions in this effort to look at these pictures of my little girl and ask yourself: If that was your daughter, would you be okay with it? Thank you.

MS. KONDRK: Thank you very much. Pete?

MR. MANNINO: Thank you, Liz. There are a couple points I would like to highlight.

With respect to airborne contamination during construction activities, as with all of our projects, we make sure that we implore our best management practices to ensure the safety of the workers performing the construction activities in addition to the surrounding neighborhood.

We have extensive air monitoring networks

to make sure that that contamination is not migrating off site, off the work zone. In essence, if we can't do the work safely, we won't do the work. And for those who witnessed the work that Terry Kish, our on-scene coordinator, did for the Flintkote building demolition and also the demolition of the residential homes, I think you saw for yourself that the types of practices we implore to perform the work safely.

With respect to the New York State Public Health Assessment at Upson Park, I will defer any questions or comments to the public health assessment to the State of New York. But the contamination that was present at Upson Park is located along the banks of the Corridor. It's at subsurface. It's not in an area that's readily accessible and it's at depth, and so someone who is walking by would not come into contact with those concentrations detected.

The final point I would like to make is as Liz Holland mentioned, EPA did sample her

property and did not find contamination that was site related or that exceeded our remediation goals. As such, we are unable to take an action at your property. Thank you.

MR. BASILE: Next question.

MR. MIDERA: Hi. Leslie Midera, that's L-E-S-L-I-E, M-I-D-E-R-A, resident of Niagara County for 59 years. I have been here and there around the world.

The question is pertaining to the excavation soils. What is going to be done with that? Is that going to be taken to a different area, burnt, and then replaced?

And pertaining to the site, how long before public access to those sites when the work is done? Is it going to be like Love Canal where they have a big fence around it and there is no access?

MR. MANNINO: No. So currently there is a fence surrounding the Water Street properties and a fence surrounding the former Flintkote Plant. That's to prevent access to those areas.

After we issue the Record of Decision, our next step as Jackie mentioned in her presentation is to perform the remedial design. And it's during the remedial design that the actual specifications on how the work will be performed is evaluated. The duration of the remedial design varies from site to site. It could take a year and a half to approximately three years for this site, but there are various factors that influence that timeframe.

Once the remedial design is completed, that's when the actual construction could start. One of the things that we do at some of our sites just depending on the work, we may phase that work so some of the work starts sooner or later but it is not until we get into the design phase that we can start to build more details into the schedule.

With respect to your question about the disposal of the waste, any soil or debris that is removed from the site is characterized and then would be sent to the appropriate

authorized facility to receive it. Based on the data that I have seen, none of this material would require incineration. It would be material that would most likely wind up in an authorized landfill.

MS. GALLOWAY: They're having trouble hearing you. Do you think you can talk into the mic?

MR. MANNINO: Is that better? All right, sorry.

MR. BASILE: Next question.

MR. RAMMING: Yeah, Butch Ramming, R-A-M-M-I-N-G. I have lived in this area for about 89 years, and there is a lot of things I could tell you. I lived in Town of Royalton most of that time along the East Branch and the East Branch has never been addressed.

I could tell you a lot about that, and I wondered why it's never been addressed. And I wonder if there is a long-term goal to what you're doing and what it is?

MR. MANNINO: Just so I have my bearings. There are two East Branches, just

south -- north of the Barge Canal there is the East and West Branch. You're not talking about those.

MR. RAMMING: I am talking about the one that starts in the Town of Royalton and comes over.

MR. MANNINO: Right, okay. When Jackie performed her remedial investigation for Operable Unit 3 which is downstream of Harwood and that's where the East Branch I believe feeds into Eighteen Mile Creek if I have my bearings correct.

MR. RAMMING: By the waste station.

MR. MANNINO: Okay. So at that point, we would be evaluating the data for that portion of the creek and we would be looking to see if there were any upgradient sources that feed into the creek that would impact our action and then determine whether or not that additional branch needs to be addressed as part of our Operable Unit 3 or as part of another operable unit. But we wouldn't know that until we start collecting the data and

seeing if is there is any upgradient sources to that portion of the creek to determine whether or not additional work needs to be necessary.

MR. RAMMING: So you don't have any idea at this time about that portion of the creek? The reason I ask this is when I was growing up this was a fruit belt and we sprayed with arsenic and lead that came out of Niagara Sprayer in Middleport. Everybody sprayed with it. My grandfather was a sharecropper, and he sprayed with it. He had a fruit farm. My dad, we had a big apple orchard. My dad sprayed with it, and I helped and did the same thing.

All those areas down through all those farms and coming along over 104, they all were fruit farms, a lot of them at that time, and they all sprayed with the same thing. I swam, I fished, I hunted, I lived along that creek. It was clean. I can tell you now it isn't. There was a mill pond at the corner of Quaker Road and Slayton Settlement Road. There was a

mill there that used to grind feed. We used to swim in there and it was eight or nine feet of water. Today there is that much [indicating] water above the sediment and it's all the way down through the creek. I am very familiar with it.

And my point is to clean up Eighteen Mile Creek to go into Lake Ontario, this would all have to be remedial action all the way back up through there. I am quite familiar with it. I was supervisor of the Town of Royalton. I am very familiar with the area.

MR. MANNINO: I appreciate that, and I am not familiar enough with the data at this point for the downstream portion of Eighteen Mile Creek as Jackie was characterizing as OU3. And when we're back in the office, I will try to get more -- familiarize myself with that data.

But I think the point that I am trying to drive home is that we wouldn't take an action on a portion of the creek in the absence of knowing what the upstream portions look like.

We don't want to spend $23 million, clean up a portion of the site, and find out a couple years later that there was a source that's going to recontaminate it.

MR. RAMMING: That's my point.

MR. MANNINO: That's part of the deliberative process we do as we go through this investigation. I just -- tonight standing in front of you, I can't talk in any detail with respect to what data there is for that.

MR. RAMMING: What you just said is exactly my point.

MR. MANNINO: Okay, yep. Thank you.

MR. BASILE: Next question.

MS. SPERANZA: Thank you. It's Carla Speranza, S-P-E-R-A-N-Z-A. I am a life-long town resident. My question is to Ms. Kondrk.

With respect to the comments or questions that you are receiving from the public until September 30th, how is that information going to be managed? For example, if we were to log on and go to the EPA site or go to the

library, are people's individual questions or comments/submissions going to be visible to the public or is that private information or is there a point where those concerns or questions do become available to the public? Thank you.

MR. MANNINO: To answer your question, any incoming correspondence that we receive becomes part of the administrative record and is included in the responsiveness summary. And so it's like if we receive a letter, those comments, that letter, would become part of the Record of Decision and our response to that letter would also come in.

So a letter does not have to identify who it's coming from. It can be a concerned citizen with a comment.

MR. BASILE: Next question.

MR. DEVINE: Mark Devine, Third Ward Alderman. First question, I actually have two, when you start with the sediment cleanup, will you be diking Eighteen Mile Creek?

MR. MANNINO: Yes. The intent is that

the work in the sediment, for the sediment, would be done in the dry. We wouldn't be doing it in the wet. So as part of our FS, we developed a cost estimate for diverting the water in the creek while the work is being done. During the remedial design, we will develop more details, specifications, on how that water would be diverted.

MR. DEVINE: Okay, thank you. My second question is I would like the EPA to take another look at maybe helping those families, two families relocate. It won't cost you anything to take a look at it instead of just coming out and saying no.

And as far as the negotiations with that other family on Water Street, I have been involved in some of the preliminary and there hasn't been any more movement as far as I know, at least in the last month. Maybe something has come up since then that I am not aware of. But just take a look and see if you could maybe do something for them two families. We would appreciate it. Thank you.

MR. BASILE: Any other questions? Yes, sir.

MR. O'SHAUGHNESSY: Joe O'Shaughnessy, Alderman at Large. You're going to need a big piece of paper now, O-S-H-A-U-G-H-N-E-S-S-Y.

I am on the council with Mr. Devine, and one of the questions that I have here is the fact that we have just been notified on a gasoline tank, 15,000 gallons, that is going to be pulled out on 89 Mill Street but it's taken us two years to move forward on this.

My question is when is this all going to start and when is there going to be a completion? Thank you.

MR. MANNINO: So Jackie mentioned our next step once the public comment period closes is to issue a Record of Decision which identifies the selected remedy.

At that point, we would initiate the remedial design phase and that's when the specifications on how the work will actually be conducted is performed. I believe I mentioned earlier that a project of this size,

the remedial design phase could take anywheres between one and a half to three years as an estimate. And then it would be after that that the remedial action or the construction activities would be initiated.

So that's my current estimate based on the scope that I am seeing, that we're seeing here today. Once we get into the design phase, we will take a better look at the schedule and see if there is ways to streamline the process and maybe there is a portion of the work that can be done sooner rather than later and be carved out. But I can't stand here in front of you tonight and make that commitment until we actually start that remedial design phase.

MR. O'SHAUGHNESSY: So in other words, the assumption is that we're looking at four to five years at least before this is starting; is that what we're looking at?

MR. MANNINO: I think the earliest that it could start as an estimate is about a year and a half for construction and that one and a half year timeframe could go out to three

years prior to construction as an estimate.

Mike, there is some people in the front.

MR. BASILE: Okay, here we go.

MS. KIENE: Thank you. Jean Kiene, K-I-E-N-E.

First of all, I would like to express my appreciation to Kathy Hochul who is the person who is responsible for us being here tonight and for the cleanup. I really feel that she really hasn't been given enough credit for the effort she put forth because it has been amazing that we have come forth to such a degree in such a short period of time.

I have just one or two questions. Something has bothered me for the last eight years when my companion here, Shirley, first brought it to my attention that a letter had been sent out in May of '08 to approximately 90 or more people who live in the Lowertown area.

It was a variation of streets. I mean there was no correlation. There could be possibly one or two families on each street

and then you jump over another street and then we have all of this. There would be Jackson and then it would be Mill, et cetera, but they all received the same letter and that was that they are actually a Level 2, the same as Love Canal.

Can you explain to me tonight how -- I mean how can that be? And these people have not really been contacted or their soil looked at or any health surveys. The cancer rate in Lowertown is exceptionally high, exceptionally high on Harwood in the past and, you know, that has been Shirley's reason and my reason for being involved in this from the very beginning, it is for the health of our community.

MR. MANNINO: I think you are referring to a letter in 2008 and that was, I see the logo on the top right-hand side, that was issued by the State of New York so that is not correspondence that was issued by EPA. That was issued four years prior to our involvement in the project.

I read that letter a while ago. I don't believe the letter says that you are a Class 2 site. I think it says you reside in an area or nearby a Level 2 site. But, again, I haven't read the letter in a very long time and I wasn't the author of the letter so I don't want to speak to --

MS. KIENE: Class 2 in the registry.

MR. MANNINO: Okay.

MS. KIENE: Find a significant threat to the public health or environment action required, page 1.

MR. MANNINO: So the State of New York classifies sites depending on their status and so the Class 2 I believe deals with an inactive hazardous waste site which the Flintkote and other operable units of the site pertains to.

With respect to who the letter was issued to, once again, we weren't the author of that letter. I would have to defer any questions to the State of New York with respect to the intent of that letter.

MS. KIENE: I would like to add to that. This letter was sent to the mayor, the aldermen.

MR. BASILE: You realize the letter came from the State and not --

MS. KIENE: This to me doesn't matter. The State should be as concerned as the Federal Government and the Federal Government is only involved due to the fact that Shirley and I spoke with Kathy Hochul who came down and actually looked at Eighteen Mile Creek and agreed this was a serious concern for the health and the well being of the people.

So to me, the people that received the letter, we can go from the Federal Government, the New York State, the mayor, the aldermen, they all received it but they did not come forth and say one single solitary thing until Shirley and I began to investigate this whole problem.

And I feel as though the fact that it's classified Code 2 as defined as significant threat to public health that the houses that

were designated in this correspondence, that these people who live in those homes, should be contacted and determined whether or not their health is at risk based upon the decision that was made in this letter.

Now, Shirley here is going around trying to help everybody, you know, and doing her very, very best, dear, sweet, little lady, all right. Her back yard, the lead level in her back yard is atrocious. They came and they told her that all her tomato plants that they -- you know, this tiny, little person planted all those tomato plants. She had to pull them all up. She couldn't eat any of them because of the contamination of the lead that's in her back yard.

I truly feel that we have a very serious situation, not just along, you know, where Flintkote is but that whole area. And there is other areas within the City of Lockport with regards to coal tar, et cetera, that we could go into but that isn't applicable to tonight.

But first of all, I want to thank you for coming and for what you are doing and for giving me the opportunity to raises this question. Thank you.

MS. NICHOLAS: Good evening. Shirley Nicholas, N-I-C-H-O-L-A-S, Mill Street, contaminated Lowertown.

You know, I want to know one thing. You said VanDeMark is going to be addressed by other programs. What other programs?

MR. MANNINO: So the VanDeMark Chemical site, Shirley, is addressed under the Resource Conservation and Recovery Act. It's called RCRA, and they are managing that site.

MS. NICHOLAS: I have one other question. I have my -- the lead in my back yard measures 1,800. I was told that anything over 400 was not -- was really bad and mine's 1,800.

MR. MANNINO: And, Shirley, we will be having additional discussions with you with respect to the concentrations that were detected on your property and we have had some

discussions with you in the past, but I recognize we still have to have additional conversations with you with respect to that.

MR. BASILE: Another question? Yes.

MS. O'BRIEN: Peg O'Brien, O-'-B-R-I-E-N.

I am very concerned because the creek flows down into Olcott which is labelled on the outside of it as one of the chief fishing towns of the area. You are dealing with people who come to that area to spend their money for recreational fishing.

And my first question is how are we letting the fishermen know that the fish that they catch within the inner harbor of Olcott are not to be taken and eaten?

MR. MANNINO: Good question. The fish consumption advisory is issued by New York State Department of Health, and it's my understanding that when someone applies for a fishing permit they are provided with information with respect to any fish advisories that exist in the water bodies in

the State.

MS. O'BRIEN: Okay. So it's up to them to read? There are no signs posted. There is nothing else posted. It comes with your fishing license, and it's up to them to have read through it?

MR. MANNINO: It's managed by New York State Department of Health, and how they manage that advisory I would have to defer any questions at this time to New York State DOH.

MS. O'BRIEN: It's not covered as part of the Superfund program to provide any health warnings?

MR. MANNINO: So as part of the preferred alternative, Jackie mentioned there would be institutional controls. Those institutional controls include environmental easements or deed restrictions on the properties, and fish consumption advisories is an example of institutional controls.

MS. O'BRIEN: Okay.

MR. MANNINO: Once again though, those are managed and issued by New York State DOH

and I would have to defer any questions with respect to how they run their program to the State.

MS. O'BRIEN: Okay. The second part -- I have to commend you for moving through the process from RI/FS to getting to this point in time. I know you're still waiting on OU3.

I do not know if you have been informed, but Newfane excavated the soils in OU3 from the inner harbor last year. They were unable to take them out to Lake Erie because they were too contaminated. They put them up on a hill where the kids go to play soccer. There is no sign, no warning whatsoever.

And so if you can please, please, take a look at OU3 as soon as possible and track into the levels that are now on the trailer storage area for the Newfane Harbor.

MR. BASILE: Thank you. Are there any other questions?

MR. DAVIS: Ed Davis, D-A-V-I-S. I was born and raised on Jackson Street. That was my playground.

My question is you're starting this clean up. You're just starting there over on Clinton Street, and the farthest you're going down is to William Street?

MR. MANNINO: Harwood.

MR. DAVIS: You're going all the way down to Harwood?

MR. MANNINO: Harwood.

MR. DAVIS: Why wasn't any of the land tested on Jackson and Harwood? My mother still lives there.

MR. MANNINO: When we were doing the work for Operable Unit 1, EPA performed sampling and there was sampling that was conducted by the State of New York previously.

Based on the data that we had and then there was additional sampling done as I mentioned including Ms. Holland's property, Shirley Nicholas' property, and some other properties in the area, EPA determined that there weren't any additional properties at that time that needed to be addressed as far as our Operable Unit 1.

So the data didn't show that there were other properties impacted, and I recognize that there are a couple of properties that we still need to address on a case-by-case basis. But the contamination, the data didn't show that it went to Jackson Street or some of the other areas and so we were using the data that we have to make a determination on the homes that were impacted and so --

MR. DAVIS: Those homes are only the ones on Water Street instead of the homes on that last part of Jackson Street because all those homes were ripped down.

MR. MANNINO: I believe, and I have to go back and check this, that there were some sampling done on Jackson Street over a period of time. I don't remember all of the data because it carried over a long period of time, but there were additional homes sampled to determine that we had the boundaries of the impact from the creek and from the fill that was present.

I can get back to you with respect to

additional data, any data that exists for Jackson Street and what that data showed, okay? I think that's the best way to answer your question.

MR. RUTLAND: My name is Bill Rutland, R-U-T-L-A-N-D. I grew up in the mouth of the creek, Lake Ontario and Olcott.

My question goes along with discussions started by Mr. Ramming. It appears all through OU2 contaminated areas are all as a result of the creek flooding and depositing materials on the yards and the properties like on Water Street. There wasn't a factory where those houses were on Water Street. They were all contaminated by the contaminants coming from the creek water; is that correct?

MR. MANNINO: So, actually, that's not completely correct. The back yards of some of those Water Street homes are part of the Flintkote property.

MR. RUTLAND: Okay. But so there is a factory everywhere where all of this contamination is? Like Upson Park, there was

a factory in that parking lot? It didn't come from the creek?

MR. MANNINO: No. So Upson Park, if you look at the embankments, there is fill along the creek banks up along the side slopes.

MR. RUTLAND: Right.

MR. MANNINO: And so historically there was fill that was deposited.

MR. RUTLAND: Came from a contaminated?

MR. MANNINO: Correct.

MR. RUTLAND: Okay. Because my question is when the creek flooded those homes on Water Street, it spread the contamination is what I understand. OU2 begins right at the Barge Canal.

MR. MANNINO: Right.

MR. RUTLAND: Because the creek goes under the Barge Canal.

MR. MANNINO: Right.

MR. RUTLAND: What about on the other side of the Barge Canal? I know that it's underground, but there is an old factory right across the canal from this site. It was

Western Block and I think several other factories.

Has any of that area ever been researched to find out if there is still PCBs and lead and all these contaminants coming from there? As Mr. Ramming said, what is the sense of cleaning downstream if you don't find the sources upstream.

I am very familiar with Eighteen Mile Creek above this area because it goes right through the Niagara County Golf Course where I worked for 20 years, and I am sure the golf course in the years past spread all kinds of nasty stuff as well as the farmers did. Has there been a study of the creek, the source of the creek south of OU2?

MR. MANNINO: So there has been data collected in those areas including data collected within the Barge Canal. So there are a couple of sites on the other side of the canal that are being handled. Off the top of my head I can't recall the names of them but, yes, we looked to see if there was upgradient

sources. The answer is yes and we have ruled out the potential for there being other sources within OU2 that could impact it.

When you look at the -- in the proposed plan, we talk about the need for additional work during the remedial design phase and a significant portion of the water that comes into the branches of the Eighteen Mile Creek is from the Barge Canal. And so in the proposed plan we talk about how there is the potential because the main thing that occurs in the Barge Canal, every winter the water levels are lowered within the Barge Canal, working with the Barge Canal to ensure that their practices don't have an adverse impact to the work that we're doing.

And so those are going to be activities that we're going to continue with while we're in the design phase and prior to implementing our action. And so you raise very good points and the answers are, yes, we have looked at these potential for upgradient contaminations and we haven't found anything other than what

we have identified so far.

MR. RUTLAND: Just one more thing, Shirley mentioned the high level of lead in her yard.

MR. MANNINO: Yes.

MR. RUTLAND: That's just as high as some of the sites in OU2, isn't it or nearly? What did she say 1,500? Shirley?

MS. NICHOLAS: 1,800.

MR. RUTLAND: 1,800. Why do you want to come talk to her later? Why don't you tell her tonight that you guys are going to clean her yard and all them yards that have those levels of lead? How can that be left out?

We're going to spend all that money cleaning up where we bought houses but yet where people are still living you're not going to address that. I am shocked that Shirley has that much lead in her yard, and she has tenants living in her apartment that I think they have small children. There are small children in the neighborhood.

Why are we worried about the Water Street

properties and not those properties? All them properties listed on that letter, and I know the State had to do with sending the letter, but somebody has to look. The EPA came in because the State couldn't handle it. Who is going to handle the real problems in all these neighborhoods where people are living? It's not just this Flintkote abandoned factory and a parking lot, these are people's homes.

MR. MANNINO: The letter, the 2008 letter, and the sampling of Shirley Nicholas' homes are two separate issues, okay? I didn't mean to connect the two when I brought up that conversation as I did.

I am not in a position tonight where I can commit to Shirley and tell her exactly what EPA will or will not be doing at her property. I recognize that we need to have additional conversations with Shirley. And if she would like to -- Jackie and I talked to Shirley a couple months ago. If she would like at this meeting, I will continue that conversation with Shirley. I recognize that we need to

have additional conversations with Shirley.

MR. RUTLAND: It's not just Shirley probably. She has neighbors.

MR. MANNINO: So, again, New York State prior to referring the site for inclusion on the National Priorities List of the EPA conducted significant amount of sampling at residential properties in the area.

Once the site -- okay, once the site was proposed for inclusion on the NPL, EPA conducted additional sampling on properties, not only on Water Street but on other blocks, okay. And I hope this doesn't come out the wrong way, putting aside the one property that we're talking about on Mill Street, okay, because I recognize that is a separate -- I think that's a separate issue.

MR. RUTLAND: Shirley's property?

MR. MANNINO: I don't mean to single out Shirley because the transcript is going to say Shirley, Shirley, Shirley, okay? Shirley.

We don't -- we have addressed the properties, with the exception of Shirley's,

where sampling has revealed contamination that has been in that -- as a result of the Eighteen Mile Creek site. And so there are other properties that we sampled in the area and their properties are not contaminated, all right, or their properties are not related to the Eighteen Mile Creek site, all right.

And so I recognize the concern that folks have about, well, is there anyone else, what about everyone else, and my point is that data has been collected and the data we have so far doesn't demonstrate there is anyone else, okay?

And so when we issued that Record of Decision for Operable Unit 1, that remedy addressed those nine parcels that were impacted by contamination of the creek and have site-related contamination from the soil and the fill, all right. We clearly say in our Record of Decision and I will repeat tonight, if there are other properties that we determine are impacted by the site, we can take additional actions to address them.

Again, I recognize that I need to have additional conversations with Shirley with respect to her property. But aside from Shirley, the EPA is not aware of any other properties that have been impacted, residential properties that have been impacted by Eighteen Mile Creek. And we're using the data that we have collected in conjunction with data collected by the State of New York over a span of several years to come to that conclusion.

MR. RUTLAND: I just have one more thing. I beg EPA to do a good job down there to get this done right.

I hate to say this, but I think they did a horrible job on 89 Mill Street. They came in and tore that plant down and left a big, giant eyesore. The foundation of that building is still laying there. Nobody is ever going to be able to do anything with that property until somebody spends a ton of money to clean it up.

Then you left a tank in the ground with

thousands of gallons of oil leaking into the ground. Joe O'Shaughnessy has had to bust his butt to get you guys to realize you have to clean up the rest of the mess you made or you didn't make. But you stepped up to the plate to clean up 89 Mill and you failed miserably, and I hope you do a fantastic job with OU2. Thank you.

MR. MANNINO: Okay. Just for the record, okay, you have to recognize as Jackie stated in one of her earlier slides, she said we're here for the Eighteen Mile Creek Superfund site and she talked about the authority that we are working under, under the CERCLA and the NCP.

So we, EPA, did not address that underground storage tank, okay. It's a fuel tank, and we couldn't spend Superfund money in order to remediate that tank. And we have been working with the State to get that addressed and, correct, the elected officials have been working and I am happy to hear that progress is being made, all right? EPA did

not leave that tank behind because we decided not to do anything about it. We didn't have the authority to take action on that tank.

MR. RUTLAND: It's poor planning then. It's well-known it was there. It was discovered.

MR. MANNINO: Yes. We were aware of the tank, and we were working with the appropriate authorities to try to get it addressed. In the absence of us being able to use Superfund monies, we have to defer to the agencies and the departments who have the authority to handle that tank.

MR. RUTLAND: What about the concrete? It's all laying there.

MR. MANNINO: So, again, the Liberty asbestos site, first of all, is not part of the Superfund site.

MR. RUTLAND: I know that.

MR. MANNINO: That was a removal project that was completed to handle the concerns at the site. The risk posed, the environmental risk posed by that site were addressed by

CERCLA under the removal program, okay. And so consistent with jobs we have done across the country, all right, we don't always have to remove the foundations. We don't always have to restore the property to certain conditions.

Terry and the removal program did the job that was necessary under the authority given by CERCLA and the NCP to address the risks that that site posed, and that's the authority that was given to him and that is the work that he completed.

And so I recognize your concern as a citizen, as a member who lives in the community, that in your opinion EPA did not go far enough to address the way you felt that that job should have been completed, but we work within our authority to perform the work that was necessary to address the risk and I can't step over that line.

MR. RUTLAND: Can you assure us that OU2 is not going to end up the same way? What's it going to look like when you're done? Has

that been addressed in this?

MR. MANNINO: Sir, OU2 talks about --

MR. RUTLAND: It says you're going to leave the roads in there that they put in. I read that.

MR. MANNINO: Correct. And in addition to a soil cover and gravel cover and plantings along the embankments and so I think the plan is --

MR. RUTLAND: It will look better than 89 Mill Street does now, correct? So hopefully it will look better, OU2 will be a better outcome.

MR. MANNINO: So under OU2, the only building -- there are no buildings that are going to be demolished. Under OU1 we demolished the former Flintkote Plant. And if you drive by there, you will see that that was taken to below grade.

So to answer your question, I would say Operable Unit 1 for the Flintkote demolition has been completed and in my opinion it was done and left in a condition that is

reasonable for the area. Now --

MR. RUTLAND: It still has a fence around it.

MR. MANNINO: Correct.

MR. RUTLAND: Because it's supposed to be dangerous still I thought.

MR. MANNINO: Because the fence is there to prevent access to the portions of the property that still have contamination.

MR. RUTLAND: That's going to be addressed in OU2?

MR. MANNINO: Correct. My point is and you were talking about leaving building foundations above ground. We did not do that for the Flintkote removal. And under Operable Unit 2, there wouldn't be any other buildings being demolished.

MR. RUTLAND: The millraces are going to be removed? What about the Olcott Street Bridge?

MR. MANNINO: There are two dams that would be -- that are dilapidated and unpermitted by the State of New York that

would be removed. The first one under the preferred alternative, the Clinton Street Dam will get removed and the William Street Dam would be removed under the preferred alternative. And so the millrace would be remediated at the Flintkote property and the contaminated soil on the island at the Flintkote property would be removed.

MR. BASILE: Can we have another question back here?

MR. ABBOTT: Hi. Rick Abbott, A-B-B-O-T-T.

I saw something recently for one of -- I thought it was Cooperative Extension but I could be wrong where they were going to get a grant to do what I think they referred to as a floating wetland or floating, yeah, wetland and they were actually going to put it in the creek. I think it was actually for the purpose of probably pumping oxygen into the water to regenerate it because the lack of vegetation growth.

I guess my concern is if they're going to

get a grant for a couple million dollars to do this and you're going to dike off the property, I am guessing all of that will probably go by the wayside and it seems like that could possibly be a couple million dollar waste of money or am I misled on that or would they benefit before you get started to oversee it to the end?

MR. MANNINO: So I am not familiar with the grant that you're specifically talking about, but the area of concern is not within the boundaries of OU2 and so that's further downstream. And once again, once we're in the remedial design phase, we would come up with the specifications on how to do this.

Earlier I mentioned that the work for the sediments would be done in the dry, right, and so we will divert the water. My current idea is if we're bypassing, the water would come back to the creek at a further downstream portion of it and so we wouldn't be taking away that resource of water for the downstream portion of it.

And so, once again, I am speculating as to what the grant is for and where it is, but my initial reaction would be that our work would not have an impact on that.

MR. ABBOTT: My initial thought is it was going to be right in that area but maybe I am wrong.

MR. MANNINO: The area of concern is not within the Creek Corridor. It's further downstream. I think it starts around Newfane Dam, in that area, so that is still probably some distance downstream of Operable Unit 2.

Once again, I am not familiar with that particular dam and so I am just reacting to an AOC which is outside of our boundaries.

MS. KIENE: Thank you very much. I don't want you to think that I or any of the other people here tonight are taking issue with you because really and truly we're not. We're very grateful, grateful that you're here.

I do take issue for the fact that it would appear that the DEC was very much aware of

this, these problems, and now it's been dumped in your lap. And on those sheets of paper which I held up for you to see, almost every house on Jackson Street was listed as being on that Level 2.

I mean this has been known for many, many, many years and the people in authority who could have done something to remedy it chose not to so now it is dumped on you people.

I just thought I would like for you to make a copy of this. This was in our local paper, April 10th, 1971. This is how far back it goes. "Youths Find Homes Polluting Creek at Remick Parkway." So that was right within the City of Lockport. I think you should have a copy.

MR. RUTLAND: It's right on the creek.

MS. KIENE: I think that's very interesting. Thank you.

MR. MANNINO: One thing I would like to say, Jean, I think community participation for the Superfund program is essential and so the more dialogue we have the better we are so I

appreciate everyone's comments. And all I am trying to do is just make sure that the record is straight and that no one leaves this meeting with misinformation, and that's the only point I am trying to make.

MS. NICHOLAS: One more quick comment. I have a paper that goes back a hundred years. It says, "anti-pollutant suit make application soon," and it tells about Eighteen Mile Creek and the pollutions in it then. This was back May 29th, 1916.

DR. MILILLO: Yes, my name is Dr. Milillo and I have been working with the University at Buffalo and this community for two years. I have specialty in GIS mapping, statistical modeling.

We have done mapping of all of your statistical data, contamination data, both from EPA and DEC and the entire Corridor over a hundred years going back historically, what industries were there, all of the contaminants, specifically the ones that you guys are using for the remediation planning,

and I just want to make that resource available to you that we have all this data and maps already created. And if there is any of use to you, please contact me.

All my contact information has -- in fact, I was given your contact information from Tanya Stadelmann who let me know that you were taking over this part of the project and I just want to offer that to anyone who is interested in seeing where the sampling has been done and what's been found there.

MR. BASILE: Yes, sir?

MR. PETER: Peter [unintelligible]. We appreciate you coming here tonight and what the EPA is doing for the city.

Is there any plans to coordinate any of this with DEC on some of the other issues that the people have in that area and what each group is doing?

MR. MANNINO: The simple answer is yes.

Our proposal was done in consultation with New York State DEC, and so we recognize that the State is working on a wide range of other

sites in the area. Other branches of the Federal Government are also working on I know of at least one other site in the area that they are working on. And we continuously coordinate to ensure that each of us know what the current status of their projects are. And so to answer your question, yes, there is coordination.

And as I mentioned earlier, we don't want to spend $23 million and then realize that we got it wrong. And so I recognize that some folks may feel that the schedule is long, but there is a process we need to go through and part of the reason we go through that process is to ensure that we picked the right remedy.

And I appreciate all of the valuable input that everyone gives with respect to, hey, did you hear about this or did you speak to this person who knew about disposal activities that occurred. Our enforcement activity is ongoing, all right. We have interviewed folks. We have looked at different potential sources of contamination. And so anyone who

has any additional information, please bring it forward. We're not closing the door on anything.

I am not saying that we got it all. We have done our due diligence. We feel we have a comprehensive study that expands many, many years that has looked at the potential for upgradient sources and try to find the sources of this contamination for multiple reasons, right, because part of the Superfund program is to try to recover the costs of this work from those parties that are responsible.

So there are multiple reasons why we collect data and why we search for certain things, and one of them is to make sure we have the right remedy and the other part is to try to find those responsible parties so that we can try to recover these costs. So anyone who has information, please provide it to us and we will follow up on it.

MR. PETER: I mean it could be expanded down the road a little bit if there was additional findings that the EPA found or

additional clean up?

MR. MANNINO: Correct. And so we have a scope for Operable Unit 2, all right, and so if there is another area that we need to address, we will figure out whether it should be addressed. We will evaluate it and see whether or not it needs to be evaluated as part of the removal program or the remedial program and how the best way to do that is.

You know, when we came to you with respect to OU1, we talked about the need to sequence the work. As Jackie mentioned, we didn't want to remediate the soil contamination on the residential parcels on Water Street and then have them recontaminated and so we phased that portion of our decision to relocate those homeowners so they didn't have to wait until we were ready to do the rest of the work.

We took down the building, Flintkote building, so we could deal with additional sampling beneath the building to determine whether or not there was a source or a pool of material that was a contributing factor to the

contamination in the creek. And so there is an example where we're phasing the work in.

And if we need to phase the work in as part of OU2, we will look at that as we go through this process. It's an ongoing process.

MR. PETER: Last question. On properties that you bought on Water Street, you bought them out, who owns those now? The EPA?

MR. MANNINO: The Federal Government owns them, not the EPA.

MR. PETER: What kind of plans do they have to maintain those properties, cut the grass?

MR. MANNINO: So we will be maintaining those properties so they're not an eyesore to the community, and then the ultimate goal is that we have a cooperative agreement with the State of New York because for all of our construction activities, well at this site, the Federal Government is paying for 90 percent of the construction costs and the

State of New York pays the other 10 percent. And once the soil clean up is completed on the residential on those Water Street properties, the goal is to transfer ownership to the State of New York.

MR. PETER: All right, thank you. I appreciate it.

MR. BASILE: Thank you. Are there any other questions?

MS. DAVIS: My name is Cynthia Davis, D-A-V-I-S.

As far as finding other responsible parties, VanDeMark, what my husband didn't tell you is when he was younger, they used to have a game getting across town they would cut behind VanDeMark and they would run and it would be a contest to see who could get as far as they could without losing their breath.

There is so much garbage behind there, barrels and everything. What is stopping all of that from flying down the hill now?

When you used to go down Rattlesnake Hill, it was all colors. It's all grown in. You

can't get back there now. How are you going to get back there to check it?

MR. MANNINO: So two things, all right? First, my understanding is that a portion of the VanDeMark area there was a landfill and that's been hacked and that was done a long time ago.

MS. KIENE: With barrels being buried.

MR. MANNINO: Excuse me?

MS. KIENE: With barrels being buried.

MR. MANNINO: Jean's statement were that barrels/drums were buried at VanDeMark. So I recognize the history of the VanDeMark facility.

MS. DAVIS: It's just the creek is right below that.

MR. MANNINO: Correct. So we need to make sure that the work that's being done at other facilities under other programs is and will remain protective of the work that Jackie is looking to do here.

We recognize that there are these other facilities out there. And before we start

construction and during construction as part of our long-term monitoring, we're going to continue to ensure that measures that are in place or that will be in place in the future will be protective of the work that we're going to do, all right? So there is different ways of that being achieved, and we're going to deal with those on a case-by-case basis as we come to them.

The point that I tried to make earlier is that the VanDeMark facility is managed under the RCRA program as I mentioned earlier, and someone else asked were you coordinating with those other programs and the answer is yes.

We have an ultimate goal to ensure that other facilities that are not part of our site, that are not under our current authority, are managed properly and the work that's being done there or will be done there is and will remain protective of the work that we're doing. And so it's a collaborative approach, right, and it involves communication between the programs. And so I think that's

the answer to your question.

MR. DAVIS: You said the VanDeMark site was capped, correct?

MR. MANNINO: A portion. There was what I would call a landfill was capped, a portion of it.

MR. DAVIS: A portion of it?

MR. MANNINO: A portion of the facility has an area that has been capped, okay, by the --

MR. DAVIS: Then my question would be well how would they cap something if you can't even get a truck in there or a tractor because the hill was so steep? That means they just covered it up.

MR. MANNINO: I don't have enough details with me right now to tell you where the -- what areas were capped, what areas were investigated and the extent of that, okay?

So we need to go back and continue our discussions with some of our colleagues and provide you additional information with respect to the current status of that

facility, all right?

I can make a general statement here that this is the goal of the program, right? Getting into those weeds, I am not in a position to do that tonight, okay, but I recognize that we have additional follow-up to provide you additional information with that.

MR. BASILE: We're going to take one more question after this question.

MS. KIENE: We had a meeting in one of the local coffee shops, and these two ladies and myself and the lady who did the filming for Eighteen Mile Creek and several other people were there, one of which had been an employee of the company that we're speaking of, you know.

Before all of us, he testified to the fact as to what he actually saw take place and basically participated in the burying of these items under the parking lot. So these companies down there are involved with very, very serious elements which, you know, if that ever got out of hand our community would be

destroyed. I believe they manufactured 95 percent of the phosgene gas used in the world. So there is concern on our part and it's just, you know, for our health and I thank you.

MR. MANNINO: Thank you, Jean. And so let me say that we appreciate folks bringing to our attention the conditions at a facility like VanDeMark, and we have conducted interviews. We have spoken to probably some of the same people that you're referring to, okay.

And as I said earlier, we are having communications and discussions with our counterparts in the various programs and my ultimate goal is to make sure that there are no other sources impacting the work that we're doing, okay, and that includes the VanDeMark facility, all right.

And so just for folks out there, I have heard over the years stories about former employees, things along those lines. Just for the record, we have conducted interviews. We will continue to conduct interviews, and we

are going to continue to coordinate to ensure that the programs and the authorities that are responsible for managing these other facilities have the same information that we have, okay?

MR. BASILE: Is there another question?

I want to thank you for taking the time. It's very noticeable that you love your community or you wouldn't be here this evening. The same goes for the elected officials.

As Pete and Jaclyn indicated, any information that you have that you think could be helpful, we solicit it. Jackie and Pete are in New York City, but I am in Buffalo. I can be reached at 551-4410. So if you have any questions that you forget about tonight and want to talk to me about it, please feel free to give me a call. The 30-day public comment period ends on September the 30th.

Once again, thank you for participating. Have an enjoyable evening. Thanks again.

(Meeting concluded at 8:30 p.m.)

STATE OF NEW YORK)

) ss.

COUNTY OF ERIE)

I, Carrie Fisher, Notary Public, in and for the County of Erie, State of New York, do hereby certify:

That the witness whose testimony appears hereinbefore was, before the commencement of their testimony, duly sworn to testify the truth, the whole truth and nothing but the truth; that said testimony was taken pursuant to notice at the time and place as herein set forth; that said testimony was taken down by me and thereafter transcribed into typewriting, and I hereby certify the foregoing testimony is a full, true and correct transcription of my shorthand notes so taken.

I further certify that I am neither counsel for nor related to any party to said action, nor in anyway interested in the outcome thereof.

IN WITNESS WHEREOF, I have hereunto subscribed my name and affixed my seal this 16th day of September, 2016.

Carrie A. Fisher
Notary Public - State of New York
No. 01FI6240227
Qualified in Erie County
My commission expires 5/02/19

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ATTACHMENT D

WRITTEN COMMENTS

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Thursday, September 29, 2016

Jaclyn - Hi, we spoke briefly at your EPA 18 Mile Creek Superfund 2nd Phase Proposed Plan presentation in Lockport on September 7 of this month. We have also had a few emails back and forth earlier this summer concerning the project. I have contacted you about the old water turbine inside the small Medina sandstone structure with stone arches at back & front. This semi below grade one story building is located at the bend of 18 mile creek at the former Flintkote site. There are also remnants of a dam & dam gate on site as well. I have written to you about exploring the possibility of retaining - developing these components into a historic ruins / heritage tourism educational example of 1800's industrial water power. Lockport was all about industrial water power with the Erie Canal Flight of Five, Canal Raceways & 18 Mile Creek. I feel a unique & valuable opportunity exists here by saving this little corner of the formerly expansive Flintkote site.....there is quite a story that could be told.

In addition there is the very real possibility that this water turbine was designed & built by Lockport's famous inventor Birdsill Holly, second only to his friend Thomas Edison in patents. A Holly water turbine still exists in the lower portion of a stone structure up town in Lockport as part of the Canal Raceway. Of Holly's many patents he is best known for his invention of the fire hydrant. EPA Flintkote Site Cooridinator Terry Kish allowed me to get excellent photographs of this site as I describe it before it was partially covered with dirt and gravel. These photograghs document much of what cannot be seen now & would be very helpful in the cultural evaluations of the site (exterior/interior) pursuant to Section 106 of the National Historic Preservation Act.

I will mention also that a short distance south on the creek from Flintkote, the Olcott Street vehicular bridge might be worth retaining as a pedestrian-bike crossing. Just south of this bridge also on the east side of the creek stands a Medina sandstone wall (remnant of United Paper Board Co.) along the path approaching the Clinton Street Dam that would be a beautiful industrial remnant in a natural park like setting.

In closing, emails sent to you from Terry Kish (5-25-16) & from myself on (6-7-16) provide more information and support for this preservation undertaking I am proposing at the former Flintkote site. I am grateful there appears to be ample time to explore and research this topic further and that you are open to and positive about the possibilities. thank you for your consideration Jaclyn and lets keep in touch about this,

David Stockton

Phillips Lytle LLP

Via UPS Overnight Delivery

Ms. Jaclyn Kondrk
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September 29, 2016

Re: U.S. Environmental Protection Agency's ("EPA") Proposed Plan of Remedial Action ("Proposed Plan") for Operable Unit 2 ("OU2") of the Eighteenmile Creek Superfund Site Located in Lockport, New York ("Site")

Dear Ms. Kondrk:

We hereby submit written comments with respect to EPA's preferred remedial action alternative to address impacted sediments at OU2 of the Site. We request that these comments (i) be included in the administrative record for the Site, and (ii) that EPA include these comments and the agency's response thereto in its responsiveness summary.

Pursuant to the Proposed Plan, EPA's preferred remedial action alternative - Creek Channel Alternative 2 ("CC2") - would require complete bank-to-bank sediment removal in the Creek in OU2. While we acknowledge EPA's efforts to address impacted sediment issues at OU2, we believe it is important and consistent with the National Contingency Plan ("NCP") that a remedial action alternative that is (i) equally protective of human health and the environment, (ii) meets all NCP requirements, and (iii) is cost effective, be selected as the remedy. For the reasons discussed below, we urge EPA to select Creek Channel Alternative 3 ("CC3") as described in the Proposed Plan.

EPA specifically acknowledges and states in its Proposed Plan that CC3 adequately protects human health and the environment. Similar to CC2, CC3 would require

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removal of significant quantities of sediment in OU2 and can be implemented within 2 years. Unlike CC2, however, a cap would be installed where appropriate, and in particular for OU2, in an area between Clinton Street and the Clinton Street Dam. With proper design, construction, and monitoring and maintenance, the CC3 sediment remedy would be no less protective of human health or the environment.

Utilizing EPA's own cost estimates, the cost to implement the equally protective CC3 remedy would be significantly less than CC2. As the NCP mandates that EPA consider cost-effectiveness in the remedy selection process, EPA is required to select CC3 as the remedy as it will be equally protective of human health and the environment, while costing approximately 30% less than CC2.

EPA has identified and selected remedial action alternatives similar to CC3 many times before.[1] Just recently, EPA dredged and capped impacted sediment areas of the Lower Willamette River that contained the highest levels of contaminant concentrations at the Portland Harbor Superfund Site. There, EPA selected a remedial action alternative that required significantly less dredging when compared with other remedial action alternatives EPA evaluated. In selecting the remedy, EPA concluded that a dredge and cap remedy was protective of human health and the environment and more cost effective than other remedial action alternatives because it targeted specific sediment removal areas, with other areas being capped

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[1] EPA selected remedial action alternatives similar to CC3 at many other sites, including, but not limited to the following: Barge Canal, SC; Bellingham Bay, WA; Bremerton Naval Complex, WA; Callahan Mining, ME; Commencement Bay, WA; Detroit River Black Lagoon, MI; Eagle(East) Harbor, Wycoff, WA; Fox River & Green Bay, WI; Galaxy/Spectron (SH3), Elkton, MD; Hackensack River, NJ; Hooker, 102nd St., Niagara Falls (SH4), NY; Housatonic River, MA; Hudson River Poughkeepsie, NY; Hudson River (Hot Spots), NY; Ketchikan Pulp, AK; Koppers Co., Inc., Former Barge Canal, Sharleston, SC; Manistique River & Harbor, MI; McCormick & Baxter Site, Willamette River, Portland, OR; Metal Bank, Delaware River, PA; McAllister Point, Naval Station, Landfill, RI; Port of Tacoma Piers 24 and 25, WA; Reynolds, NY; Stryker Bay (SLRIDT Superfund), Duluth, MN; Tennessee Product, TN; Velsicol, MI; West Branch Grand Calumet River, Hammond, IN; Zidell-Willamette River, OR. *See Contaminated Sediments Remediation, Remedy Selection for Contaminated Sediments*, Guidance Document, THE INTERSTATE TECHNOLOGY & REGULATORY COUNCIL CONTAMINATED SEDIMENTS TEAM, Appendix A. Case Studies (August 2014), at https://clu-in.org/download/contaminantfocus/sediments/Sediment-ITRC-CS-2.pdf.

EPA's Proposed Plan specifically states that CC3 adequately protects human health and the environment. It is far more cost effective than CC2, and EPA has selected remedial action alternatives similar to CC3 many times before. EPA must revise its Proposed Plan, and select CC3 to address impacted sediments in OU2 .

.

Very truly yours,

PHILLIPS LYTLE LLP

By

David P. Flynn

Doc #01-2984857.1

Kondrk, Jaclyn

From: koko carrington <konc10@hotmail.com>
Sent: Thursday, September 01, 2016 9:11 AM
To: Kondrk, Jaclyn
Subject: EPA Proposes $23 Million Plan for Second Phase of Cleanup at Eighteen Mile Creek Superfund Site

Good day Jaclyn Kondrk ,

My name is Kimiko Carrington (age 16) and I'm a student @ New York Harbor School (Vessel Operations Program) located on Governor's Island. I read the article on the EPA Proposes $23 Million Plan for Second Phase of Cleanup at Eighteen Mile Creek Superfund Site . The three phase plan sounds feasible and I hope all goes well. I applaud all your efforts to cleanup our waterway and oceans. This is a shared commitment I have to be a good steward of our oceans and waterway especially here in New York State. I just wanted you to know that I'm following your efforts and cheering on the sidelines. I hope to one day get my captains license and Masters in Marine Biology.

PS. Have you heard of the Hokulea worldwide voyage . This Hawaii vessel is circumnavigating the world to bring awareness to ocean protection. They are currently somewhere close to this canal (Mohawk river or barge canal) on its way to the great lakes.

Thanks for the job you do ,
Sincerely Kimiko Carrington
konc10@hotmail.com
Concerned Citizen

Kondrk, Jaclyn

From: Mark Gallo <mgallo@niagara.edu>
Sent: Tuesday, September 06, 2016 9:34 AM
To: Kondrk, Jaclyn
Subject: 18 mile cleanup

Dear Jacklyn,

My name is Mark Gallo and I am a Professor of Biology at Niagara University. I am a microbiologist and recently have been studying microbial communities.

I was wondering if there is any microbial community work going on with this project. Namely it would be interesting to see upstream versus downstream microbial diversity as well as before and after cleanup. Deep sequencing of the metagenomes in these environments would give an indication of the effects of the chemicals on the microbes in the first place and the impact of the remediation work on the changes, if any.

Perhaps we could talk about such matters?

Thank you in advance,

Mark

Mark A. Gallo, Ph.D.
Professor of Biology
B. Thomas Golisano Center for Integrated Sciences
Niagara University, NY 14109
(716) 286-8247

Kondrk, Jaclyn

From: Amy Witryol <amyville@roadrunner.com>
Sent: Monday, September 12, 2016 3:31 PM
To: Kondrk, Jaclyn
Subject: Re: 18 Mile Creek FS

Follow Up Flag: Follow up
Flag Status: Flagged

Thanks. I don't understand the guarantee part unless it's Solid Waste. If it's Rcra waste or Tsca waste it cannot be disposed of in New York without EPA approval under the mega rule which I think applies only to Tsca.

Do you have this guarantee from DEC in writing? If so is this a document that is posted or that you could forward to me?

Amy

Sent from my Verizon Wireless 4G LTE Droid
On Sep 12, 2016 2:57 PM, "Kondrk, Jaclyn" <kondrk.jaclyn@epa.gov> wrote:

> Hi Amy,
>
> As per our conversation, I found out some more information about the FS and disposal options. The FS used those particular facilities as examples for cost estimating purposes. The State of New York has guaranteed that there will be a facility available for our disposal needs, and it might not be in the same county. We will have more information about which particular facility once we begin our Remedial Design phase of the project. I hope this helps. Let me know if you have any additional questions.
>
> Thanks,
>
> *Jackie*
>
> Jackie Kondrk
>
> Remedial Project Manager
>
> U.S. EPA, Region 2
>
> 290 Broadway, 20th Floor

New York, NY 10007-1866

(212) 637-4317

Kondrk, Jaclyn

From: Amy Witryol <amyville@roadrunner.com>
Sent: Tuesday, September 13, 2016 12:42 PM
To: Kondrk, Jaclyn
Subject: RE: 18 Mile Creek FS

Hi Jackie –
In addition to the Q's I sent yesterday, could you give me a best guesstimate of when the Remedial Design phase might begin? (understanding these projects are sometimes moving targets…)
Tx,
Amy

From: Kondrk, Jaclyn [mailto:kondrk.jaclyn@epa.gov]
Sent: Monday, September 12, 2016 2:57 PM
To: amyville@roadrunner.com
Subject: 18 Mile Creek FS

Hi Amy,

As per our conversation, I found out some more information about the FS and disposal options. The FS used those particular facilities as examples for cost estimating purposes. The State of New York has guaranteed that there will be a facility available for our disposal needs, and it might not be in the same county. We will have more information about which particular facility once we begin our Remedial Design phase of the project. I hope this helps. Let me know if you have any additional questions.

Thanks,

Jackie

Jackie Kondrk
Remedial Project Manager
U.S. EPA, Region 2
290 Broadway, 20th Floor
New York, NY 10007-1866
(212) 637-4317