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Enbridge Line 6B MP 608
Marshall, MI Pipeline Release

Waste Treatment, Transportation and Disposal Plan

Prepared for United States Environmental Protection Agency

Enbridge Energy, Limited Partnership

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LIST OF ACRONYMS

BMPs	Best Management Practices
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CP	Control Point
Dolo	Dolomitic Limestone (synonym Dolomite)
DKD	Dolomitic Limestone and Dolime
DRO	Diesel Range Organics
Enbridge	Enbridge Energy, Limited Partnership
FTC	Frac Tank City
GRO	Gasoline Range Organics
Hi Cal	High Calcium
ICP	Incident Command Post
ID	Identification
IL	Illinois
IN	Indiana
Inc.	Incorporated
KY	Kentucky
Lime	Calcium hydroxide
Line 6B	The pipeline owned by Enbridge Energy, Limited Partnership that runs just south of Marshall, Michigan
MDEQ	Michigan Department Environmental Quality
MI	Michigan
MSDS	Material Safety Data Sheet
MSW	Municipal Solid Waste
O & G	Oil and Grease Analysis
OH	Ohio
ORO	Oil Range Organics
PCBs	Polychlorinated Biphenyls
PFT	Paint Filter Test
POTW	Publically Owned Treatment Works
PPE	Personal Protective Equipment
RCRA	Resource Conservation and Recovery Act
SVOCs	Semivolatile Organic Compounds
SWAT	SWAT Consulting Inc.
T & D	Transportation and Disposal
TCLP	Toxicity Characteristic Leaching Procedure designed to determine the mobility of both organic and inorganic analytes present in liquid, solid, and multiphasic wastes
TSD facility	Treatment, Storage, or Disposal facility
USEPA	United States Environmental Protection Agency

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LIST OF ACRONYMS (CONTINUED)

USEPA Order	USEPA Removal Administrative Order Under Section 311(c) of the Clean Water Act, issued on July 27, 2010 to Enbridge Energy Partners, L.P., Docket Number: CWA 1321-5-10-001
VOCs	Volatile Organic Compounds
WMP	Water Management Plan
WTTD	Waste Treatment, Transportation and Disposal
yd3	Cubic Yards

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1.0 Plan Objectives

This document presents an updated Work Plan entitled Waste Treatment, Transportation and Disposal (WTTD) plan to address waste generated in association with the Enbridge Line 6B MP 608, Marshall, Michigan pipeline release. This WTTD plan describes the procedures that are used to manage waste treatment, transportation and disposal (T&D) related to spill response activities under United States Environmental Protection Agency (USEPA) Order ID number MIK752366161. Waste streams generated include but are not limited to oily water, debris (e.g., impacted sorbents, boom, pads, plastic, personal protective equipment (PPE), vegetation), river sediment, soil, timber debris, household trash, and miscellaneous other small volume materials.

1.1 Work Plans

The original WTTD Plan was established to comply with Federal, State, and County waste regulation, and to prevent or minimize human health and environmental risks associated with managing petroleum contaminated media. The original WTTD Plan was completed and approved early in the spill response on August 2, 2010 and August 9, 2010 respectively. Waste management and disposal procedures have been modified as needed or requested during the cleanup, pending Federal, State, and County approval.

This revision incorporates and updates the following previously approved WTTD plan and subsequent supplements that apply to waste treatment, transportation and disposal activities:

- Waste Treatment, Transportation and Disposal Plan– August 2, 2010 (Revised August 8, 2010 per U.S. EPA August 7, 2010 Notice of Approval with Modifications)
- Oil Recovery and Oily Debris Disposal refers to the document entitled *Supplemental Notification of Approval with Modification of Enbridge Energy, Limited Partnership's Waste Treatment, Transportation and Disposal Plan* - August 2, 2010 (Revised August 9, 2010 per USEPA August 7, 2010 Notice of Approval with Modifications)
- Supplement to the Waste Treatment, Transportation and Disposal – October 28, 2010

This WTTD plan revision includes updates to reflect procedures to be used to manage the waste volumes as the response effort moves toward response and/or remediation activities at discreet locations along Talmadge Creek and the Kalamazoo River. This WTTD plan also

includes procedures being utilized for managing the various types of waste streams being generated.

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2.0 Waste Identification

The solid waste streams generated can be separated into two categories: oil impacted and non-impacted wastes. The oil impacted solid wastes identified for proper management are excavated soils, river sediment, decontamination area solids, frac tank sludge, impacted timber mats and other miscellaneous debris (e.g., impacted sorbents, boom, pads, plastic, PPE, vegetation). The non-impacted waste streams are considered municipal solid waste (MSW) and are listed as non-impacted timber mats, and general refuse (garbage) from any of the site locations. Site locations include the command center, the wildlife center, river access areas, staging areas, and other locations used during site activities.

The disposal of soil and debris will be approved by both the USEPA and Michigan Department of Environmental Quality (MDEQ) upon review of the analytical results. Where permitted, direct disposal to the landfill will minimize the need for soil stockpiles within Site A or Frac Tank City (FTC). Attachment H presents a Transfer Plan which outlines the transfer of soil staging operations from Site A to FTC. Attachment A presents the Soil Staging Flowchart of procedures for proper soil treatment, characterization, and disposal.

Oil impacted debris generated includes but is not limited to impacted timber mats, wood chips, control point (CP) river debris and miscellaneous oily debris (e.g., impacted sorbents, boom, pads, plastic, PPE, vegetation). Attachment B is the Oily Debris Flowchart.

MSW is non-impacted waste or non-oily debris generated that includes but is not limited to timber mats, wood chips, general refuse, and miscellaneous other small volume materials.

Liquid waste streams generated include but are not limited to oily water, decontamination water, precipitation water (in both soil staging cells and non-used decontamination sumps), and well drilling water. Attachment C is the Oily Waste Water Flowchart.

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3.0 Waste Characterization

The WTTD plan details the general characterization requirements and sampling procedures for each waste stream generated as a result of response and cleanup activities. All impacted solid waste streams must be characterized for disposal as described in the following subsections of Section 3.0. In addition, Oil and Grease (O&G) analysis is required for oil recovery calculations. Required analyses are described in Section 3.1. Analyses for Gasoline Range Organics (GRO), Diesel Range Organics (DRO), and Oil Range Organics (ORO) are not Resource Conservation and Recovery Act (RCRA) characteristic parameters and are not required by the waste disposal facilities currently approved to accept these wastes; therefore, these analyses are not required to fulfill characterization requirements. Additionally, analysis of polychlorinated biphenyls (PCBs), flash point, or pH of solids is not required to fulfill these characterization requirements. PCBs are not contaminants of concern in the spilled crude oil. Flashpoint and pH are not applicable to solid wastes generated at this site (per Code of Federal Regulations Title 40, Part 261.21 and 261.22).

It is anticipated that the Toxicity Characteristic Leaching Procedure (TCLP) and O&G analyses will be sufficient to fully characterize each waste stream. However, if the proposed waste characterization is not enough to support compliance with RCRA and local disposal requirements, additional characterization will be conducted in order to meet all regulatory criteria. Additional characterization is also required for any waste stream that is likely to have been impacted by constituents that are not captured by the methods described herein. All characterization outside the scope of Sections 3.1, 3.2, 3.3 and 3.4 must be approved by the USEPA prior to sample collection in order to fulfill waste characterization requirements. Sampling and analysis will be performed in accordance with the approved Quality Assurance Project Plan (Enbridge Line 6B MP 608 Marshall, Michigan, Quality Assurance Project Plan, prepared August 2, 2010, Revised August 15, 2010).

3.1 TCLP and O&G Analyses

TCLP will be performed on waste materials and the leachate analyzed for heavy metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver), volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs). O&G analysis will be conducted using a modified USEPA Method 1664A. This modified method substitute's methylene chloride for hexane as a solvent to enhance crude oil recovery. A paint filter test

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(PFT) will be performed for soil and sediment waste to ensure that free liquids are not present.

3.2 Soil and Sediment

The purpose for collecting soil and sediment samples is for waste characterization and/or O&G analysis to meet USEPA's and MDEQ's disposal requirements and oil recovery calculations. All soil and sediment generated as waste must be characterized for volatiles per USEPA's Method 8260 list of agreed upon analytes. Soil and sediment waste is also required to meet all characterization requirements for the local disposal facility receiving the waste. The analysis of solid waste characterization samples must include the following:

- TCLP metals (USEPA Methods SW-846 1311 and 6020 + 7470)
- TCLP VOC (USEPA Methods SW-846 1311 and 8260)
- TCLP SVOC (USEPA Methods SW-846 1311 and 8270)
- Oil & Grease (USEPA Method SW-846 1664A modified)
- Paint Filter Liquids Test (USEPA Method SW-846 9095B)

Per Section 3.0, additional analyses may be necessary to fulfill characterization requirements.

If soil staging within a cell is necessary, the sampling plan (Appendix A of the Supplement to Waste Treatment, Transportation, and Disposal Plan, October 28, 2010 – Revised Safety-Kleen Soil Pile Management Plan-Enbridge Energy, Marshall, MI. Crude Oil release, Rev. 04) identifies the sampling procedure for characterization of the soil pile within the staging cell. Any soil consolidation and solidification shall be conducted in lined cells in Staging Area A or FTC for stabilization as necessary. Testing for free liquids using PFT will be required as described below.

All excavated materials will be visually inspected for free liquids. A PFT will be conducted in the field at each excavation site for both excavated soil and stabilized soil at a minimum of once per day. The person conducting the PFT will be competently trained to sample the soil and conduct the PFT at the excavation site. USEPA Method 9095B, Paint Filter Liquids Test will be modified to use a sample jar instead of a graduated cylinder and the sample will be

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tested at ambient temperature. A minimum of one representative sample will be collected for PFT per excavation site on the basis of visual inspection by a designated individual. Additional PFT samples will be collected as needed based on further visual inspection and in coordination with USEPA or its representative. In the event free liquids are observed in an excavation, excavated material will be placed in a rock box or lined cell for stabilization. A rock box is a reinforced steel constructed box with gussets and a pull bar for use in conjunction with an excavator for the handling of solid materials. A rock box will be utilized to comingle excavated soils (with varying levels of saturation) with an approved stabilizing agent using an excavator. Prior to transport, stabilized material must not contain free liquids. USEPA and MDEQ approval is mandatory prior to the use of any stabilization agents utilized to meet compliance requirements for soil and sediment transport or disposal. Soil and sediment stabilization is discussed in further detail in Section 4.1.2.As described in Appendix A of the Supplement to Waste Treatment, Transportation and Disposal Plan (dated October 28, 2010), REVISED Safety-Kleen Soil Pile Management Plan-Enbridge Energy, Marshall, MI. Crude Oil release, Rev. 04, composite samples for waste characterization will be collected.

Solid waste characterization samples will be submitted for a 72-hour lab result turn-around-time.

3.3 Liquid Waste Water

Currently, all liquid waste streams are characterized as non-hazardous. New liquid waste streams or existing waste streams that are suspected of exceeding RCRA non-hazardous criteria are required to undergo characterization sampling. This characterization sampling must include the following:

- Benzene (USEPA Method SW-846 8260)
- Oil & Grease (USEPA Methods SW-846 1664A modified)
- pH (USEPA SW-846 Method 9040)

Per Section 3.0, additional analysis may be necessary to fulfill characterization requirements.

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The FTC frac tanks that contain accumulated water from the decon water collection system, soil cell sumps, and river water (including river water decanted from control point [CP] debris) will be sampled at a frequency of once every 100,000 gallons. The O&G analytical results will be used to calculate recovered oil from the decontamination water.

Water from the storm water sump collection systems will be sampled at an interval of once every 50,000 gallons for the Battle Creek Publicly Owned Treatment Works (POTW) or at a frequency required by an alternate facility approved by USEPA and the MDEQ for benzene, O&G and pH.

Any new liquid waste stream identified will be sampled using standard RCRA waste characterization analyses, as listed above for liquid waste, and at a minimum frequency of once per year to confirm the initial characterization. Additional samples will be collected for O&G analysis for every 100,000 gallons as a sampling frequency to validate the oil recovery. Hazardous waste water will be sent to the Dynecol facility or an alternate facility approved by the USEPA and MDEQ.

If waste water is suspected to have high concentrations of petroleum contaminants, the waste water will be isolated in a frac tank and analyzed for all RCRA waste characterization methods (listed above) prior to shipment as either non-hazardous or hazardous waste.

All waste water streams will be re-characterized using standard RCRA waste characterization analysis, as listed above for liquid waste, at a minimum frequency of once per year to confirm initial characterization. Samples for O&G analysis will continue for every 100,000 gallons as a sampling frequency to validate the oil recovery

3.4 Oil Impacted Media and Debris

The recovered media, debris, CP river debris, liner, timber mats and miscellaneous materials used and impacted by the oil spill will be disposed of in roll-off containers. The debris material is either collected in clear plastic bags or, if too large, is placed loosely in lined 20 yd^3 roll-off containers. The roll-off containers are staged in designated areas until they are fully loaded or the excavation site work is complete. Roll-off containers are then transported to FTC and every tenth roll-off is held for sampling to conduct O&G analysis.

Waste characterization analyses will be conducted at a frequency of every 50 roll-off containers. The analysis of solid waste characterization samples must include the following:

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- TCLP VOC (USEPA Methods SW-846 1311 and 8260)
- TCLP SVOC (USEPA Methods SW-846 1311 and 8270)
- Oil & Grease (USEPA Methods SW-846 1664A modified)

TCLP metals analysis is not required since the source material did not fail for TCLP metals and the debris waste stream has not failed for TCLP metals for the duration of this project. Per Section 3.0, additional analysis may be necessary to fulfill characterization requirements.

3.4.1 Roll-off Sampling Procedures

The sampling of the debris contained in roll-off boxes will be in accordance with the USEPA Guidance Document USEPA530-D-02-002, Waste Sampling Technical Guidance as described below.

- Homogeneous waste: Collect six (6) sample aliquots from each roll-off container and combine into one composite sample per roll-off. Depending on the matrix of the waste (absorbent boom, plastic sheeting, PPE, etc.), the waste may require cutting to obtain samples of sufficient size to fit into the sample container. Representative sampling will be based upon the percentage of the type of waste debris collected and will be representative of the oil impacts.
- Heterogeneous waste: Collect six (6) sample aliquots from each component contained in the roll-off box. The quantity of each component sampled within the sample container is based on the estimated quantity of that component in the entire roll-off box (i.e., percentage of waste in the roll-off will correspond with percentage of that waste placed in the sample container sent to the laboratory)and will be representative of the oil impacts observed on each material.
- To the maximum extent possible, the samples shall completely fill the laboratory sample container with no or minimal head space.

3.4.2 Control Point Sampling Procedures

In addition to the oil-impacted debris contained in roll-offs discussed above, debris is also collected daily at six CPs from the boom maintenance along Talmadge Creek and the

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Kalamazoo River by the SWAT Consulting Inc. Team (SWAT). SWAT collects debris materials (contained within clear plastic bags) from each CP and transports them to FTC. The procedures described below are detailed in the April 15, 2011 supplement to the Roll Off –Debris TPH and QAQC Waste Characterization Sampling Plan, Rev-01 8/26/2010 EQ – Debris Waste Sampling Plan.

The type of debris and approximate amount collected are:

- Vegetative or organic material is 90 to 95 percent.
- Windblown buoyant household garbage is 4 to 9 percent.
- River foam or oily mousse foam is 0 to 1 percent.
- Decanted water (varies)

Laboratory analysis will be performed on both the debris and the decanted water for O&G analysis only. Sampling procedures for CP debris and waste water are as follows:

- The water from each debris bag is decanted into a bottle that has quarter gallon demarcation, measured, and transferred into a bulk container such as a 55-gallon drum or a poly tank on a daily basis. The bulk liquid storage containers are within secondary containment and capped after being filled to prevent precipitation from entering.
- After decanting the water, the debris bags are weighed to the nearest pound. The accuracy of the scale is checked each day using a 10-pound and a 20-pound weight.
- Each day, the first bag, and every tenth bag thereafter are set aside from each CP. The bags are taped, location labeled, and staged in lined cubic yard (cubi) sacks located on a secondary containment liner with berms. The cubi sacks are covered with either its own cover or a liner to prevent precipitation from entering the cubi sacks.
- The remaining bags are placed into a lined roll-off container dedicated to the specific CP debris.
- Every Wednesday morning, the sampling team collects a composite sample by taking one sample aliquot from each of the bags set aside within the cubi sacks.

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The sample represents debris collected from the control points on Wednesday through Tuesday of the previous week. These debris bags are then added to the roll-off for disposal.

- Sampling and handling is performed in a manner to prevent spillage outside the containment. Plastic kiddy pools and sheets of poly are used to prevent contamination of the gravel pad at the sampling area.
- Aliquots for the debris composite sample are placed into a clean poly bag and homogenized. Two 32-ounce jars of the homogenized composite sample are collected for O&G analysis.
- A water sample is collected from the bulk liquid storage container for O&G analysis. If more than one bulk storage container of decanted water has accumulated during the week, the sample will be collected from only one of the bulk storage containers which represents greater than 10% of the total volume of liquid collected.
- The debris roll-off will be disposed of in the same manner as the other oil-impacted media and debris generated at this site.
- The decanted water is vacuumed out and consolidated into the bulk frac tank containers for disposal with the decon water waste stream.
- O&G results for the composite debris samples and the decanted water samples are used to calculate recovered oil.

3.4.3 Timber Mat Sampling Procedures

The oil impacted timber mats/debris waste stream management and sampling plan is as follows:

- The impacted timber mats will be placed in a soil cell.
- The impacted timber mats will be dismantled/crushed within the active soil cell creating a stockpile. The length will be reduced within the soil cell to fit within a roll-off container.
- One composite sample will be collected per 200 yd^3 of mats as determined prior to crushing of the mats. The sample will be collected by selecting the smaller pieces of wood chips generated during the crushing operations. Sample collection will include a representative proportion of the inner clean and the outer impacted woody material. The sample will be analyzed for O&G analysis only.

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- Impacted mats will be disposed of as “crude oil contaminated media and debris.” The O&G results will be used to calculate recovered oil for the impacted mats.

3.5 Municipal Solid Waste

The non-impacted waste material and debris is considered MSW and will not be sampled for waste characterization or O&G analyses.

Non-impacted debris includes but is not limited to timber mats, silt fence, and garbage which have not been impacted by oil based on known history and visual inspection.

3.6 De Minimis Hazardous Waste

De minimis hazardous waste such as spent bug repellent, spent degreasers, spent mechanical or automotive products, spent batteries, etc. will be manually collected, staged within the Incident Command Post’s (ICP) designated location in sealed, leak proof containers and disposed of properly in accordance with all applicable federal, state, and local regulations. Enbridge is not a household hazardous waste generator and as such, regulations applicable to household hazardous waste do not apply.

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4.0 Waste Transportation

The off-site T&D activities will be conducted in accordance with all applicable local, state, and federal regulations. Copies of all disposal documentation (profiles, facility waste approvals, Bills of Lading, manifests, weight tickets, etc.) will be provided to Enbridge. Enbridge will subcontract to an experienced waste broker for all T&D activities and will provide a list of the approved disposal facilities for each waste stream.

Bill of Lading waste papers are used for shipment of non-hazardous waste between the work sites (excavation area and adjacent support areas) and the staging areas (Site A and FTC) where material may be accumulated prior to disposal. The appropriate waste manifests are utilized for transportation directly to the off-site disposal facilities. These waste manifests must be signed by an authorized Enbridge representative.

The manifests have the following common names for shipments of their respective waste types along with the current offsite disposal facility;

- The Non-Hazardous Special Waste Manifest is used for (1) the impacted soil from the pipeline release and (2) crude oil contaminated media and debris that is transported to Republic Services C & C Landfill in Marshall, MI.

- Although all liquid waste streams are currently characterized as non-hazardous wastes, the use of Hazardous Waste manifests is required for the shipment of liquid industrial waste. If the source is decontamination water or decanted CP water, then it is transported to Dynecol in Detroit, MI. If the source is precipitation collected from a storm water sump, it is transported to The City of Battle Creek Waste Water Treatment Facility in Battle Creek, MI.

Waste shipments are recorded on a tracking table that summarizes the volume of each waste stream generated from spill response activities, the facility shipped to, and the cumulative amount of waste generated to date.

A copy of the tracking log and all manifests for waste transportation and disposal are included in the Monthly Progress Report submitted to the USEPA and to the MDEQ by the 27th of each month for activities completed during the prior month. Copies of hazardous waste manifests are sent to the MDEQ by the 10th day of each month for the previous month. Returned manifest copies from the disposal facility are matched up with the original manifest

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copies within 45 days from the date of shipment. Original manifest copies are maintained by the Enbridge documentation group and will be retained on file for a minimum of five years.

4.1 Soils and Sediment Waste

This procedure is used to manage the transportation of solid phase wastes such as excavated soils, sediment, frac tank sludge, and similar materials. Direct disposal to the landfill will minimize the need to stockpile soils within Site A or FTC (see Transfer Plan in Appendix H). Adding approved soil stabilization agents at the excavation sites is proposed to ensure that the soil being transported shall have no free liquids to comply with the Michigan Department of Transportation (MDOT) free liquids regulation.

4.1.1 Best Management Practices

Best Management Practices (BMPs) will be implemented to contain the solid materials and minimize any incidental release of materials during the handling processes from the excavation site to the transportation to the landfill. These BMPs include:

- Contacting waste management personnel for roll-off delivery, pick up, sampling and transportation for either direct load disposal or consolidation in Soil Staging Area A.
- Excavating soils and transporting directly from the excavation sites to minimize stockpiling of materials near waterways.
- Implementing appropriate stockpile spill prevention procedures for temporary onsite staging including lining, sloping, berming, and tarping to prevent runoff.
- Excavated soils will be loaded into transportation vehicles by qualified operators to minimize the potential for truck overfills or incidental spillage. If overfill or overspill occurs, the material will be immediately collected and properly disposed.
- The use of poly lined cubi sacks to transport excavated soils from inaccessible areas to roll-off containers.
- Partial solidification of soil with backfill to minimize sloshing.
- Placement of a rock box within the temporary on-site staging area to facilitate transfer of saturated soil and solidification with approved materials. The stabilization material will be covered when not in use.
- Dry soils can be transferred directly to lined trucks or roll-offs without solidification.
- Soil may be transported to the temporary staging area for characterization and disposal as appropriate.

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As the current plan for soil management at the source area relies partially on transportation of solidified soils in lined roll-off containers from the source area to a temporary soil staging area, quality control checks will be implemented to ensure that no free liquids are placed into trucks or roll-off containers. Quality control will be performed using a PFT to ensure that no free liquids are placed into trucks or roll-off containers at a minimum of one per day and visual inspections thereafter by a competent person. A PFT log sheet will be maintained by Enbridge's representative and the documentation recorded at the completion of the excavation site work. The date, time, location, sampler, etc. will be included on the log sheet as shown in Attachment D. The documentation will be provided to the USEPA and MDEQ upon request.

4.1.2 Soil and Sediment Stabilization

USEPA and MDEQ approval is mandatory prior to the use of any stabilization agents utilized to meet compliance requirements for soil and sediment transport or disposal. Table 1 identifies the waste characterization requirements for use of soil stabilization agents. These requirements include one of the following: a letter from vendor describing the source of material, the manufacturer's Material Safety Data Sheet (MSDS), or a TCLP metals analysis for approval from the USEPA and MDEQ before receiving the materials on-site. The type of analyses used for characterization of the stabilization agents is dependent on the origin and type of stabilization agent and will vary with each. The specific type of characterization analyses to be performed will be approved by the USEPA and MDEQ prior to use.

For impacted soil removed from a source area, solidification of soils will be completed prior to transport through the addition of a solidification enhancing material that is NOT considered a dust concern. Currently, soils are being solidified with sawdust and sand. Any free fluids not contained through the mixing and solidification process are being absorbed directly with sawdust.

Soil stabilization agents for use at the soil staging area consist of dolomite (DKD/lime) or an alternate DKD approved by USEPA and the MDEQ. Currently dolomite is being used at Site A. Additional stabilization agents are listed in Table 1, although the preferred agents are sawdust, InstaZorb (amorphous aluminum silicate), Sodium Polyacrylate, or a sand/clay/soil backfill along stream banks at the excavation sites, although these agents are not limited to these sites as they can also be utilized at the soil staging area. Soil stabilization agents derived from coal-fired power plants will NOT be utilized.

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Any stabilizing agent's requiring dust suppression will only be used at approved centralized locations. The current centralized location is Site A soil cells and a pending centralized location is FTC soil cells. The pile will be covered when not in use.

If required as above the stabilizing agent's pile will be monitored daily for dust suppression during storage and during the solidification process. Note that the dolomite agent is planned for use only at the soil staging area and procedural issues such as wind speeds causing a visible plume to migrate beyond the approved centralized soil solidification area will require that soil solidification operations cease.

The mixing operator will wear half face respiratory protection with a P100 cartridge when using soil stabilization agents identified in Table 1 which require respiratory protection. Temporary safety fencing will be placed downwind to alert personnel from entering the area. Personnel may enter the area without respiratory protection in a motor vehicle provided they keep the windows of their vehicles closed. Onsite ambient particulate monitoring will be conducted during soil stabilization mixing activities and during delivery of stabilization agent which require respirator protection. An additional option is the use of cubi sacks or another closed container to prevent the creation of dust during the solidification process.

The MSDS's health and safety issues for the stabilizing agents used will be reviewed with all operating personnel prior to their use and any applicable regulations/exposure limits communicated to the workers and nearby residents who may be affected by the use of stabilization agents. This effort will be coordinated with Safety personnel from both Enbridge and the USEPA. All PPE required during the use of solidification agents will be determined prior to use of the agent and work sites will be monitored for the proper use of the required PPE. The MSDS is available at the ICP and at each work site where the agents are used and the location of such MSDS shall be made known to all persons who may contact the agents.

4.2 Liquid Waste Water

The following procedures are used to manage the transportation of liquid industrial waste, such as oily wastewater and decontamination water generated from the decontamination / cleaning of equipment. The approved Water Management Plan (WMP) is a comprehensive plan submitted to the regulatory agencies on January 18, 2011. The WMP includes the water processes involved with storm water collection sites, soil staging areas, excavation sites along the river and FTC's decontamination collection system. The National Pollutant

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Discharge Elimination System (NPDES) Permit MI0058861 does not allow any discharge to groundwater or venting of contaminated groundwater to surface waters during response and/or remediation efforts. The WMP has the protective methods for preventing any oily releases from the site.

The waste water transportation procedure is to use vacuum or water hauling vehicles (tankers) to collect material and to transfer material in and out of staging frac tanks at FTC or various excavation sites. The attendant will visually observe the liquid transfer during both the transfer in and out of frac tanks.

The staged frac tanks are visually inspected twice per shift during operation to identify issues such as leaks. If a tank is found to be leaking, attempts will be made to tighten the hatch. If tightening isn't applicable, the tank will be emptied using vacuum trucks and the tank taken out of service. The leak must be reported to the area supervisor to record the incident.

The treatment options available to reduce the amount of water in the recovered oil include:

- Placing the recovered oil /water mixture into frac tanks to allow for separation or use a hot oiler system in conjunction with the frac tanks to heat the mixture and promote further separation.
- As necessary and practical, use carbon treatment.
- Any residual waters from the excavation soils and soil stabilization process at Staging Site A and FTC will be collected in frac tanks and properly transported to the appropriate waste water treatment facility.

4.3 Oil Impacted Media and Debris

The recovered media, debris, liner, timber mats, vegetation and miscellaneous materials used and impacted by the oil spill are disposed of in roll-off containers. The roll-off containers are staged in designated areas until they are fully loaded or the site work is complete. Designated areas include Site A, FTC, active cleanup sites, boat launches, and staging areas. Roll-off containers ready for disposal are either transported directly to the approved disposal facility as non-hazardous waste or transported to Site A or FTC and every tenth roll-off is held for sampling. Transportation to staging areas will be completed using a Bill of Lading. Transport directly to the disposal facility will be completed using a signed

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manifest. The procedure used to manage the roll-off container's transportation of oily debris, and vegetation is as follows:

- Segregate oily debris from non-oily debris.
- Collect and store oily debris in lined, 20 yd^3 roll-off boxes.
- Oily debris roll-off boxes can be transported and emptied into staging cells in Staging Area A / FTC (upon approval) and kept in the roll-off for sampling.
- Transport as non-hazardous waste using a Non-Hazardous Waste Manifest.

4.4 Municipal Solid Waste

MSW (non-oily trash) generated at field locations is managed in lined 20 yd^3 roll-off containers. Trash does not need to be sampled and is not included in recovered oil calculations. The non-hazardous designation for the trash is based on generator knowledge. As has been the procedure on this project, the non-hazardous waste manifest with the description "crude oil contaminated media and debris-MSW" will be used to indicate that they are not impacted for the purpose of oil recovery.

Non-impacted mats will be dismantled/crushed outside of the soil cells and will be disposed of as MSW. As has been the procedure on this project, the non-hazardous waste manifest with the description "crude oil contaminated media and debris-MSW" will be used to indicate that they are not impacted for the purpose of oil recovery.

The non-impacted office trash, and debris is shipped using bill of lading, and is not tracked/accounted or reported in the daily waste summary. This waste stream does not use a manifest.

Miscellaneous small waste streams may be generated. These wastes have primarily been stored in drums and include, but are limited to, used oil, batteries, and lab samples. These have been characterized individually, manually collected, staged within ICP's designated location in sealed, leak proof containers, and are disposed of properly in accordance with all applicable federal, state, and local regulations.

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4.5 De Minimis Hazardous Waste

De minimis hazardous waste such as spent bug repellent, spent degreasers, spent mechanical or automotive products, spent batteries, etc. will be manually collected, staged within ICP's designated location in sealed, leak proof containers and disposed of properly in accordance with all applicable federal, state, and local regulations.

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5.0 Waste Disposal

Prior to disposal, waste will be sampled for disposal characterization analysis and profiled for acceptance to the approved disposal/recycling facilities once analysis is complete. An Enbridge designated representative will:

- complete the profile paperwork;
- submit to Enbridge for review and signature;
- submit the signed profile to the disposal facility;
- communicate with the facility during the approval process;
- receive approval and provide a copy to Enbridge Document Control;
- assist with the schedule for waste pick-up and disposal;
- review the required shipping paperwork and obtain signature of Enbridge's authorized representative on shipping paper work;
- track delivery of waste to designated facility;
- receive certificate of disposal/recycling once waste has been treated/disposed of/recycled and provide a copy to Enbridge;
- compile all documentation associated with disposal of each waste stream and submit copies to Enbridge and to the MDEQ by the 10th of each month.

Returned manifest copies from the disposal facility are matched up with the original manifest copies within 45 days from the date of shipment. Original manifest copies are maintained by the Enbridge documentation group and will be retained on file for a minimum of five years.

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The waste disposal contractors currently used are detailed in the Waste Stream Disposal Facilities Table below.

Waste Stream Disposal Facilities

Waste Stream	**Shipped to:**
Non-Hazardous Soil	Westside Recycling Three Rivers, MI
Non-Hazardous Soil	C&C Landfill Marshall, MI
Hazardous Soil	Envirosafe Services Oregon, OH
Geotube Sediment	Westside Recycling Three Rivers, MI
Hazardous Water	Dynecol Detroit, MI
Non-Hazardous Water	Dynecol Detroit, MI
Non-Hazardous Water (precipitation)	POTW Battle Creek, MI
Non-Hazardous Debris	C&C Landfill Marshall, MI
Wildlife Center Sharps	Stericycle Clinton, IL
Lab PPE and sampling equipment.	Safety Kleen Smithfield, KY
Stockbridge, MI Terminal Hydrotest Water	Environmental Quality Co. Detroit, MI
Griffith, IN Terminal Oil/Water Mixture	Clean Harbor's Rock Island, IL

Notes:
MI = Michigan
KY = Kentucky
IN = Indiana
IL = Illinois
OH = Ohio
POTW = Publicly Owned Treatment Works
PPE = Personal Protective Equipment

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6.0 Documentation Reporting

6.1 Daily Waste Load Summary Report

An example of the Daily Waste Load Summary Report is provided in Attachment E.

6.2 Manifest Daily Report

An example of the Manifest Daily Report is provided in Attachment F.

6.3 Oil Recovery Estimation Report

An example of the Oil Recovery Estimation Report is provided in Attachment G.

6.4 Monthly Waste Report Submitted to USEPA titled Waste Disposal – Process & Activity Summary

The following sections provide an example of a typical monthly waste report. The report is modified slightly to exclude the analytical attachments and redundant tables which are provided above.

6.4.1 Introduction

This section describes the procedures that were used to manage wastes generated from spill response activities. Waste streams generated include but are not limited to contaminated water, debris, soil, trash, and miscellaneous other small volume materials.

Laboratory analytical reports of samples that were taken and received in March 2011 are provided in attachments (not included). Laboratory analytical reports received in March 2011 for samples taken prior to March 2011 are also provided in attachments (not included). All laboratory analytical results received in April will be submitted with the April progress report.

Hazardous and non-hazardous waste manifests received in March 2011 are also found in attachments (not included).

6.4.2 Waste Generation and Shipment Information

A summary of waste shipments is reported daily and monthly. The shipments are split out by waste type. The processes that generate each waste stream are discussed further in the sections that follow. The Summary of Waste Shipment table (see Section 6.4.8) provides a list of transporters and disposal facilities that were used for each waste.

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6.4.3 Oily Debris

Oily debris were segregated from non-oil debris and stored in lined, 20 cubic yard roll-off boxes. Various methods have been used to manage oily debris roll-offs during the course of the response. Previously, oily debris roll-offs were transported to Site A and dumped into soil cells. The debris was either mixed with soil or managed as a separate waste stream and loaded onto trucks from the soil cells.

Beginning on November 8, 2010, roll-offs were transported directly to C&C landfill in Marshall for disposal. This change was intended to reduce the volume of material being delivered to the soil cells and to expedite the decommissioning of select cells.

One out of every 10 roll-off boxes was sampled for O&G and one out of every 50 boxes was sampled for TCLP analysis.

6.4.4 Non-Impacted Debris

Non-impacted (non-oily) debris generated at field locations was transported to Republic Service's C&C Landfill in Marshall in lined 20 cubic yard roll-off boxes. Non-impacted debris was not sampled and was not included in recovered oil calculations. The non-hazardous designation for the debris is based on generator knowledge.

6.4.5 Soil

Crude oil impacted soil was brought from various locations along the Talmadge Creek and Kalamazoo River to soil staging cells constructed in Site A. The soil was homogenized and, if necessary, solidified using stabilizing agents approved by the USEPA and MDEQ. Once complete, soil piles were sampled following established protocol. Disposal arrangements were made based on analytical data. Non-hazardous soil is being disposed of at the Republic Services/C&C landfill in Marshall. Waste Management's landfill in Three Rivers is an alternate location for soil disposal. Hazardous soil was not generated during March, 2011.

6.4.6 Miscellaneous Small Quantity Waste Streams

Miscellaneous small waste streams have been generated throughout the project. These wastes have primarily been stored in drums and include, but are not limited to, used oil, batteries, small quantities of medical waste, and lab samples. These have been characterized individually and disposed of at approved facilities.

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6.4.7 Non-Hazardous Precipitation

Accumulated precipitation is transported to the City of Battle Creek's POTW for treatment and discharge. Precipitation is primarily collected in sumps from areas that currently do not have active operations. The sump at site C0.5 was decommissioned and eliminated on March 25, 2011. One water sample is collected for every 50,000 gallons shipped and analyzed for Benzene and O&G. The results are forwarded to the Battle Creek POTW.

6.4.8 Recovered Oil Calculations

The quantity of oil contained in waste materials has been calculated since the onset of the project. The quantity of oil is based on the concentration of oil in the waste and the total amount of waste shipped. Recovered oil values are determined for each waste stream individually. An example of a recovered oil summary is provided. (Attachment G of this WTTD plan)

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Summary of Waste Shipment

Waste Stream	Disposal Company	USEPA ID Number	Treatment Option
Wastewater (Hazardous)	Dynecol, Inc.	MID 074 259 565	Wastewater Treatment
Wastewater (Hazardous)	EQ Detroit, Inc.	MID 000 724 831 MID 980 991 566	Stabilization, Fuel Blending, Incineration
Wastewater (Non-Hazardous)	Dynecol, Inc.	MID 074 259 565	Wastewater Treatment
Wastewater (Non-Hazardous)	EQ Detroit, Inc.	MID 980 991 566	Recycle/Reclaim
Wastewater (Non-Hazardous)	Liquid Industrial Waste Services	MID 006 546 121	Wastewater Treatment
Wastewater (Non-Hazardous)	Plummer's Environmental Services	MIK 111 229 563	Wastewater Treatment
Wastewater (Non-Hazardous)	Marshall POTW Muskegon POTW Kalamazoo POTW Battle Creek POTW		Wastewater Treatment POTW
Hazardous Solids (Dumpsters and Soils)	Envirosafe Services of OH	OHD 045 243 706	Landfill
Hazardous Solids (Dumpsters and Soils)	EQ Michigan Disposal	MID 048 090 633	Landfill
Non-Hazardous Waste Solid	Republic Services C&C Landfill	MID 985 618 420	Landfill
Non-Hazardous Soil	Waste Management Landfill – Three Rivers		Landfill

Notes:
ID = identification
Inc. = Incorporated
OH = Ohio
POTW = Publicly owned treatment works

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7.0 Notifications

The following procedures and requirements are included in the WTTD plan. Each is proposed to be ceased, either due to the infrequency of the activity, or because the information will be communicated via the monthly reports to the regulatory agencies.

- Prior to shipping material to a disposal facility, the WTTD plan requires that Enbridge request a compliance check from the USEPA to assess the disposal facility's compliance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Off-Site Rule. The Company e-mailed a written request to Mr. William Damico, USEPA Region V, for a compliance check prior to shipping material to a disposal facility. USEPA's onsite T & D group is copied on this e-mail exchange. Upon approval, facilities that are used for disposal must be approved by the U.S. EPA, in accordance with the Administrative Order issued by U.S. EPA on July 27, 2010, pursuant to §311(c) of the Clean Water Act (Docket No. CWA 1321-5-10-001) and Supplement to the Administrative Order issued by USEPA on September 23, 2010.All wastes generated during the response shall be handled, treated and disposed of in accordance with all laws and regulations applicable to the specific waste generated. This includes, but is not limited to, disposal of wastes at facilities permitted to accept the specific type of waste.

- Enbridge or designee will notify the USEPA of all disposal facilities receiving wastes from the response, as well as each facility's permit status.

- The Enbridge notification requirements to the USEPA can be modified if approved by the USEPA after issuance of the revised WTTD Plan.

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Table

TABLE 1: Soil Stabilization Agents

Product	Dust Hazard	Waste Characterization	Use
Sawdust (untreated wood; sawmill only)	No	Letter from supplier	All locations
Speedy Dry	Yes if bulk (greater than 80 pound bags)	MSDS	Soil cells, rock box, remote and centralized
Clay	Yes if bulk (greater than 80 pound bags)	MSDS	Soil cells, rock box, remote and centralized
Bentonite	Yes if bulk (greater than 80 pound bags)	MSDS	Soil cells, rock box, remote and centralized
Dolomite/DKD/Lime Kiln Dust	Yes	Omni Material, Inc. has been approved to provide DKD, no exceedances were experienced last year	Centralized soil cells
Portland	Yes if bulk (greater than 80 pound bags)	MSDS	Centralized soil cells
Lime	Yes if bulk (greater than 80 pound bags)	MSDS	Centralized soil cells
Caliciment Dolo	Yes	Mintek Resources, Inc. provided analytical, one initial waste characterization sample will be collected of the first delivery from Mintek.	Centralized soil cells
Caliciment Hi Cal	Yes	Mintek Resources, Inc. provided analytical, one initial waste characterization sample will be collected of the first delivery from Mintek.	Centralized soil cells
Sodium Polyacrylate	No	MSDS	All locations
Instazorb	No	MSDS	All locations
Backfill/soil/loam/sand/clay	No	Letter from supplier	All locations
Organic Cationic Emulsion – Solve 137	No	MSDS	Flocculent; water discharged subject to NPDES Permit requirements

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TABLE 1: Soil Stabilization Agents

Product	Dust Hazard	Waste Characterization	Use
Organic Cationic Coagulant – Solve 426	No	MSDS	Flocculent; water discharged subject to NPDES Permit requirements
Straw	No	Letter from supplier	All locations

Notes:

All locations = In excavation, in dredging area behind containment, at remote and centralized soil stabilization areas.

Centralized soil stabilization area = Site A, Frac Tank City soil cells, or other agency approved areas.

DKD = Dolomitic Limestone and Dolime

Dolo = Dolomitic Limestone (synonym Dolomite)

Hi Cal = High calcium

MSDS = Material Safety Data Sheet

NPDES = National Pollutant Discharge Elimination System

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Attachment A

Soil Staging Flowchart

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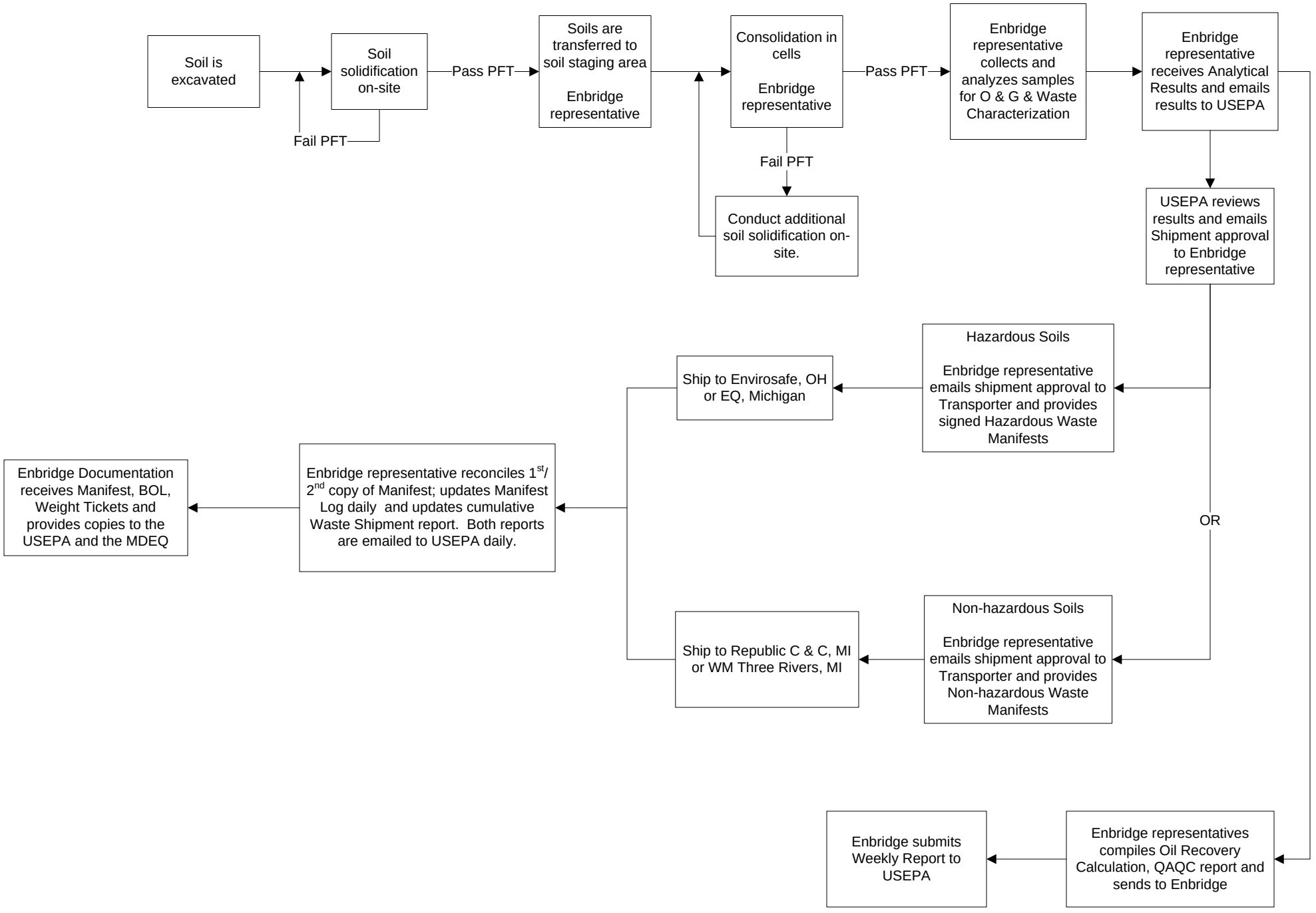
Soil Staging Flow Chart



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Attachment B

Oily Debris Flowchart

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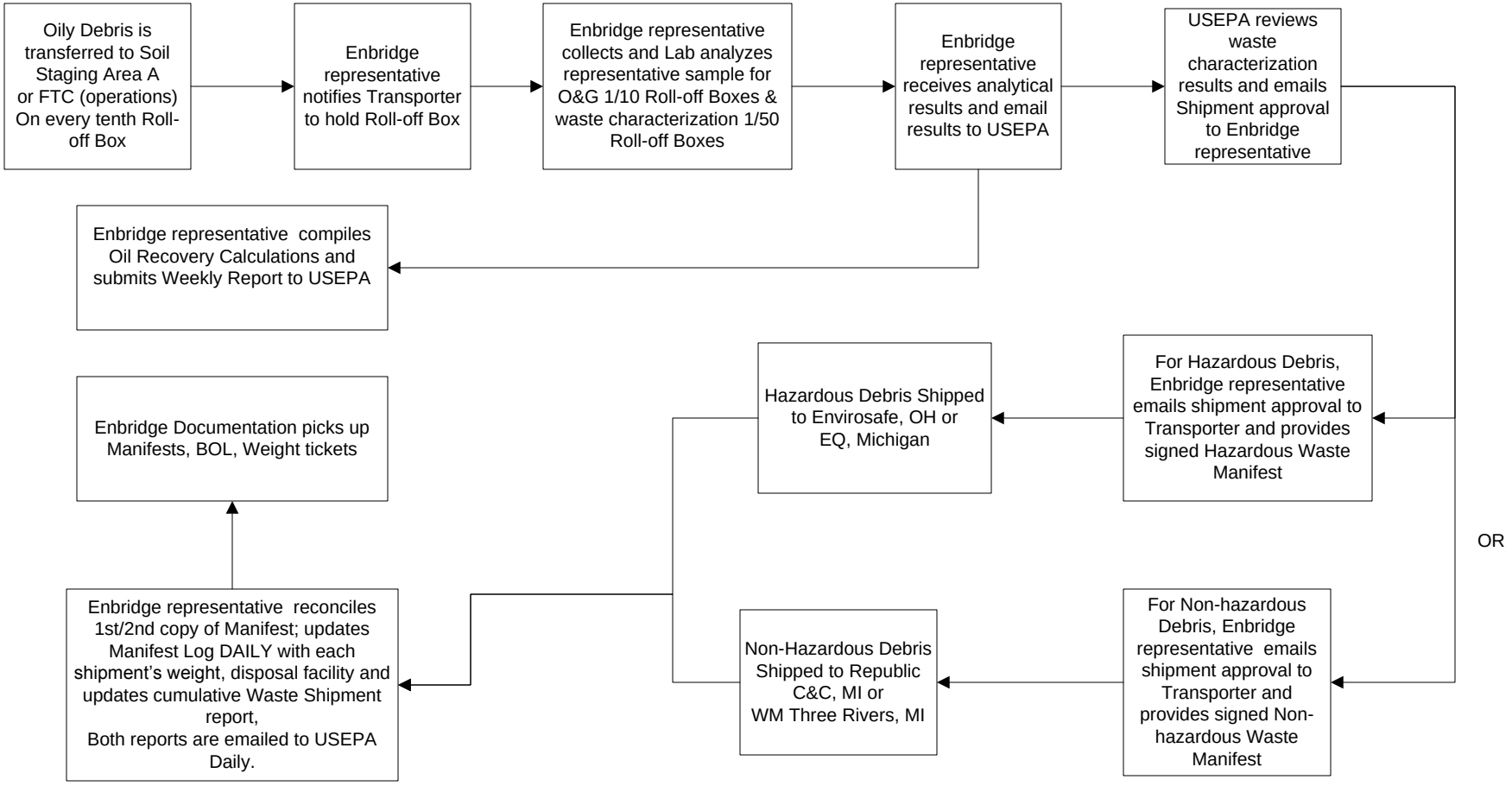
Oily Debris Flow Chart



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Attachment C

Oily Waste Water Flowchart

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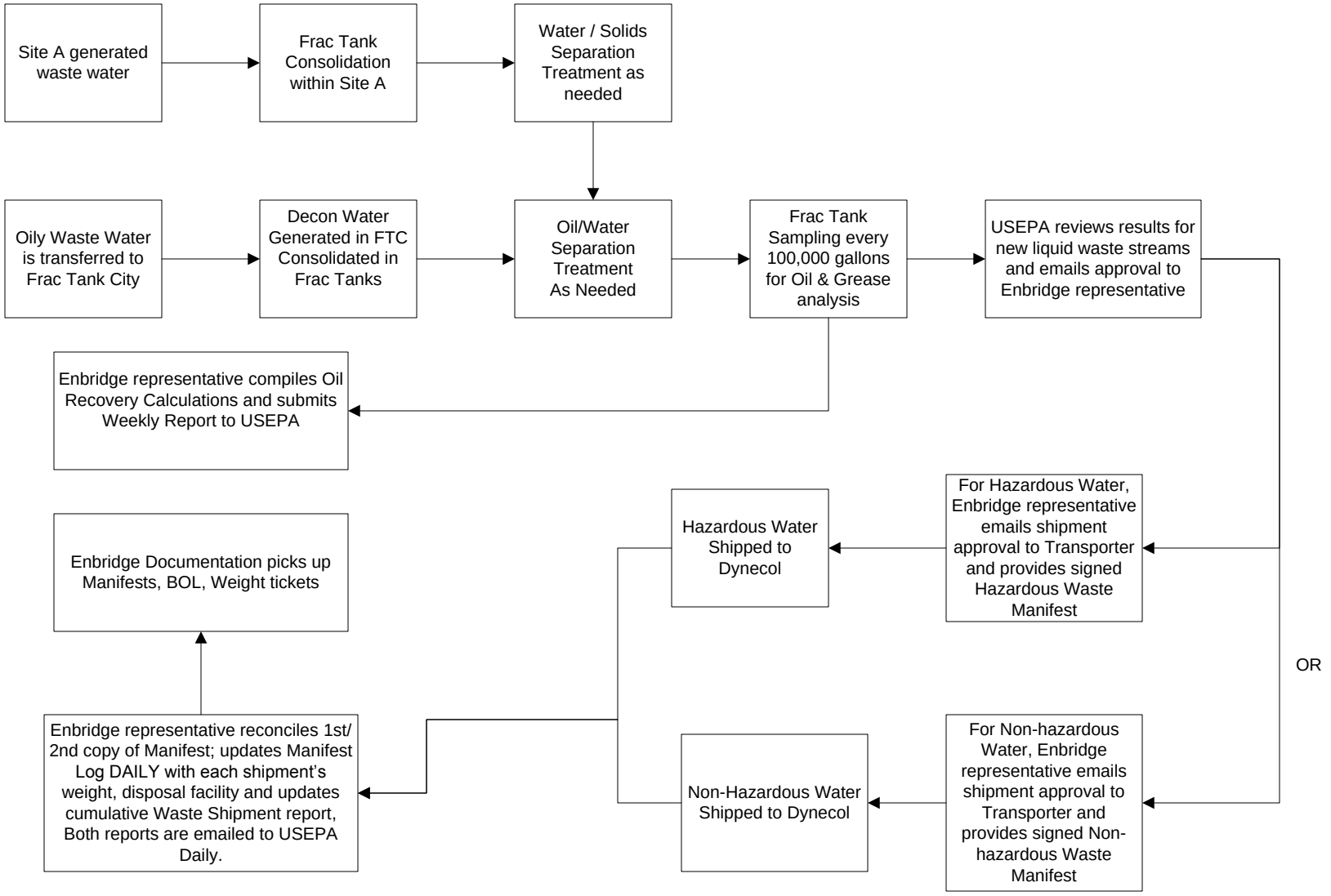
Oily Waste Water Flow Chart



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Attachment D

Free Liquids Paint Filter Test Log Sheet

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ALS Laboratory Group

Free Liquids

Book 1466

Date	Analyst	Sample ID	Weight Used	mL Through Filter After 5 Minutes	Present/Absent	Comments	Batch ID

FreeLiquids.xls.xls

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Attachment E

Daily Waste Load Summary

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Enbridge Energy Partners

Daily Waste Load Summary

Sent 5/2/2011

			Date Shipped											
	Waste Stream	**Haz / NonHaz**	**4/19/2011**	**4/20/2011**	**4/21-4/25/11**	**4/26/2011**	**4/27/2011**	**4/28/2011**	**4/29-5/1/2011**	**Total Qty Shipped as of 5/1/11**	**Oil Recovery**	**Other Mat'l Recovery**	**UOM**	**Comment**
WS-01 C	**Soil** - (Non-Hazardous) Terra / C & C	Non-Haz	0	0	0	0	0	0	0	9,175			cubic yards	
WS-02 B	**Debris -** (Roll Off Boxes with Impacted Sorbents, boom, pads, plastic, PPE, vegitation, and biomass) Terra / C & C	Non-Haz	15.60	55.27	72.57	64.11	87.50	0.00	0.00	1,918			tons	
WS-02 C	**Debris -** (Non-oily Household Trash) Terra / C & C	Non-Haz	0.00	1.55	0.00	0.00	28.49	33.57	1.35	734			tons	
WS-03 C	**Non Haz Water** Dynecol	Non-Haz	8,440	8,191	30,153	0	20,103	17,520	8,520	671,177			gallons	
WS-04 B	**Non Haz Water** (FTC Inactive Decon sump) Battle Creek POTW	Non-Haz	0	0	11,000	17,000	0	0	18,000	861,420			gallons	Collected rainwater not passing through Frac Tank City. C0.5 sump decommissioned and eliminated 3/25/2011
Discontinued Waste Streams, Facilities, and/ or Processes														
WS-01 A	**Soil** - (Benzene Impacted Soil) Safety Kleen / Envirosafe	Haz	--	--	--	--	--	--	--	19,644			cubic yards	
WS-01 B	**Soil & Debris** - (Non-Hazardous) Safety Kleen / Westside Recycling	Non-Haz	--	--	--	--	--	--	--	64,815			cubic yards	
WS-02 A	**Debris** - (Roll Off Boxes with Impacted Sorbents, boom, pads, plastic, PPE, vegitation, and biomass) EQ / Michigan Disposal	Haz	--	--	--	--	--	--	--	12,075			cubic yards	
WS-03 A	**Haz Water** Dynecol	Haz	--	--	--	--	--	--	--	3,594,579			gallons	
WS-03 B	**Treated Non Haz Water** Dynecol	Non-Haz	--	--	--	--	--	--	--	150,700			gallons	
WS-04 A	**Treated Non Haz Water** Battle Creek POTW	Non-Haz	--	--	--	--	--	--	--	1,968,700			gallons	Shipment amounts based on the treatment system's totalizing flow meter.
WS-05	**Oil/Water** RPP to Griffith	Non-Haz	--	--	--	--	--	--	--	2,171,813	**766,288**	**1,405,525**	gallons	
WS-06	**Treated Water Non Haz** Liquid Industrial Waste Services, Inc.	Non-Haz	--	--	--	--	--	--	--	370,200			gallons	
WS-07	**Treated Water Non Haz** Plummers	Non-Haz	--	--	--	--	--	--	--	4,976,140			gallons	
WS-08	**Treated Effluent at A-1**	Non-Haz	--	--	--	--	--	--	--	662,900			gallons	System is shutdown; decommissioned.
WS-09	**New Age Lab - Water Safety Kleen**	Haz	--	--	--	--	--	--	--	825			gallons	Laboratory off site.
WS-10	**Treated Effluent at Ceresco Dam**	NA	--	--	--	--	--	--	--	14,324,000			gallons	System is shutdown; decommissioned.
WS-11	**Ceresco sediment** (GeoTubes)	Non-Haz	--	--	--	--	--	--	--	5,562			cubic yards	As of 11/9 GeoTube removal completed.

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Attachment F

Manifest Daily Report

WasteStream	Waste Stream ID Printed on Manifest	Manifest / BOL Number	Receiving Facility	Receiving Facility EPA ID	Transporter 1	Transporter 1 EPA ID / State Transporter's ID	Waste Codes (Haz-D018, Haz-D001, Non-Haz)	Amount Shipped	UOM	No. of Containers on Manifest	Date Shipped	Container Info	Location	TPH Sample Number	SK Load Wt (Tons)	MANIFEST DOC # SK NON-HAZ	Date Received Manifest Copy from Designated Facility	Date Manifest Mailed to State	Comments
Debris	Non-Hazardous Solid	658167	C&C Landfill	NA	Terra Contracting	NA	Non-Haz MUNICIPAL	9.09	tons	1	4/18/2011	Box # 171	C0.5		9.09				30 cubic yards
Debris	Non-Hazardous Solid	625341	C&C Landfill	NA	Terra Contracting	NA	Non-Haz	3.39	tons	1	4/18/2011	Box # 20-10	Site A		3.39				20 cubic yards
Debris	Non-Hazardous Solid	658151	C&C Landfill	NA	Terra Contracting	NA	Non-Haz	6.43	tons	1	4/19/2011	Box # 20-12	Site A		6.43				
Debris	Non-Hazardous Solid	625328	C&C Landfill	NA	Terra Contracting	NA	Non-Haz	4.3	tons	1	4/19/2011	Box # 171	Site A		4.3				
Debris	Non-Hazardous Solid	625329	C&C Landfill	NA	Terra Contracting	NA	Non-Haz	4.87	tons	1	4/19/2011	Box # 20-16	Site 3.2		4.87				
A Site	Non-Hazardous Water	007677549JJK	Dynecol, Inc.	MID074259565	Terra Contracting	MIK768689127	Non-Haz 029L	8440	gallons	1	4/19/2011		Site A						
A Site	Non-Hazardous Water	007677547JJK	Dynecol, Inc.	MID074259565	Terra Contracting	MIK768689127	Non-Haz 029L	8191	gallons	1	4/20/2011		Site A						
Debris	Non-Hazardous Solid	658172	C&C Landfill	NA	Terra Contracting	NA	Non-Haz MUNICIPAL	1.55	tons	1	4/20/2011	Box # 20-19	Frac Tank City		1.55				
Debris	Non-Hazardous Solid	658164	C&C Landfill	NA	Terra Contracting	NA	Non-Haz	3.62	tons	1	4/20/2011	Box # 264	SWAT						
Soil Cells	Non-Hazardous Solid	658170	C&C Landfill	NA	Hendrickson Trucking	NA	Non-Haz	12.01	tons	1	4/20/2011	Truck H58	Cell 5 Pile 3	TPH 599	12.01				timber mats
Soil Cells	Non-Hazardous Solid	658168	C&C Landfill	NA	Hendrickson Trucking	NA	Non-Haz	10.02	tons	1	4/20/2011	Truck H52	Cell 5 Pile 3	TPH 600	10.02				timber mats
Soil Cells	Non-Hazardous Solid	658169	C&C Landfill	NA	Hendrickson Trucking	NA	Non-Haz	10.02	tons	1	4/20/2011	Truck H58	Cell 5 Pile 3	TPH 601	10.02				timber mats
Soil Cells	Non-Hazardous Solid	658173	C&C Landfill	NA	Hendrickson Trucking	NA	Non-Haz	10.01	tons	1	4/20/2011	Truck H58	Cell 5 Pile 3	TPH 603	10.01				timber mats, tonnage rec'd 4-26-11
Soil Cells	Non-Hazardous Solid	658171	C&C Landfill	NA	Hendrickson Trucking	NA	Non-Haz	9.59	tons	1	4/20/2011	Truck H52	Cell5 Pile 3	TPH 602	9.59				timber mats, tonnage rec'd 4-26-11
Debris	Non-Hazardous Solid	658178	C&C Landfill	NA	Terra Contracting	NA	Non-Haz	1.99	tons	1	4/21/2011	Box # 20-08	A Site		1.99				
Soil Cells	Non-Hazardous Solid	658174	C&C Landfill	NA	Hendrickson Trucking	NA	Non-Haz	8.31	tons	1	4/21/2011	Truck H52	Cell 5 Pile 3	TPH 604	8.31				timber mats
Soil Cells	Non-Hazardous Solid	658175	C&C Landfill	NA	Hendrickson Trucking	NA	Non-Haz	8.94	tons	1	4/21/2011	Truck H58	Cell 5 Pile 3	TPH 599	8.94				timber mats
Soil Cells	Non-Hazardous Solid	658176	C&C Landfill	NA	Hendrickson Trucking	NA	Non-Haz	11.07	tons	1	4/21/2011	Truck H52	Cell5 Pile 3	TPH 600	11.07				timber mats
Soil Cells	Non-Hazardous Solid	658177	C&C Landfill	NA	Hendrickson Trucking	NA	Non-Haz	11.39	tons	1	4/21/2011	Truck H58	Cell 5 Pile 3	TPH 601	11.39				timber mats
Soil Cells	Non-Hazardous Solid	658179	C&C Landfill	NA	Terra Contracting	NA	Non-Haz	9.35	tons	1	4/21/2011	Truck H52	Cell 5 Pile 3	TPH 602	9.35				timber mats
Soil Cells	Non-Hazardous Solid	658182	C&C Landfill	NA	Hendrickson Trucking	NA	Non-Haz	11.12	tons	1	4/21/2011	Truck H58	Cell5 Pile 3	TPH 603	11.12				timber mats
Soil Cells	Non-Hazardous Solid	658183	C&C Landfill	NA	Hendrickson Trucking	NA	Non-Haz	10.4	tons	1	4/21/2011	Truck H58	Cell 5 Pile 3	TPH 604	10.4				timber mats
Frac Tank City	Non-Hazardous Water	007968399JJK	City of Battle Creek Wastewater Treatment Facility	MIG000017308	Terra Contracting	MIK768689127	Non-Haz 029L	5500	gallons	1	4/21/2011		FTC Sump						
Frac Tank City	Non-Hazardous Water	007968395JJK	City of Battle Creek Wastewater Treatment Facility	MIG000017308	Terra Contracting	MIK768689127	Non-Haz 029L	5500	gallons	1	4/21/2011		FTC Sump						
Frac Tank City	Non-Hazardous Water	007677534JJK	Dynecol, Inc.	MID074259565	Terra Contracting	MIK768689127	Non-Haz 029L	10035	gallons	1	4/21/2011		Frac Tank City						
A Site	Non-Hazardous Water	007677543JJK	Dynecol, Inc.	MID074259565	H.M. Environmental	MIR000017079	Non-Haz 029L	10118	gallons	1	4/21/2011		A Site						
A Site/Frac Tank City	Non-Hazardous Water	007677546JJK	Dynecol, Inc.	MID074259565	S&C Transport	MID186804399	Non-Haz 029L	10000	gallons	1	4/21/2011		A Site/Frac Tank City						5998 gal from A Site 4002 gal from FTC
Frac Tank City	Non-Hazardous Water	007968400JJK	City of Battle Creek Wastewater Treatment Facility	MIG000017308	Terra Contracting	MIK768689127	Non-Haz 029L	8500	gallons	1	4/26/2011		FTC Sump						
Frac Tank City	Non-Hazardous Water	007968401JJK	City of Battle Creek Wastewater Treatment Facility	MIG000017308	Terra Contracting	MIK768689127	Non-Haz 029L	8500	gallons	1	4/26/2011		FTC Sump						
Soil Cells	Non-Hazardous Solid	658185	C&C Landfill	NA	Hendrickson Trucking	NA	Non-Haz	11.19	tons	1	4/26/2011	Truck 58	Cell 5 Pile 3	TPH 599	11.19				timber mats
Soil Cells	Non-Hazardous Solid	658186	C&C Landfill	NA	Hendrickson Trucking	NA	Non-Haz	9.87	tons	1	4/26/2011	Truck 49	Cell 5 Pile 3	TPH 600	9.87				timber mats
Soil Cells	Non-Hazardous Solid	658180	C&C Landfill	NA	Hendrickson Trucking	NA	Non-Haz	9.32	tons	1	4/26/2011	Truck H58	Cell 5 Pile 3	TPH 601	9.32				timber mats
Soil Cells	Non-Hazardous Solid	658188	C&C Landfill	NA	Hendrickson Trucking	NA	Non-Haz	9.43	tons	1	4/26/2011	Truck 49	Cell 5 Pile 3	TPH 602	9.43				timber mats
Soil Cells	Non-Hazardous Solid	658187	C&C Landfill	NA	Hendrickson Trucking	NA	Non-Haz	11.88	tons	1	4/26/2011	Truck H58	Cell 5 Pile 3	TPH 603	11.88				timber mats
Soil Cells	Non-Hazardous Solid	658181	C&C Landfill	NA	Hendrickson Trucking	NA	Non-Haz	12.42	tons	1	4/26/2011	Truck 49	Cell 5 Pile 3	TPH 604	12.42				timber mats
Frac Tank City	Non-Hazardous Water	007677535JJK	Dynecol, Inc.	MID074259565	H.M. Environmental	MIR000017079	Non-Haz 029L	11332	gallons	1	4/27/2011		Frac Tank City						
Frac Tank City	Non-Hazardous Water	007677536JJK	Dynecol, Inc.	MID074259565	Terra Contracting	MIK768689127	Non-Haz 029L	8771	gallons	1	4/27/2011		Frac Tank City						
Soil Cells	Non-Hazardous Solid	644363	C&C Landfill	NA	Hendrickson Trucking	NA	Non-Haz	9.4	tons	1	4/27/2011	Truck 49	Cell 5 Pile 3	TPH 603	9.4				timber mats
Soil Cells	Non-Hazardous Solid	644364	C&C Landfill	NA	Hendrickson Trucking	NA	Non-Haz	9.46	tons	1	4/27/2011	Truck 58	Cell 5 Pile 3	TPH 604	9.46				timber mats
Soil Cells	Non-Hazardous Solid	644362	C&C Landfill	NA	Hendrickson Trucking	NA	Non-Haz	12.46	tons	1	4/27/2011	Truck 58	Cell 5 Pile 3	TPH 602	12.46				timber mats
Soil Cells	Non-Hazardous Solid	644361	C&C Landfill	NA	Hendrickson Trucking	NA	Non-Haz	12.81	tons	1	4/27/2011	Truck 49	Cell 5 Pile 3	TPH 601	12.81				timber mats
Soil Cells	Non-Hazardous Solid	658189	C&C Landfill	NA	Hendrickson Trucking	NA	Non-Haz	15.37	tons	1	4/27/2011	Truck 49	Cell 5 Pile 3	TPH 599	15.37				timber mats
Soil Cells	Non-Hazardous Solid	658190	C&C Landfill	NA	Hendrickson Trucking	NA	Non-Haz	13.32	tons	1	4/27/2011	Truck 58	Cell 5 Pile 3	TPH 600	13.32				timber mats
Debris	Non-Hazardous Solid	644369	C&C Landfill	NA	Terra Contracting	NA	Non-Haz	1.68	tons	1	4/27/2011	Box # 26	A Site		1.68				
Debris	Non-Hazardous Solid	644366	C&C Landfill	NA	Terra Contracting	NA	Non-Haz	2.76	tons	1	4/27/2011	Box # 264	FTC SWAT		2.76				CP SWAT
Debris	Non-Hazardous Solid	644365	C&C Landfill	NA	Terra Contracting	NA	Non-Haz	8.19	tons	1	4/27/2011	Box # 171	A Site		8.19				
Debris	Non-Hazardous Solid	644367	C&C Landfill	NA	Terra Contracting	NA	Non-Haz	2.05	tons	1	4/27/2011	Box # B51	A Site		2.05				
Debris	Non-Hazardous Solid	644370	C&C Landfill	NA	Hendrickson Trucking	NA	Non-Haz MUNICIPAL	8.22	tons	1	4/27/2011	Truck 49	A Site		8.22				Non-impacted timber debris
Debris	Non-Hazardous Solid	644335	C&C Landfill	NA	Hendrickson Trucking	NA	Non-Haz MUNICIPAL	9.99	tons	1	4/27/2011	Truck 58	A Site		9.99				Non-impacted timber debris
Debris	Non-Hazardous Solid	644368	C&C Landfill	NA	Hendrickson Trucking	NA	Non-Haz MUNICIPAL	10.28	tons	1	4/27/2011	Truck 49	A Site		10.28				Non-impacted timber debris

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Attachment G

Oil Recovery Estimation Report

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Enbridge Energy
Line 6B MP 608 Oil Recovery Estimation Report
March 17, 2011

	Oil Recovery Estimate						
Waste Stream	**3/28/2011**	**4/4/2011**	**4/11/2011**	**4/18/2011**	**4/25/2011**	**Total Oil Recovery Estimate (gallons)**	**Comment**
Soil - (Impacted Soil & Debris) C&C Landfill	346	191	14	0	0	**1,015**	
Soil - (Impacted Soil & Debris) Envirosafe/Westside RDF	--	--	--	--	--	**278,665**	
Geotube Sediment - (Impacted Sediment) Westside RDF	--	--	--	--	--	**1,298**	Process discontinued November 2010
Debris - (Roll Off Boxes with Impacted Sorbents, boom, pads, plastic, PPE, vegitation, and biomass)	--	344	18	8	25	**26,003**	Not all O&G results available at the time of report preparation
Frac Tank City Influent to Carbon Filtration System	--	--	--	--	--	**8,109**	Frac Tank City Pre-treatment system decommissioned on 10/30/10.
Frac Tank City Water to Dynecol	39,895.6	0.1	**14.2**	**17.8**	0.3	**39,928**	Totals have been updated with current analytical data
Battle Creek Non-Hazardous rain water Ceresco Dredge and C05 Inactive Decon Pad	--	--	--	--	--	**--**	O&G analytical results non-detect, <5,000 ug/L, oil concentration <1 gallon per 350,000 gallons water.
Wildlife Rec Center Non-Hazardous water to Plummers	--	--	--	--	--	**--**	As per Recovered Oil Tracking Supplemental Rev August 9_10, "The oily water collected from the animal recovery facility is not included in this report due to the relatively low volume."
Ceresco Pretreatment System	--	--	--	--	--	**90**	Process discontinued November 2010
A-1 Pretreatment System	--	--	--	--	--	**9**	Discontinued 8/25.
Oily Water RPP to Griffith	--	--	--	--	--	**766,288**	Value updated by Paul Wandzura 10.14.10 email.
						1,121,404	**TOTAL ESTIMATE**

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Attachment H

Transfer Plan – Transfer of Operations from Site A to Frac Tank City

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Enbridge Line 6B MP 608
Marshall, MI Pipeline Release

Transfer of Operations from Site A to Frac Tank City

Prepared for United States Environmental Protection Agency

Enbridge Energy, Limited Partnership

Prepared: April 18, 2011
Revised: May 13, 2011
Approved: May 12, 2011

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Approved

Transfer of Operations from Site A to Frac Tank City
Enbridge Energy, Limited Partnership
Line 6B Incident, Marshall, Michigan
May 13, 2011

Introduction

The following plan has been developed to outline the intent and execution of the combining of the two support facilities Site A and Frac Tank City (FTC). The plan is intended to provide a summary of the initial activities performed at the two temporary waste handling facilities used for the Line 6B Incident and the proposed phased transfer of functions from Site A to FTC. This will be accomplished in a three-phased approach guided by the findings of the river reassessment. The completion of each phase of work and decision to progress to the next phase will be agreed upon by Enbridge Energy, Limited Partnership (Enbridge), United States Environmental Protection Agency (USEPA) and Michigan Department of Environmental Quality (MDEQ). A confirmatory email will be sent from Enbridge to USEPA and MDEQ when the next phase will begin.

History

Site A is used for solid waste and soil staging while FTC is used for liquid staging. At the peak of the release the two facilities were necessary to handle the extensive quantity of soils, sediments, and oily water.

The current and near-term forecasts of clean-up activities do not warrant the ongoing operation and maintenance of both Site A and FTC facilities. The decision to decommission (i.e. remove from service) Site A and to retain FTC was based on the ability of FTC to support all necessary functions of current and projected response activities.

The intent of the plan is to transfer all operations currently performed at Site A to either existing facilities at FTC and/or newly created facilities at FTC. This will be conducted in a phased approach such that no operational capacity at Site A will be omitted prior to transferring the task to FTC.

The implementation of this plan will reduce the overall footprint of the Line 6B Incident support facilities. Specific benefits will include:

- A significant reduction in waste water collection and disposal from precipitation events.
- Large reduction in trucking from liquid disposal.
- Reduce impacts to local wildlife and the environment.
- Improved operational efficiency with the use of 1 centralized facility.
- Restoration of Site A property.

Current Conditions

The following outlines the current activities at both Site A and Frac Tank City. See Figures 1 and 2 attached.

<u>Site A</u>

- Soil and debris staging cells
  - Cell 2: Active, proposed for decommissioning
  - Cell 4: Active
  - Cell 5: Active

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    - Cells 1, 3, 6, 7, 8: Decommissioned
- Decontamination Areas: In the process of being decommissioned
- Oily debris roll off(s)
- Equipment staging

Frac Tank City

- Decontamination Areas(2)
    - The northern decontamination pad is currently inactive.
- The southern pad is active.
- Roll offs
    - Control point oily debris roll off
- Household debris roll offs
- Truck Lining Station
    - Relocated to FTC from Site A
- Frac Tank Water Storage (Figures 2 and 3)
- Equipment Staging (yellow iron, boom, frac tanks, etc…)

Transfer of Functions

Enbridge operations is planning a phased approach in the transfer of functions from Site A to FTC. This will be a 3 phased approach guided by the findings of the reassessment of the Kalamazoo River and Talmadge Creek

Phase I

Assure all operational functions can be performed by FTC including soil staging, liquid staging and decontamination activities then constructed.

FTC Activities

1.) Consolidate all water storage to Frac Tanks at FTC.
2.) Transfer truck lining station from Site A to FTC.
3.) Transform northern decon pad at FTC to 2 soil staging cells with the capacity to hold approximately 2,000 cubic yards each (Figure 3 – Future Layout).
4.) Implement Traffic Management Protocol (Figure 3) includes:
    - Traffic flow
    - Signage

Site A Activities

1.) Decommission decon pads at Site A in accordance with the Soil Staging, Decontamination and River Access Site Closure Plan (Attachment A).

Phase II

The second phase of the plan further transfers the functions of Site A to FTC. As previously indicated, the decision to move to Phase II will be agreed upon by Enbridge, USEPA and MDEQ prior to implementation.

FTC Activities

1.) All solid waste staging will occur at FTC.
2.) All liquid waste staging will occur at FTC.
3.) Continue the transformation of FTC to the primary equipment storage area.

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Site A Activities

1.) Decommission Cell 2 at Site A. The decommissioning of Cell 2 will be done in accordance with the Soil Staging, Decontamination and River Access Site Closure Plan.

2.) Cells 4 and 5 will be maintained at Site A.

Phase III

The third phase of the plan pertains to the decommissioning of Site A. This will be dictated by the conclusions made from the results of the reassessment.

The findings of the river reassessment will provide sufficient information for Enbridge, USEPA, and MDEQ to determine the necessary waste capacity for future activities and thus the need for Site A. However, if approval to direct-load and dispose of soil and debris is obtained, the need for the soil storage capacity of Site A will be greatly reduced. If either or both of the above conditions are satisfied, the following actions will take place:

FTC Activities

1.) All waste staging activities will occur at FTC as laid out in Figure 3.

Site A Activities

1.) Decommission Cells 4 and 5 in Site A in accordance with the Soil Staging, Decontamination and River Access Site Closure Plan.
2.) Remove all associated mat roads in Site A in accordance with the Talmadge Creek Swamp Mat Removal Sampling Plan (Attachment B).
3.) Restore the area to its original condition.

Closing

Upon completion of the three phases, FTC will be capable of handling all operational functions currently handled at both locations. FTC will remain in operation until the determination is made that it is no longer needed. This determination will be agreed upon by Enbridge, USEPA and MDEQ. All decommissioning activities will be conducted in accordance with the Enbridge Line 6B MP 608 Pipeline Release - Marshall, Michigan Soil Staging, Decontamination and River Access Site Closure Plan.

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Figures

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8
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5
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3
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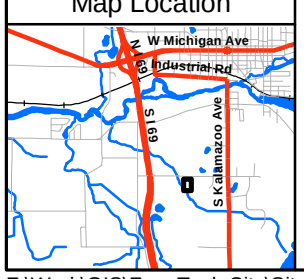
1
Roll Off Storage
Decommissioned Decon Area

Map Location



Legend

- Parcel Boundary
- Decommissioned Soil Staging Area
- Active Soil Staging Area
- Decon Area; Roll-Off Storage

0 30 60 120 Feet

N

Figure 1:
SITE A
CURRENT LAYOUT

ENBRIDGE LINE 6B M 608
PIPELINE RELEASE
MARSHALL, MI

ENBRIDGE AECOM

Drawn:	BC	4/28/2011
Approved:	BA	4/28/2011
Project #:	60162778	

Z:\Work\GIS\Frac Tank City\Site A Current Layout.mxd

Aerial Photo Date: October 2010

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Office Trailer

Low Area

Truck Lining Station

Equipment Storage Area

Equipment Storage Area

Northern Decon Area

Driveway/Road

Roll-off Storage

Frac Storage

Southern Decon Area

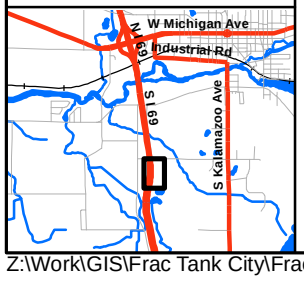
Low Area

Retention Pond

Storage Building

SWAT Roll-off

Map Location



Legend

- Frac Tank Boundary
- Parcel Boundary
- Equipment Storage Area
- Northern Decon Area
- Southern Decon Area

NOTE: Structures and features are not to scale.

N

Figure 2:
CURRENT LAYOUT
FRAC TANK CITY

ENBRIDGE LINE 6B M 608
PIPELINE RELEASE
MARSHALL, MI

ENBRIDGE

Drawn:	JW	5/18/2011
Approved:	DL	5/18/2011
Project #:	60162778	

Z:\Work\GIS\Frac Tank City\Frac_Tank_Area__withNAIP2010_CurrentLayout_Fig2_051811.mxd

Aerial Photo Source: NAIP 2010

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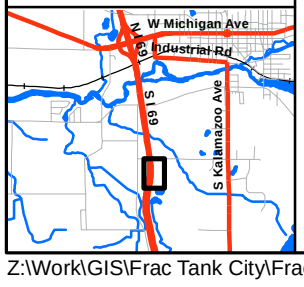
Vehicle Parking
Office Trailer
Low Area
Truck Lining Station
Equipment Storage Area
Equipment Storage Area
ONE WAY
DO NOT ENTER
Soil Cell #1
Soil Cell #2
Driveway/Road
Berm
Frac Storage
Roll-off Storage
Southern Decon Area
Low Area
Retention Pond
Storage Building
SWAT Roll-off

Map Location



Legend

- Frac Tank Boundary
- Parcel Boundary
- Soil Cell
- Equipment Storage Area
- Southern Decon Area

NOTE: Structures and features are to approximate scale

0 25 50 100 150 200
Feet

N

Figure 3:
FUTURE LAYOUT
FRAC TANK CITY

ENBRIDGE LINE 6B M 608
PIPELINE RELEASE
MARSHALL, MI

ENBRIDGE

Drawn:	JW	5/19/2011
Approved:	DL	5/19/2011
Project #:	60162778	

Z:\Work\GIS\Frac Tank City\Frac_Tank_Area__withNAIP2010_Future Layout_Fig3_051811.mxd

Aerial Photo Source: NAIP 2010

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Enbridge Line 6B MP 608 Pipeline Release

Marshall, Michigan

Soil Staging, Decontamination and River Access Site Closure Plan

January 11, 2011

Enbridge Line 6B MP 608 Pipeline Release
Marshall, Michigan
Soil Staging, Decontamination and River Access Site Closure Plan

Prepared: January 11, 2011

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Attachment A List of River Access and Other Work Sites

Attachment B River Access Site Aerial Photo Maps

Attachment C Site Closure – Site Environmental Evaluation Form

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1.0 Introduction

In support of the management of contaminated soil and debris generated during remediation activities relating to the of the Enbridge (the Company) Line 6B crude oil release near Marshall, Michigan (see **Figure 1**), two soil staging areas were constructed. Soil staging area A is located east of Talmadge Creek, south of Division Drive, and east of Interstate 69. The soil staging area in Yard 4 is located north of Talmadge Creek and west of Interstate 69. Decontamination (decon) areas were also constructed in Frac Tank City (FTC) and Area C0.5. **Figure 2** shows the locations of the two soil staging areas and the decon areas within FTC and Area C0.5.

During the oil release response activities, approximately 70 separate work sites were established along both sides of the Kalamazoo River along the length of the response area from the confluence of the Talmadge Creek to Morrow Lake Dam. These "river access sites" were occupied by response personnel for equipment and material staging, decontamination, waste staging and similar activities. The river access sites are privately-owned, Enbridge-owned, Enbridge-leased lands and certain public lands. In addition, there are several work sites occupied by response personnel that were not used for purposes other than river access. These, "other work sites" include Staging Yards 1, 2, 3 and 5. **Attachment A** is a list of river access and other work sites. Finally, there are numerous sites identified as potential work sites and that were secured with Right-of-Way agreements with the land owner but which were never developed for work. These sites were visited and evaluated to verify that they were not used.

This Closure Plan is intended to define conditions at the Sites occupied and used by Enbridge. The Plan is not intended to address impacts that are directly related to the pipeline release, but to address secondary impacts that may have occurred during response activities. Each site closure will be contingent upon the analytical results generated from the soil sampling detailed in this Plan. The analytical results will be compared to applicable Part 201 generic residential cleanup criteria to determine if the site may be considered closed. Once the site is determined to be closed, remediation activities will no longer be deemed necessary.

1.1 Overview

The objectives of this Soil Staging Decontamination and River Access Sites Closure Plan (the Plan) are to describe the actions that will be implemented and the estimated schedule for closing the following locations:

- Soil Staging Area A (SSAA), cells 1- 8, and oily mat storage and decon areas.
- Soil Staging Area in Yard 4 (Yard 4), cells 9 – 11 and cell 12 (decon area).
- Frac Tank City (FTC).
- C0.5 Work Areas.
- River Access Sites.
- Other Work Sites.

More specifically, this Plan describes:

- The actions required to close the two soil staging areas, FTC and C0.5.
- The soil sampling activities that will be performed within the two soil staging areas, FTC and C0.5, following removal of constructed features and underlying soils (if necessary).
- Interim measures to be implemented for areas not anticipated to be closed until 2011.
- The anticipated priority and schedule for closure.
- The river access and other work site environmental evaluation and soil sampling plans to address impacts, if any, to these sites associated with Enbridge's occupation of the site.

This Plan does not describe the landscape restoration activities that may be implemented by the Company after the soil staging, decon areas, river access and other work sites have been closed, sampled, backfilled or permanently closed. Gravel imported for use during response activities will be removed and properly disposed. This imported gravel will not be evaluated as part of this Plan. Also, all containment liners will be removed from areas before environmental evaluations and sampling are completed.

Closure activities described in this work plan including soil sampling will not be performed at work sites that Enbridge plans to use throughout the winter or to reactivate in the spring except as noted below.

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2.0 Soil Staging and Decontamination Areas

It is anticipated that the project will continue to need a centralized area throughout the fall of 2010 and into 2011 for staging and stockpiling contaminated soil and debris pending arrangements for off-site disposal. Three cells (Cell 2, 4, and 5) in SSAA will be winterized and remain open during the winter or winterized (as described below) in 2010 and will re-open in early 2011. Prior to winter these three cells will be relined with a double bottom liner and a timber mat floor will be placed over the liners. These three cells will be emptied and covered or will be maintained with a minimum amount of soil in order to enable a cover liner to shed precipitation from the cell. In either event, the three cells and the decon area at FTC will be maintained over the winter for use in 2011 and will be secured for the winter with snow fencing.

The following section describes the anticipated closure schedule, activities related to closure, and verification soil sampling to be conducted in 2010 and 2011.

2.1 Closure Schedule

Based on input from the on-site disposal vendor (Safety-Kleen), and other on-site contractors responsible for various activities in the soil cells and decon areas the anticipated closure schedule is shown in Table 1. As indicated in Table 1 it is anticipated that some sites will be closed in 2010 and some sites will be closed in 2011. Those sites that are planned for use in 2011 will be winterized.

Table 1
Anticipated Closure Schedule

Soil Staging and Decon Areas	Anticipated Date to Start Closure Activities
Soil Staging Area A	
Cell 1	As early as mid-October 2010
Cell 2, 4, 5 and decon areas	2011
Cell 3	As early as mid-October 2010
Cell 6	As early as mid-October 2010
Cell 7	As early as mid-October 2010
Cell 8	As early as mid October 2010
Yard 4 Staging Area	
Cell 9	As early as mid-October 2010
Cell 10	As early as mid-October 2010
Cell 11	As early as mid-October 2010
Cell 12/decon area	As early as mid-October 2010

Soil Staging and Decon Areas	Anticipated Date to Start Closure Activities
Frac Tank City	
FTC decon area	2011
Area C0.5	
C0.5 decon area	As early mid-November 2010

2.2 Closure Activities

Following emptying of each cell, roads, parking areas, and/or support areas, a series of closure activities will be conducted in 2010 and 2011, including:

- Removal and disposal of the underlying liner and perimeter berms for the cells.
- Removal and disposal of contaminated mat roads, if present.
- Dismantling, removal and disposal of the decon areas at each soil staging area, at FTC and C0.5.
- Removal and disposal of contaminated soil, if any, from below the cell or decon area footprint.
- Conducting verification soil sampling and comparing the analytical results to Part 201 generic residential criteria for soil (appropriate Michigan Department of Natural Resources and Environment (MDNRE) criteria).
- Backfilling and closing locations based on the results of verification soil sampling.

A field representative, designated by the Company, will be on-site to classify and visually screen soil to confirm that excavation below the soil cell and decon area footprints removed obviously impacted soil. All field screening and soil and debris sampling for disposal will be conducted in accordance with the Sampling and Analysis Plan prepared for Michigan Department of Natural Resources and Environment (MDNRE) and the Waste Treatment, Transportation and Disposal Plan (WTTDP).

Following completion of the field screening activities, a snow fence will be placed around the cell or decon area footprint prior to conducting verification soil sampling and will remain in place until restoration activities are completed.

2.3 Verification Soil Sampling

Following the removal of constructed features and any contaminated soil beneath the soil cells and decon area footprints, verification soil samples will be collected for laboratory analysis. MDNRE

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will be notified of each sampling event and samples will be collected when a representative from the MDNRE is present. The target soil analytical parameters are shown below in **Table 2**. Samples will be analyzed in accordance with the Quality Assurance Project Plan prepared for MDNRE and the results will be compared to Part 201 generic residential criteria. Soil sampling will be conducted in accordance with the Sampling and Analysis Plan (SAP). The sampling approach for SSAA, Yard 4, FTC and C0.5 are summarized in the following sections.

For the metals listed in **Table 2**, the cleanup criteria against which the data will be compared will include state-wide default background concentrations. Also, Enbridge may develop site-specific background concentrations for these metals.

The soil samples will be collected by hand with an auger or trowel. Samples will be preserved, shipped and analyzed as specified in the SAP. Surface soil samples will be collected from 0-6 inches below the surface. The global positioning system coordinates of each sample and field observations will be recorded. The borings will be backfilled with adjacent soil. The results of the soil sample analysis will be tabulated and used to direct possible future investigation and interim response activities pursuant to Michigan regulations.

Should excavations proceed to a depth of two feet or greater, a minimum of four sidewall samples will be collected from each excavation. For "small" site areas, the four sidewall samples will be added to the total number of samples collected. For medium or large site areas, the MDNRE Sampling Strategies and Statistics Training Materials document will be used to calculate the appropriate number of sidewall samples.

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Table 2, below, is the list of analytical parameters for soil samples from former storage areas at the river access sites.

Table 2
Soil Analytical Parameters

Parameter	EPA Analytical Method [1]
Volatile Organic Compounds (VOCs)[2]	8260B
Polynuclear Aromatics (PNAs)	8270
Metal Parameters	
Beryllium	6020
Molybdenum	6020
Vanadium	6020
Percent Moisture	ASTM D-2216

(1) Analytical methods based on Draft QAPP dated November 11, 2010.
(2) Methanol preservation required.

2.3.1 Soil Staging Area A (Cells 1 – 8)

SSAA consists of eight separate soil/debris staging cells, an oily mat storage area, and an equipment decontamination cell, along with the accompanying access roads, parking areas, and office trailers. As stated previously, Cells 2, 4, and 5 will be maintained until site activities are completed in 2010 and re-opened in 2011.

In late fall, prior to winter, cells 2, 4 and 5 will be emptied and relined. After cells are emptied and the old liner removed two soil samples will be collected from surface soil and analyzed prior to installation of a new liner. These two soil samples locations will be biased toward the middle of the cell footprint and biased toward locations where soil staining was observed and removed prior to sampling.

As shown in **Table 3** below, the various areas of SSAA fall into either the small or medium site category as described in the *MDNRE Sampling Strategies and Statistics Training Materials for Part 201 Cleanup Criteria* (2002). Following the formula presented on page 4.33 of that document, applicable grid intervals were calculated for the individual areas within SSAA. The total area of SSAA, however, falls into the large site category, yielding an expanded grid interval applicable to the areas used for roads, parking, and other support activities. Within each area targeted for closure, 25 percent of the grid locations were then randomly selected for verification sampling. As shown on **Figure 3**, this approach results in a total of 160 sample locations within SSAA.

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Table 3
SSAA Grid Spacing and Samples

Location	Approximate Area (square feet)	MDNRE Category Size	Calculated Grid Spacing (ft)	Approx. No. of Samples
Cell 1	11,840	Medium	15.3	14
Cell 2	15,791	Medium	17.7	16
Cell 3	15,680	Medium	17.7	12
Cell 4	5,686	Small	21.3	4
Cell 5	12,087	Medium	15.5	14
Cell 6	12,063	Medium	15.5	14
Cell 7	7,680	Small	24.7	4
Cell 8	21,647	Medium	20.8	14
Oily Mat Storage Area	5,482	Small	20.9	4
Equipment Decon Area	12,819	Medium	16.0	15
Balance of Total Area – SSAA	368,611	Large	39.6	49

2.3.2 Soil Staging Area Yard 4 (Cells 9, 10, 11, 12)

Soil staging area in Yard 4 consists of three separate soil/debris staging cells and a decon area (cell 12), along with the accompanying access roads, and parking areas. As shown in **Table 4** below, the three soil cells, cell 12, and support areas of Yard 4 fall into the small or large site category as described in the *MDNRE Sampling Strategies and Statistics Training Materials for Part 201 Cleanup Criteria* (2002). Following the formula presented on page 4.33 of that document, applicable grid intervals were calculated for the combined areas. Within each area targeted for closure, 25 percent of the grid locations were then randomly selected for verification sampling. As shown on **Figure 4**, this approach results in a total of approximately 51 sample locations within Yard 4. Prior to implementing the sampling program in Yard 4, the disturbed areas of the property will be surveyed and the number of samples will be adjusted if necessary.

Table 4
Yard 4 Grid Spacing and Samples

Location	Approximate Area (square feet)	MDNRE Category Size	Calculated Grid Spacing (ft)	Approx. No. of Samples
Cell 9	7,464	Small	24.4	4
Cell 10	8,368	Small	25.8	4
Cell 11	7,465	Small	24.4	4
Cell 12/decon area	9,042	Small	26.8	4
Support areas	159,536	Large	33.0	35

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2.3.3 Frac Tank City Decon Area

The FTC decon area is anticipated to be utilized until site activities are completed in 2011. Therefore, this area will be winterized and secured with snow fencing following completion of activities in 2010. The approach to soil verification sampling anticipated in 2011 is outlined below.

As shown in **Table 5** below, the decon area of FTC falls into the medium site category as described in the *MDNRE Sampling Strategies and Statistics Training Materials for Part 201 Cleanup Criteria* (2002). Following the formula presented on page 4.33 of that document, an applicable grid interval was calculated for the FTC decon area. Within this area, 25 percent of the grid locations were then randomly selected for verification sampling. As shown on **Figure 5**, this approach results in a total of 14 sample locations within the FTC decon area.

Table 5
FTC Area Grid Spacing and Samples

Location	Approximate Area (square feet)	MDNRE Category Size	Calculated Grid Spacing (ft)	Approx. No. of Samples
Decon Area	27,959	Medium	23.6	14
Frac Tank City	470,230	Large	27	173

2.3.4 Frac Tank City

Frac Tank City (FTC) consists of large numbers of frac tanks, decon areas (see above), an activated carbon water treatment system, equipment storage areas, a fueling area, roads, parking areas and office trailers. The FTC area is anticipated to be required until site activities are completed in 2011. Therefore, this area will be winterized and secured following completion of activities in 2010. The approach to soil verification sampling anticipated in 2011 is outlined below.

As shown in **Table 5,** above, the FTC falls into the large site category as described in the *MDNRE Sampling Strategies and Statistics Training Materials for Part 201 Cleanup Criteria* (2002). Following the formula presented on page 4.33 of that document, an applicable grid interval was calculated for the FTC. Within this area, 25 percent of the grid locations were then randomly selected for verification sampling. As shown on **Figure 7**, this approach results in a total of 173 sample locations within the FTC area.

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2.3.5 C0.5 Decon Area

The C0.5 decon area is anticipated to be utilized until site activities are completed in 2011. The area will be winterized and secured with snow fencing following completion of activities in 2010. The approach to soil verification sampling anticipated in 2011 is outlined below.

As shown in **Table 6** below, the C0.5 decon area falls into the large site category as described in the *MDNRE Sampling Strategies and Statistics Training Materials for Part 201 Cleanup Criteria* (2002). Following the formula presented on page 4.33 of that document, an applicable grid interval was calculated for this area. Within the C0.5 decon area, 25 percent of the grid locations were then randomly selected for verification sampling. As shown on **Figure 6**, this approach results in a total of 62 sample locations within the C0.5 decon area.

Table 6
C0.5 Grid Spacing and Samples

Location	Approximate Area (square feet)	MDNRE Category Size	Calculated Grid Spacing (ft)	Approx. No. of Samples
Decon Area	352,400	Large	39	62
Submerged Oil Dredging, Water Treatment and Geotube Area	159,933	Large	32	45

The grid spacing and number of samples presented in **Table 6** above may change depending on the use of the two C0.5 areas in 2011.

2.3.6 C0.5 Submerged Oil Dredging, Water Treatment and Geotube Area at Ceresco Dam

The submerged oil dredging, water treatment and geotube area at C0.5 consists of a geotube laydown area for filtering the dredged material prior to water treatment (area sized for a dozen or more geotubes), a water treatment system for water from the dredged material that includes three bag filter and carbon filter treatment systems and adjacent access roads. This water and oil treatment system location is anticipated to be required until site activities are completed in 2011. The area will be winterized and secured with snow fencing following completion of activities in 2010. The approach to soil verification sampling anticipated in 2011 is outlined below.

As shown in **Table 6,** above, the oil/water treatment and geotube area falls into the medium site category as described in the *MDNRE Sampling Strategies and Statistics Training Materials for Part*

201 Cleanup Criteria (2002). Following the formula presented on page 4.33 of that document, an applicable grid interval was calculated for this area. Within the treatment area, 25 percent of the grid locations were then randomly selected for verification sampling. As shown on **Figure 8**, this approach results in a total of 45 sample locations within the treatment area.

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3.0 River Access and Other Work Sites

The River Access and Other Work Site Closure Plan in Section 3.0 is a work plan to complete Phase I Site Environmental Evaluations (SEE) and Phase II Site Environmental Investigations (SEI) for river access and other work sites occupied by Enbridge in response to Line 6B MP 608 release in Marshall, Michigan. **Attachment A** includes a list of river access and other work sites. **Attachment B** includes a set of aerial photos showing each site location.

Enbridge is utilizing property that is Enbridge-owned, privately-owned, Enbridge-leased lands and potentially certain public lands to provide for river access for equipment and material staging, decontamination, waste staging and similar activities related to responses to the Line 6B MP 608 release. The following work plan will be completed to summarize available information related to the environmental site conditions through all phases of occupation, including:

1) Pre-Occupation (before any mobilization to or work activities at sites)
2) Occupation (during work activities)
3) Post-Occupation (after demobilization and closure activities are completed)

In general it is anticipated that the SEEs and SEIs will be done after equipment, consumables and liners are removed from the site, but before landscape restoration occurs, if possible. The SEE and SEI activities performed under this work plan will not address impacts directly related to the Enbridge release such as presence of crude oil that is visually apparent on soil, oiled tree trunks and structures and oil-impacted surface water, sediments and stream banks. The work plan for River Access Sites will address environmental conditions associated only with site occupation. If oil is observed that is directly from the Line 6B release, the appropriate personnel will be notified to address the oil.

3.1 Phase I Site Environmental Evaluation Activities

The objective of the SEE is to identify "recognized environmental conditions" at the sites that directly or indirectly result from activities associated with Enbridge's occupation of the site. The SEE uses methods similar to the ASTM Standard Practice E1527-05 and E1903-97 for Phase I Environmental Site Assessments. However, the SEE was developed for a specific purpose and is not intended to be entirely consistent with the ASTM methods.

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The following definition from the ASTM standards is important for understanding the approach.

> *recognized environmental conditions (REC)* - the presence or likely presence of any *hazardous substances* or *petroleum products* on a *site* under conditions that indicate an existing release, a past release, or a material threat of a release of any *hazardous substances* or *petroleum products* into structure on the *site* or into the ground, ground water, or surface water of the *site*. The term includes *hazardous substances* or *petroleum products* even under conditions in compliance with laws. The term is not intended to include de minimus conditions that generally do not represent a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. Conditions determined to be de minims are not *recognized environmental conditions*. However, for purposes of Enbridge's site evaluations, any de minimus conditions observed will be addressed as RECs.

As indicated above, the SEE will not include RECs directly related to the Enbridge release such as presence of oil that is visually apparent on soil, oiled tree trunks and structures and oil-impacted surface water, sediments and stream banks.

The SEE will also include an evaluation of impacts (dredge and fill) on wetlands and floodplains at the sites. Dredging in the river will not be included in the evaluation.

A SEE will be completed for each occupied (or formerly occupied) site according to this work plan to the extent practical within the project's limits, access, and other constraints. The SEE will include the following four activities:

1. Review of general information (Section 3.1.1).
2. Review of records available from Enbridge such as aerial photos, other photographs, inspection reports and operational and logistics activities that occurred at the site (Section 3.1.2).
3. Visual inspection of the Site (Section 3.1.3).
4. Interviews with persons familiar with activities that occurred at the site (Section 3.1.4).

A checklist to assist in this process is in **Attachment C**.

3.1.1 Review of General Information

General site information will be reviewed and evaluated as appropriate. General information about the site will include:

- Site name, location (section, segment, and GPS coordinates),
- Site map and Enbridge aerial photographs

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- Information and Enbridge photographs regarding what the pre-use conditions were at the site
- Site use
- Where significant features were located at the site (e.g. Secondary containment, roll-offs, decontamination pads, etc.)
- Wetland and floodplain boundaries, where known

If possible, site information will be collected from all three phases of occupation (pre-occupation, occupation and post-occupation). This will not be possible at some sites.

3.1.2 Review of Records

Records will be reviewed from readily available Enbridge documentation such as inspections reports, equipment used, consumables used and aerial photographs relating to occupation or demobilization activities. The review will attempt to identify hazardous substances used (raw materials, operating supplies, oil-containing equipment, etc.), generated, and/or released on the Sites.

3.1.3 Visual Site Inspections

Site inspections will be performed to look for visual signs of RECs or potential wetland and floodplain concerns on or immediately adjacent to the Site.

The visual inspection will include:

- Observe accessible portions of the Site and the portions of adjacent parcels from the Site and public roads for RECs, such as the improper storage or use of petroleum products, chemicals or wastes, and the presence of tanks, oil-filled electrical equipment, stains, unusual odors, filled areas, excavated areas and other indications of the potential presence of hazardous substances of regulatory concern.
- Describe or list each identified large aboveground storage tank (AST) or underground storage tank (UST) or other storage containers that is on the Site (except water tanks), and identify observed exterior tanks on adjacent parcels that may present a significant environmental risk if a release were to occur.
- Photograph relevant features (shorelines, launches, former decon areas, roll-off storage, unusually discolored soil, or other significant features. etc.). Relevant features will be marked on a site map. Areas with no recognized environmental conditions will also be photographed.
- Complete an initial site investigation checklist (see **Attachment C** for blank checklist form)

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3.1.4 Interviews

Site operators or others familiar with operations at the site will be interviewed to identify RECs. Information from interviewees will be recorded on the field form in **Attachment C**. In some cases it will not be possible to identify an appropriate person to interview and this will be documented.

Some of the River Access Sites that have no RECs, no visual impacts associated with occupation and where there was no material storage do not need to be further assessed and can be closed when landscape restoration activities are completed. The determination that an access site does not need further environmental evaluation or sampling will be based on information regarding use of the site and visual inspections from the SEE activities. A determination that an access site does not require sampling and the basis for that determination will be documented. A Phase II Site Environmental Investigation (following section) will be completed for sites that do have RECs and that may require sampling.

3.2 Phase II Site Environmental Investigation Activities

The significance of each identified REC will be assessed using professional judgment considering such factors as its nature, magnitude, and known or potential impact upon the Site, and if associated with an off-site source the location of that source with respect to the Site.

Generally, the scope of work for a SEI is determined after the SEE has been completed, and RECs identified. SEIs will not be needed for all sites. The need for further site investigation will result from an evaluation of the site information collected during the Phase I SEE. Additional site investigation is generally warranted if an evaluation of the Phase I SEE reveals:

1) Soil staining or other RECs that appears to be caused by occupation activities.
2) A site already investigated undergoes new occupancy or use.
3) The presence of waste storage or hazardous substance storage containers that present the potential for a release.

3.2.1 Verification Soil Sampling Plan

Verification soil samples will be collected from river access and other work sites where one or more of the conditions listed above exist. All verification soil sampling events performed for river access and other work sites will be biased sampling and will target the exact locations where staining exists or there is a potential for a release (i.e. locations most likely to be impacted). In some instances background samples for metals analyses may be collected and possibly compared to site-specific

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background criteria generated by a site-wide background study or a background study focused more locally near the location of potential concern.

MDNRE will be notified of each sampling event and samples will be collected when a representative from the MDNRE is present. Samples will be analyzed in accordance with the MDNRE requirements (Op. Memo No. 2), and the results will be compared to Part 201 generic residential criteria. For the metals listed in Table 2, the cleanup criteria against which the data will be compared will include state-wide default background concentrations. Also, Enbridge may develop site-specific background concentrations for these metals.

If the SEE identifies a REC related to site occupancy, the Environment representative will direct excavation of visually impacted soils, if present, and will collect a sample once visual observation of the excavation indicates that no visual impact remains. The objective of the Phase II SEI is to collect and analyze sample(s) to determine if there has been a release at a site to the extent possible based on limited sampling and analyses. The Phase II SEI is not intended to identify the extent of contamination, only if contamination is present.

Soil samples will be collected by hand with an auger or trowel. Samples will be preserved, shipped and analyzed as specified in the sampling and analysis plan prepared as a condition of the November 1, 2010 *Administrative Consent Order and Partial Settlement Agreement*. Surface soil samples will be collected from 0-6 inches below the surface. Soil samples will be analyzed for parameters listed in Table 2. The global positioning system coordinates of each sample will be recorded. The sample holes will be backfilled with adjacent soil. The results of the soil sample analysis will be tabulated and used to direct possible future investigation and interim response activities pursuant to Michigan regulations.

In contrast to soil staging and decon area closures where unbiased grid samples are planned, the sample locations at River Access Sites will be biased to locations where impacts are most likely to be found. As such, this River Access Site work plan is not intended for larger or complex sites where more extensive sampling to determine the extent of impacts is indicated. However, none of the River Access Sites are large complex sites that require more extensive sampling.

The MDNRE's *Sampling Strategies and Statistics Training Materials for Part 201 Cleanup Criteria* (2002) provides general guidelines for application of biased or grid sampling strategies to verify soil remediation. The selection of biased or grid sampling is based on professional judgment considering

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the size of the areas used for managing wastes or other hazardous substances, the volume of wastes managed and knowledge of the specific activities at the site.

Biased sampling is collection of soil sampling from areas most likely to be impacted. Biased sampling is generally appropriate for areas less than 0.25 acres and when there is sufficient knowledge of existing conditions, historic activities and field indicators to allow biased sampling locations to be selected. This is the situation for most river access sites where the use of the site is known and the areas used for managing wastes or other hazardous substances are known and are individually less than 0.25 acres. Such waste management uses at the river access sites typically were for roll off boxes, dumpsters, decontamination areas, light plant generators and fuel storage.

Grid sampling is generally appropriate where the areas are larger, activities were more complex and the areas used to manage wastes or other hazardous substances are not well defined, the volumes of wastes were large and historic activities are not as precisely documented.

Visual Impact Areas

Samples will be collected from visually impacted areas (stained soil). Visual impacts for this purpose do not include stains or visual impacts that are related to the initial release of oil such as oiled river banks, tree trunks, logs, rocks and structures. Visual impacts are intended to include impacts related to site occupancy. At least one sample for every 100 square feet of stained soil will be collected after the visually impacted soil has been removed.

Visually impacted soil will be excavated prior to sampling and will be segregated and transported to the contaminated material staging area at a to-be-determined location where they will be prepared for subsequent disposal. All wastes generated during the Phase II SEI will be managed in accordance with the *Waste Treatment, Transportation and Disposal Plan* submitted on August 2, 2010 and revised on August 8, 2010.

Where soil removal occurs to address visual staining and sampling has already occurred the soil removal area will be immediately backfilled with a similar soil type and restored in a manner consistent to prevent inadvertent soil erosion or sedimentation of nearby water bodies. Field observations will be recorded and the limits of the soil removal area will be defined using GPS for potential future reference

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Former Storage Areas

Potential impact locations include but are not limited to the footprints of the following work areas and storage devices:

- Decontamination area
- Frac tanks
- Roll off boxes
- Dumpsters
- Fuel storage tanks
- Generators and waste oil tanks
- Boat ramps.

Storage areas for citrus-based cleaners and soil staining caused by citrus-based cleaners will not be sampled. Review of the MSDSs for the citrus-based cleaners indicates that the chemicals in the cleaners have no cleanup criteria.

Some general guidelines for the numbers and locations of samples follow; these are subject to professional judgment and field conditions.

- Footprints of decontamination areas. Collected at least one sample for every 100 square feet occupied by former decontamination areas. In general, locations on the downhill side of former decontamination areas are more likely to be impacted and will be preferentially sampled.
- Frac tanks. Collect two samples, each approximately 2 feet inside each end of the footprint of the frac tank.
- Roll off boxes. Collect two samples, each approximately 2 feet inside each end of the footprint of each roll off box.
- Dumpsters. Collect one sample from the lowest spot in the footprint of the dumpster.
- Fuel storage tanks. Collect one sample from the lowest spot in the footprint of the tank.
- Generators and waste oil tanks. Collect one sample from the lowest spot in the footprint of the generator or tank.
- Roadways and driveways leading to and from boat ramps. Collect one soil surface sample of the roadway or driveway where the surface is not concrete or asphalt.

The basis for the numbers and locations of samples will be documented in field logs.

3.3 Closure Schedule

The schedule for completing the Phase I SEE and Phase II SEI will vary for each site occupied as part of this project. It is anticipated that the Phase I SEE and limited Phase II SEI will occur through the end of 2010 for a majority of the sites. Some environmental evaluations may occur during the

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winter months of January and February, 2011. Evaluations will resume in the spring of 2011, if necessary, to continue the SEE and SEI activities including potentially additional sampling of sites. It may also be necessary to document site reactivation activities at those River Access Sites that Enbridge chooses to reactivate. To accommodate this schedule, Enbridge has extended property leases at many River Access Sites. It is anticipated that some sites will be closed in 2010 and some sites will be closed in 2011. Those sites that are planned for use in 2011 will be winterized.

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4.0 Data Evaluation

Data collected in accordance with this Plan will be managed in accordance with the quality assurance and project plan (QAPP) submitted to MDNRE for approval and compared in tabulated format to Part 201 Soil Generic Residential Cleanup Criteria (as wells as site-specific background concentrations for metals, should Enbridge decide to develop such criteria). If the analytical results are below the criteria for all of the randomly selected quadrants within a given grid, the location will be considered suitable for backfilling with clean material (if necessary), landscaping (if necessary) and final closure. If the reported data in one or more of the randomly selected quadrants within a grid exceed Part 201 Soil Cleanup Criteria, additional soil removal will be completed in that quadrant, and then the quadrant(s) will be re-sampled at the locations previously sampled. Should the follow-up concentrations be below Part 201 Cleanup Criteria, the gridded area will be considered suitable for backfilling with clean material (if necessary), landscaping (if necessary) and final closure.

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5.0 Reporting

A final report will be prepared after all tasks outlined in this Plan for all identified sites are completed. The report will summarize field activities and will include analytical results in tables. In the report, analytical data tables and an evaluation of results in relation to Part 201 soil generic residential cleanup criteria, state default background levels and the U.S. EPA Region 5 Ecological Risk Screening Levels for soil will be presented. Figures will be included where appropriate. Information gathered during the Phase I SEE and Phase II SEI activities will be presented as well.

The report will be provided to U.S. EPA and MDNRE within five weeks of the completion of the work. The report will serve as the basis for developing recommendations for additional actions, if warranted.

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Figures

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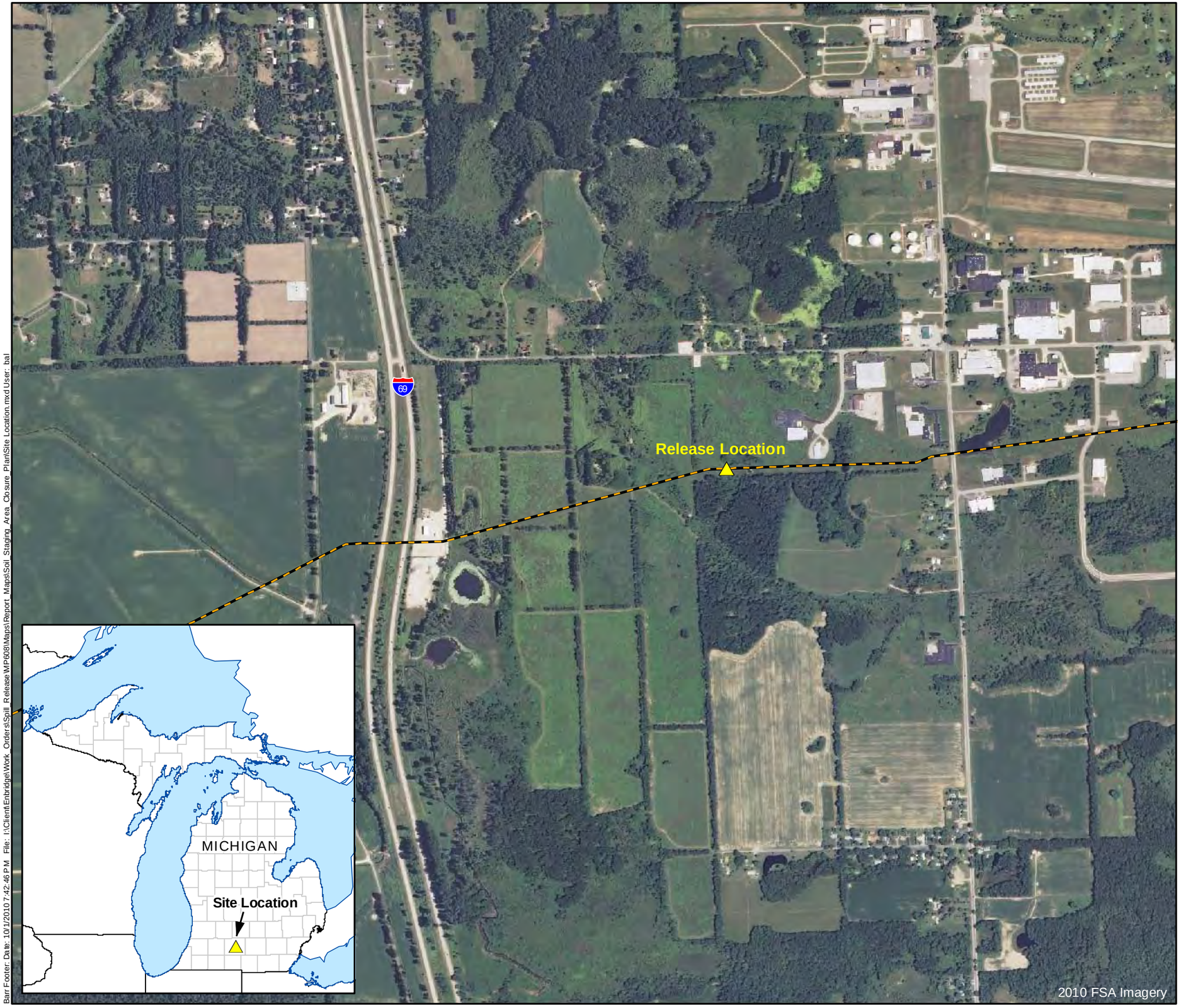

Release Location

Line 6B

N

Feet

500 0 500 1,000 1,500 2,000

Figure 1

SITE LOCATION
Enbridge Line 6B MP608
Pipeline Release
Marshall, Michigan

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Barr Footer: Date: 10/1/2010 7:42:46 PM File: I:\Client\Enbridge\Work_Orders\Spill_Release\MP608\Maps\Report_Maps\Soil_Staging_Area_Closure_PlanSite Location.mxd User: bal

△ Release Location

Line 6B

Soil Staging or Decon Area

City Boundary

N

Feet

1,000 0 1,000 2,000 3,000 4,000

Figure 2
LOCATIONS OF SOIL STAGING AND DECON AREAS
Enbridge Line 6B MP608
Pipeline Release
Marshall, Michigan

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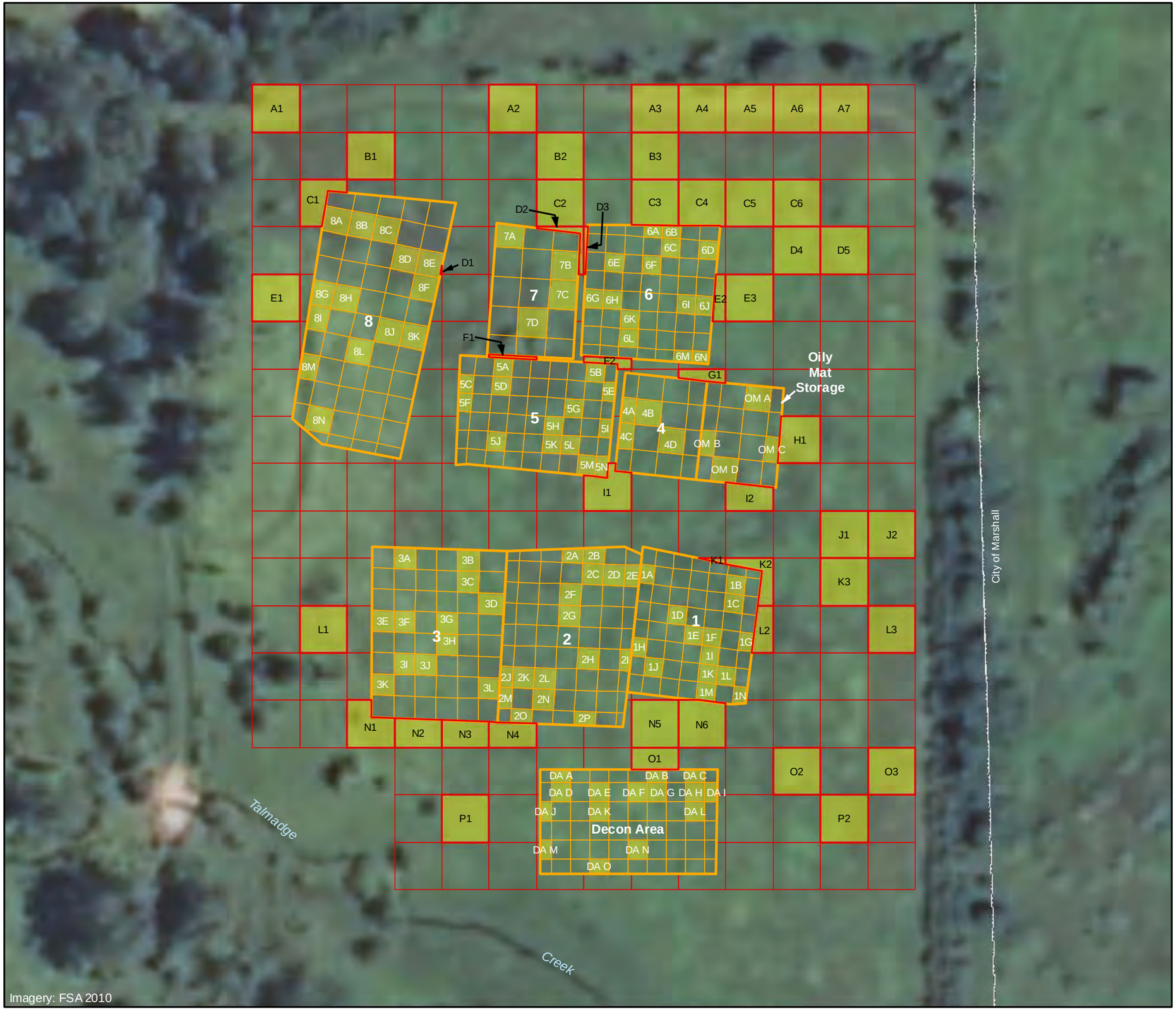

Soil Staging Area
Staging Area Quadrant
SSAA Cell
Staging Area Quadrant (25% Sample)
SSAA Cell (25% Sample)
City Boundary

N

Feet
40 0 40 80 120 160

Figure 3

SSAA SAMPLE LOCATIONS
Enbridge Line 6B MP608
Pipeline Release
Marshall, Michigan

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Soil Staging Area
Staging Area Quadrant
Staging Area Quadrant (25% Sample)
Yard 4 Cell
Yard 4 Cells (25% Sample)

N

Feet
25 0 25 50 75 100

Figure 4

YARD 4 SAMPLE LOCATIONS
Enbridge Line 6B MP608
Pipeline Release
Marshall, Michigan

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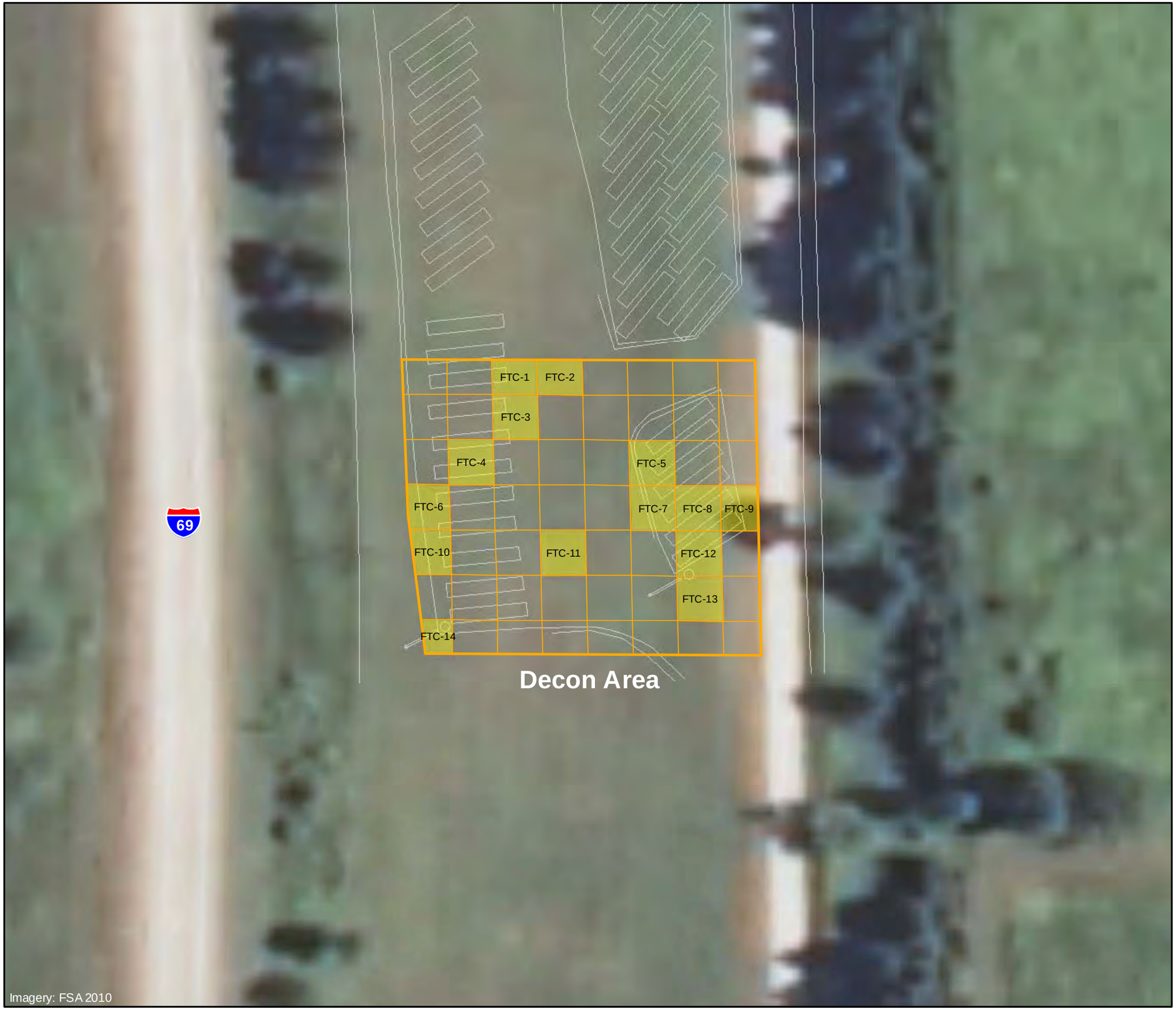

Soil Staging Area

Staging Area Quadrant

Staging Area Quadrant (25% Sample)

N

Feet

25 0 25 50 75 100

Figure 5

FRAC TANK CITY DECON AREA
SAMPLE LOCATIONS
Enbridge Line 6B MP608
Pipeline Release
Marshall, Michigan

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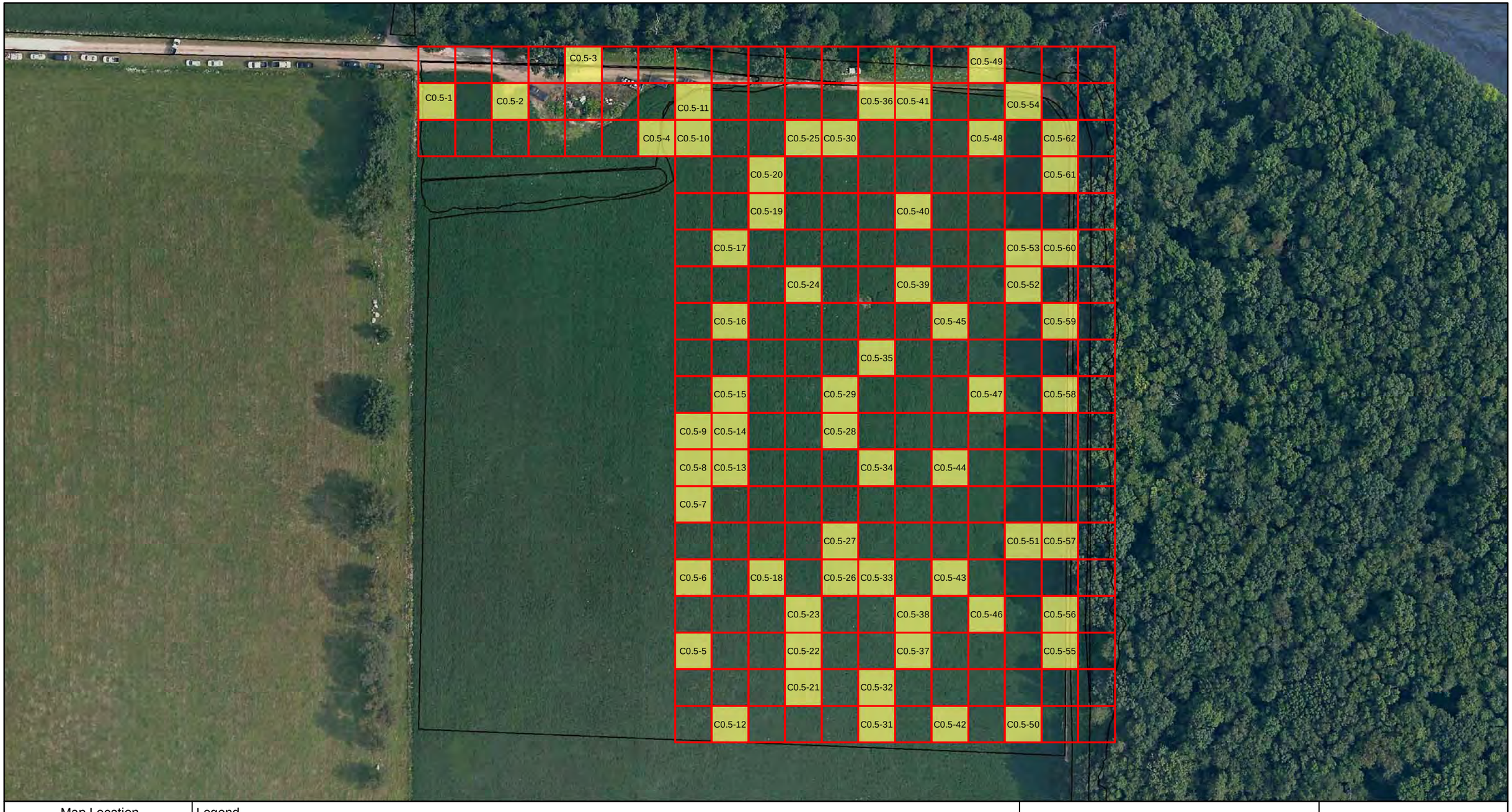
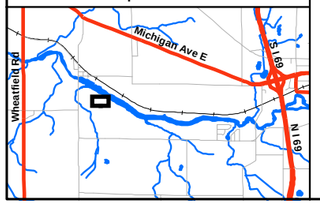


Map Location



Legend

- C0.5 Quadrant
- C0.5 Quadrant (25% Sample)
- Feature Outline

0 50 100 200

Scale in Feet
1 inch = 100 feet

N

Figure 6

CO.5 DECON AREA
SAMPLE LOCATIONS
Enbridge Line 6B MP 608
Pipeline Release
Marshall, MI

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Drawn:	BS	12/01/2010
Approved:	DL	12/01/2010
Project #:	60162778	

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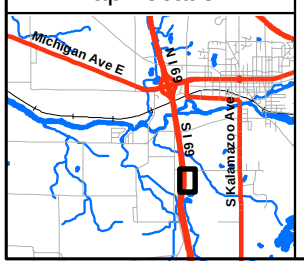
Map Location



Legend

Frac Tank City Quadrant (25% Sample)

Frac Tank City Quadrant

0 100 200 400 Feet

N

Figure 7

FTC SAMPLE LOCATIONS
Enbridge Line 6B MP 608
Pipeline Release
Marshall, MI

ENBRIDGE

Drawn:	BS	12/21/2010
Approved:	DL	12/21/2010
Project #:	60162778	

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Map Location

Legend

- Dredging Area Quadrant (25% Sample)
- Dredging Area Quadrant
- Feature Outline

0 50 100 200

Scale in Feet

N

Figure 8

SUBMERGED OIL DREDGING
WASTEWATER TREATMENT &
GEOTUBE AREA SAMPLE LOCATIONS
Enbridge Line 6B MP 608
Pipeline Release
Marshall, MI

ENBRIDGE

Drawn:	BS	12/21/2010
Approved:	DL	12/21/2010
Project #:	60162778	

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Attachment A

Attachment A
Line 6B; Marshall, MI
List of River Access and Other Work Sites

River Access Site Name	Milepost	Access Point	Tract	Estimated Number of Samples	Comment Nov. 29 Update
Division C					
C0.0 Parking	2.2	C0.0	KN-C-085	11	
C0.0	2.25	C0.0	TC-B-078		
C0.0	2.25	C0.0	TC-B-078.001		
Gildea	2.75	117 FRIENDSHIP LANE	KS-C-093	0	Boom tie-off only
Island Access	4.25		multiple	0	
C0.3	4.75	C0.3	KS-C-115	TBD	Site still in use
C0.4	5.1	12420 C Dr N	KN-C-094	4	
C0.5 Boom	5.4	C0.5	River	0	Is not a work site
C0.5 Boat Ramp	5.4	C0.5	KS-C-117	6	
C0.5 Decon	5.4	C0.5	KS-C-117	62	Maybe used in 2011
C0.5 Dredge Spoil	5.5	C0.5	KS-C-117	40	Gridded sampling
C1 Consumers Energy	5.8	C1	KS-C-123	19	
C1 Ceresco Power	5.8	C1	KS-C-124		
C1 Fowler access	5.8	C1	KN-C-110		
C1 Parking	5.8	C1	KS-C-127		
C1 Boom	6	C1	KN-C-113		
C1 Access	6	C1	KN-C-113		
C1 Descending Rt Bank	6.25	C1	KN-C-116		
C1.x Access	6.6	C1	KN-C-121	0	Site not used
C Driver Access	7.3	13858 11 Mile Road	KS-C131	0	Boom tie-off only
C1.5 Access	7.5	C1.5	KS-C-135	TBD	
C1.5 Parking	7.5	C1.5	KS-C-134		
C1.5 Ramp	7.5	C1.5	KS-C-132		
C2 Access	9.15	C2	KN-C-125	2	
C3 Access	9.4	C3	KN-C-125	8	
C3 Access	9.4	C3	KN-C127/128		
C3.2 Parking	9.8	C3.2	KS-C-156	TBD	
C3.2 Access/Ramp	9.85	C3.2	KS-C-156		
C3.7 Access	11.25	C3.7	KS-C-166	23	

US EPA ARCHIVE DOCUMENT

Attachment A
Line 6B; Marshall, MI
List of River Access and Other Work Sites

River Access Site Name	Milepost	Access Point	Tract	Estimated Number of Samples	Comment Nov. 29 Update
Helispot H3.8	11.5	H3.8	unknown	0	
C3.x	11.8	2224 E Columbia Ave	KN-C-134	0	Site not used
C3.9	12.2	C3.9	KN-C-138	12	
C4	12.55	848 S Raymond Rd	KS-C-176	0	
C4	12.55	upstream of C-176	KS-C-174		
C4.8 RIver	13.25	C4.8	KS-C-182	0	
C4.8 Parking	13.25	C4.8	10-620-014-00		
C4.85	14	C4.85	KS-C-195	0	
C5	14.8	C5	KN-C-165/169	18	
C6	15.4	C6	KS-C-283	1	
C-vandenbrink	16.5	258 W Hamblin Ave	KS-C-304	0	Site not used
C-coppock	16.6	292 W Hamblin Ave	KS-C-305	0	Site not used
Division D					
D0.5	17.6	842 Jackson St W	city property	2	
D1 Sediment Curtain	18	898 Jackson St W	city property	9	
D2 Boat Ramp	18.7	1364 Jackson St W	city property	14	
D2.5 Access point	18.9	1502 Jackson St W	city property	25	
D3 Boat Ramp	19.4	1724 Jackson St W	city property	20	
D5 Boom Access	21.25	516 Custer Dr	road ROW	2	
D5NW (C&M Const.)	21.25			TBD	
Division E					
E0.1 Containment Access	24.6	1936 River Rd W	railroad ROW	0	CNL. Boom tie-off
E0.5 Gabion Baskets	26.4	E0.5	river access	TBD	
E0.5-2	26.8	E0.5	KN-E-344	0	Site not used
E0.5 Boom	26.9	E0.5	KN-E-347	19	
E0.5 Decon	26.9	E0.5	KN-E-347		
E0.5 Site Access	26.9	E0.5	KN-E-347		
E0.6 Containment access	28.2	15038 River Rd	KS-E-411	0	CNL
E0.8 Containment access	28.8	436 Michigan 96	road ROW	0	CNL
E1 Boom Access	29.4	Church St	KN-E-378	7	
E2 Boat Ramp	30	Fort Custer Rec Area	KS-E-431	16	
E2.3 Containment access	34.35	Climax Drive	KS-E-462	0	Boom tie-off only

US EPA ARCHIVE DOCUMENT

Attachment A
Line 6B; Marshall, MI
List of River Access and Other Work Sites

River Access Site Name	Milepost	Access Point	Tract	Estimated Number of Samples	Comment Nov. 29 Update
E2.4 Containment access	34.55	11572 E Michigan Ave	KN-E-396	0	Boom tie-off only
E3 Boat Ramp/Boom	35.2	186 E Michigan Ave	KN-E-406	9	
E3.5 Containment access	36.55	S 35th St	road ROW	0	
E4 Ramp/Boom access	37.75	9424 E Michigan Ave	KN-E-424	19	
E4.5 Ramp	38.5	Plaza Avenue	unknown	TBD	
E5 Dam access	39.85	Consumers Power Dr	unknown	TBD	

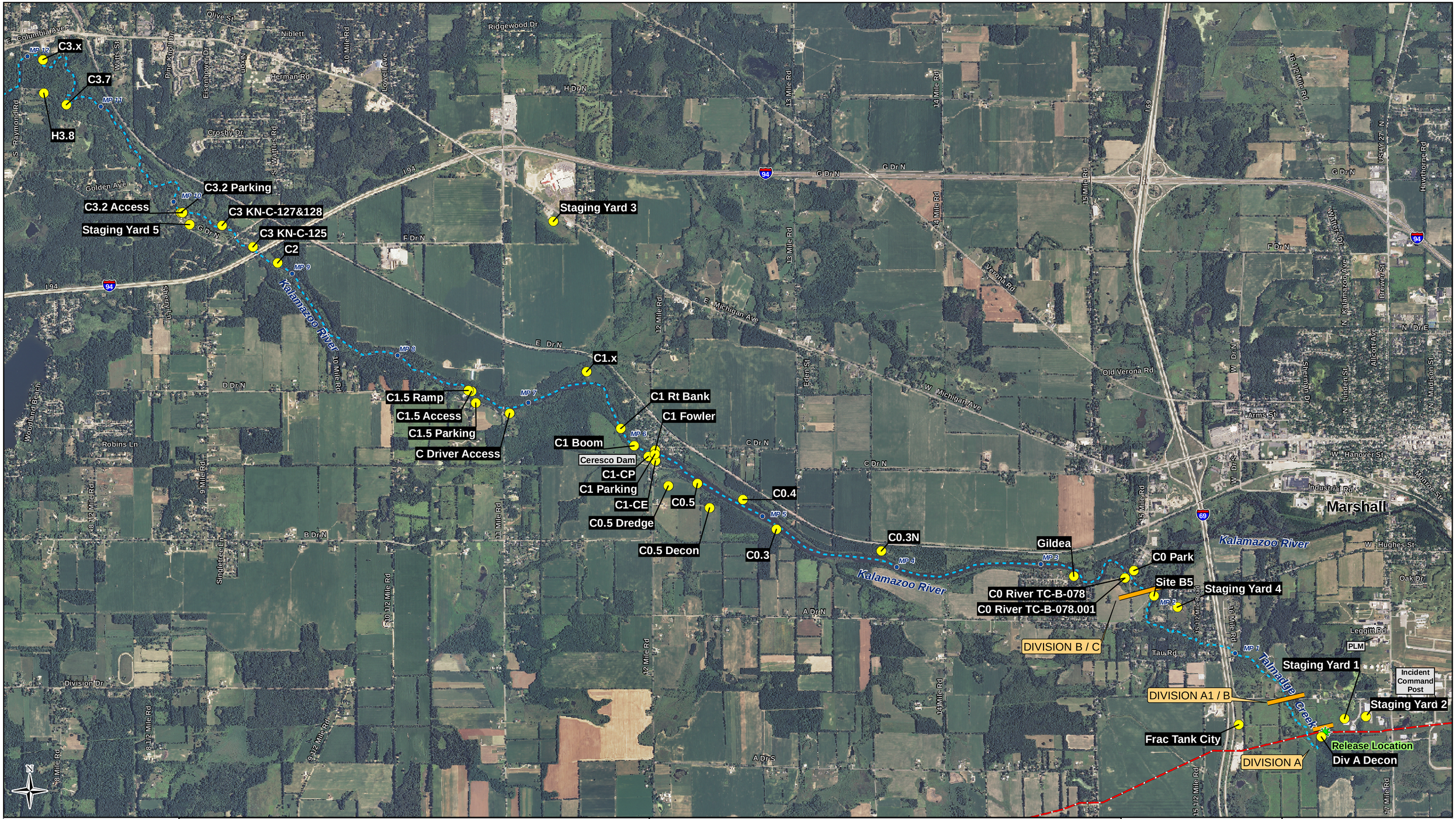
Other Work Site Name	Milepost	Access Point	Tract	Estimated Number of Samples	Comment Nov. 29 Update
Staging Yard 1	NA	NA	NA	0	For storage only
Staging Yard 2	NA	NA	NA	TBD	In use by Youngs
Staging Yard 3	NA	NA	NA	6	
Staging Yard 5	NA	C3.2	NA	TBD	To be used in 2011
B5	NA	NA	NA	0	Decon area – Enbridge Owned

TBD = to be determined.
CNL = could not locate.
The number of samples listed in the right-most column are approximate and may change as more information comes available.

US EPA ARCHIVE DOCUMENT

US EPA ARCHIVE DOCUMENT

Attachment B



US EPA ARCHIVE DOCUMENT

Natural Resources Engineering Co.
715-395-5680

Legend

- Enbridge Pipeline
- River Centerline
- Division Boundary
- County Boundary
- Temporary Facility
- River Mile Point
- Release Location

Enbridge Energy, Limited Partnership

Kalamazoo River / Enbridge Spill Recovery

Temporary Facility Restoration and Demobilization Plan

Map 1 of 3

0 0.25 0.5 0.75 1 Miles

DATE ISSUED:	Dec. 16, 2010
DATE REVISED:	
SCALE:	1:19,000
DRAWN BY:	JAI/NMS
SERIES:	Temp. Facility R & D

ENBRIDGE™

US EPA ARCHIVE DOCUMENT

DIVISION D / E

DIVISION C / D

E0.1

E0.5

E0.5 Gabion

E0.5-2

E0.6

D5

C&M Constr.

D3

D2.5

D2

D1

D0.5

Coppock (U)

Vanden (U)

C6

C5

15.0

C3.9

C4 KS-C-174

C4 KS-C-176

C4.85

C4.8 River

C4.8 Parking

MP 13

MP 14

MP 15

MP 16

MP 17

MP 18

MP 19

MP 20

MP 21

MP 22

MP 23

MP 24

MP 25

MP 26

MP 27

MP 28

Kalamazoo River

Battle Creek River

Fort Custer Park

Battle Creek

Kalamazoo County

Calhoun County

Michigan Ave W

Markham St

Bowne Rd

Woodside Dr

Taylor Ave

Iowa St

Laura Ln

Morgan Rd

Morgan Rd E

Norave Dr

Purdy Dr

Yawger Rd

Arcadia Blvd

Milton Ave

Harrier Ln

Alton Ave

Ewald St

W Goodale Ave

E Roosevelt Ave

Hopkins St

Curtis Ave

Laurel Dr

Roseneath Ave

Parkway Dr

E Northside Dr

W Emmett St

E Emmett St

Garfield Ave

Van Buren St W

Jackson St W

Bishop Dr

Harmonia Rd

Dugan Rd

Wayne Rd

29th St

STHY 96

Clark Rd N

River Rd W

Fort Custer Dr

E Augusta Dr

Ann Ln

N 46th St

N 48th St

Armstrong Rd

Longman Rd

Range Rd

Reese Rd

Territorial Rd

Hill Brady Rd

Mott Rd

Sugar Loaf Rd

Sand Trail Rd

Stevens Rd

Skyline Dr

Stone Jug Rd

Kings Ct

Pepperidge Ln

George Pl

Chapel Hill Dr

Golden Ave

Bignell St

6 1/2 Mile Rd

Silver St

Cliff St

Post Ave

1st St

4th St

Porter St

Bell St

James St

Elm St

Chestnut St

Union St

Maple St

Kelly Ave

Mill Rd

Capital Ave NE

Briarsfarm Ln

E AVE N

Mike Humes Way

Elder St

Baker Ct

Spring St

Richfield Ave

Eldred St

Burr St

Cognac St W

Orleans Ave

W Columbia Ave

E Columbia Ave

W Territorial Rd

S Airport Rd

AVE A

AVE C

Upton Ave

5th Ave

Arbor St

Foster Ave

Terrace Ave

Riverside Dr

Trail St

Taft St

Jefferson St

Ellis Rd

Briarcliff Ln

Army St

W Pickman Rd

Hill Rd

Armstrong Rd

Longman Rd

Skyline Dr

Helmer Rd N

Helmer Rd S

N 46th St

N 48th St

N 30th St

N 28th St

N 25th St

N 24th St

S 24th St

S 25th St

S 28th St

S 30th St

S 20th St

N 20th St

24th St N

Ft LeJeune Dr

Gross St

Oak St

Custer Dr

Stilson Blvd

N Gardner Ave

Collier Ave

Oriole Dr

Ulrichs Dr N

N Mason Ave

Siegel St

Paul Ave

Wolfe Dr

Reiling Dr

Lakeway Dr

Mauhascon Rd

Pinetree Ln

Laredo Ave

Hibbard St

STHY 37

Barney Blvd

Riggsmoor St

Stringham Rd

Limit St

N Washington Ave

Reiner Ave

North Ave

Ardmoor Dr

Grant Ave

Angell St

Marshall St

N Hamblin Ave

Grove St

Territorial Rd

Hill Brady Rd

Longman Rd

Armstrong Rd

Kalamazoo County

Calhoun County

Sugar Loaf Rd

Sand Trail Rd

Stevens Rd

Skyline Dr

Stone Jug Rd

Kings Ct

Pepperidge Ln

George Pl

Chapel Hill Dr

Golden Ave

Bignell St

6 1/2 Mile Rd

Silver St

Cliff St

Post Ave

1st St

4th St

Porter St

Bell St

James St

Elm St

Chestnut St

Union St

Maple St

Kelly Ave

Mill Rd

Capital Ave NE

Briarsfarm Ln

E AVE N

Mike Humes Way

Elder St

Baker Ct

Spring St

Richfield Ave

Eldred St

Burr St

Cognac St W

Orleans Ave

W Columbia Ave

E Columbia Ave

W Territorial Rd

S Airport Rd

AVE A

AVE C

Upton Ave

5th Ave

Arbor St

Foster Ave

Terrace Ave

Riverside Dr

Trail St

Taft St

Jefferson St

Ellis Rd

Briarcliff Ln

Army St

W Pickman Rd

Hill Rd

Armstrong Rd

Longman Rd

Skyline Dr

Helmer Rd N

Helmer Rd S

N 46th St

N 48th St

N 30th St

N 28th St

N 25th St

N 24th St

S 24th St

S 25th St

S 28th St

S 30th St

S 20th St

N 20th St

24th St N

Ft LeJeune Dr

Gross St

Oak St

Custer Dr

Stilson Blvd

N Gardner Ave

Collier Ave

Oriole Dr

Ulrichs Dr N

N Mason Ave

Siegel St

Paul Ave

Wolfe Dr

Reiling Dr

Lakeway Dr

Mauhascon Rd

Pinetree Ln

Laredo Ave

Hibbard St

STHY 37

Barney Blvd

Riggsmoor St

Stringham Rd

Limit St

N Washington Ave

Reiner Ave

North Ave

Ardmoor Dr

Grant Ave

Angell St

Marshall St

N Hamblin Ave

Grove St

Natural Resources Engineering Co.
715-395-5680

Legend

- Enbridge Pipeline
- River Centerline
- Division Boundary
- County Boundary
- Temporary Facility
- River Mile Point
- Release Location

Enbridge Energy, Limited Partnership

Kalamazoo River / Enbridge Spill Recovery

Temporary Facility Restoration and Demobilization Plan

Map 2 of 3

0 0.25 0.5 0.75 1 Miles

DATE ISSUED:	Dec. 16, 2010
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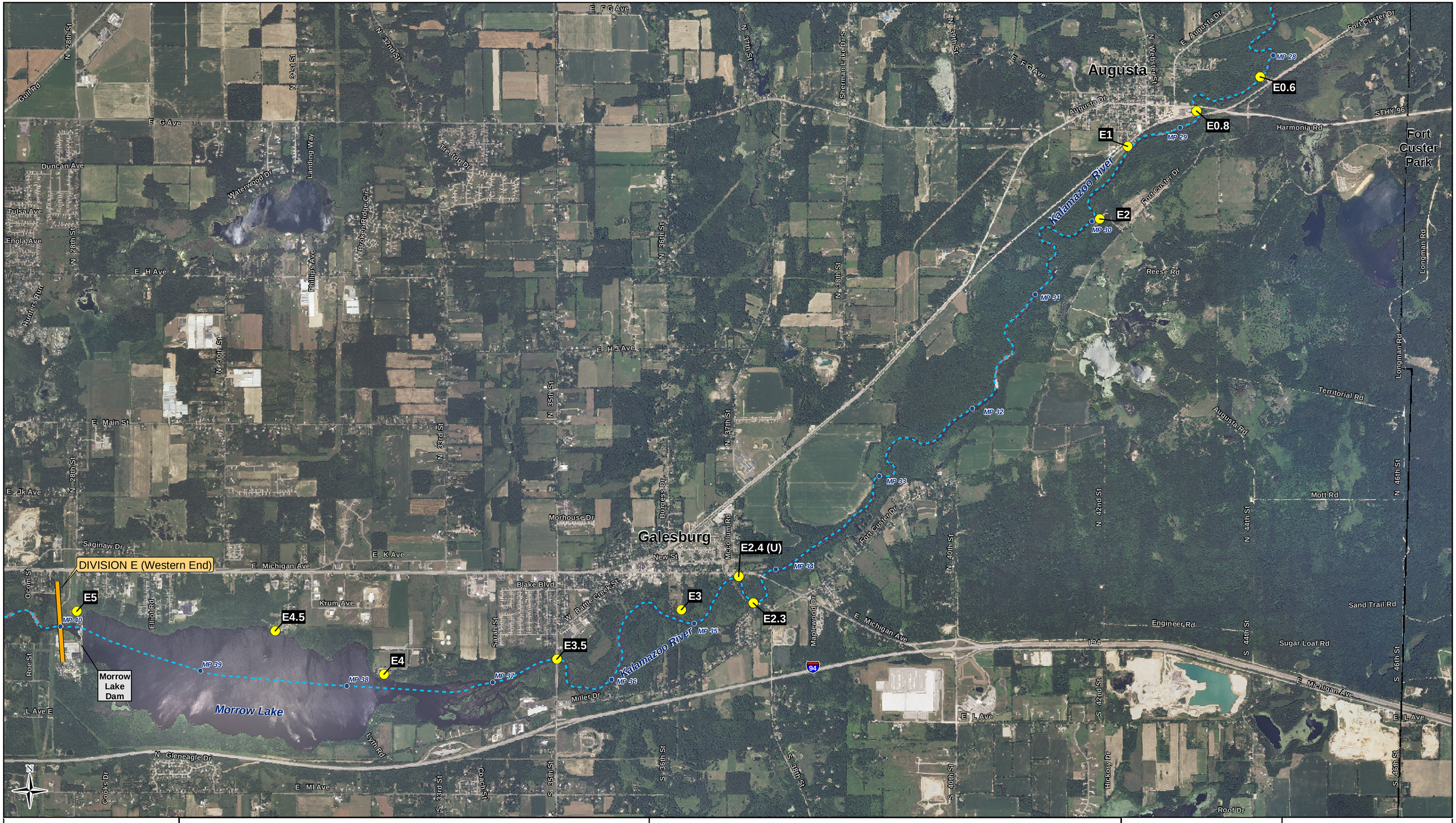
US EPA ARCHIVE DOCUMENT



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- Temporary Facility
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Natural Resources Engineering Co.
715-395-5680

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Kalamazoo River / Enbridge Spill Recovery

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Map 3 of 3

0 0.25 0.5 0.75 1 Miles

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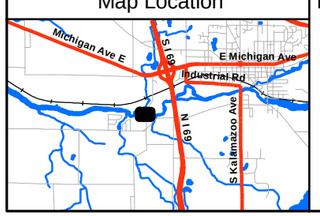
US EPA ARCHIVE DOCUMENT

Map Location



Legend

- Quarter Mile Grid Segments
- Feature Outline
- Parcels
- AST
- Decon Area
- Chemical Storage
- Containment Area
- Equipment Storage
- Frac Tank
- Fuel Area
- Light Generator
- Roll Off
- Storage Area
- Vac Truck

0 50 100 200

Scale in Feet

N

Enbridge Energy

Site: C0

ENBRIDGE AECOM

Drawn:	EC	1/5/2011
Approved:	EC	1/5/2011
Project #:	60162778	

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River Aerial Photographed 9/27/10 Overlaid on an August 2010 Background Aerial

US EPA ARCHIVE DOCUMENT

Map Location

Legend

- Quarter Mile Grid Segments
- Feature Outline
- Parcels
- AST
- Decon Area
- Chemical Storage
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- Equipment Storage
- Frac Tank
- Fuel Area
- Light Generator
- Roll Off
- Storage Area
- Vac Truck

0 50 100 200

Scale in Feet

N

Enbridge Energy

Site: C0

ENBRIDGE AECOM

Drawn:	EC	1/5/2011
Approved:	EC	1/5/2011
Project #:	60162778	

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US EPA ARCHIVE DOCUMENT

16-330-003-00
KN-C-088

16-340-078-00
KN-C-087

2.50

16-468-102-00
KS-C-099

16-468-104-00
KS-C-098

16-468-105-00
KS-C-097

16-468-106-00
KS-C-096

16-468-107-00
KS-C-095

16-468-108-00
KS-C-094

16-468-109-00
KS-C-093

Outlot Area A
KS-C-091

2.75

16-468-110-00
KS-C-093.OUT001

16-463-003-00
KS-C-092

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KS-C-090

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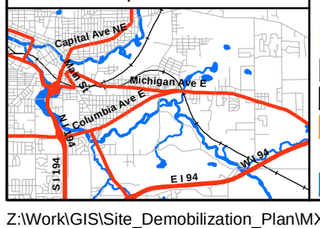
KS-C-087

16-340-084-00
TC-B-078

Map Location



Legend

- Quarter Mile Grid Segments
- Feature Outline
- Parcels
- AST
- Decon Area
- Chemical Storage
- Containment Area
- Equipment Storage
- Frac Tank
- Fuel Area
- Light Generator
- Roll Off
- Storage Area
- Vac Truck

0 75 150 300

Scale in Feet

N

Enbridge Energy

Site: Gildea

ENBRIDGE AECOM

Drawn:	EC	1/5/2011
Approved:	EC	1/5/2011
Project #:	60162778	

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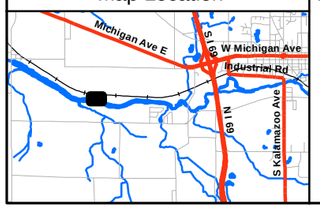
US EPA ARCHIVE DOCUMENT

Map Location



Legend

- Quarter Mile Grid Segments
- Feature Outline
- Parcels
- AST
- Decon Area
- Chemical Storage
- Containment Area
- Equipment Storage
- Frac Tank
- Fuel Area
- Light Generator
- Roll Off
- Storage Area
- Vac Truck

0 50 100 200

Scale in Feet

N

Enbridge Energy

Site: Island Access

ENBRIDGE AECOM

Drawn:	EC	1/5/2011
Approved:	EC	1/5/2011
Project #:	60162778	

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US EPA ARCHIVE DOCUMENT

16-300-024-00
KS-C-117

16-301-003-00
KS-C-116

16-301-009-00
KS-C-115

16-290-024-00
KN-C-092

16-320-012-00
KN-C-091

C0.3

4.75

4.50

4.25

C0.5

16-310-003-00
KS-C-114

16-320-018-00
KS-C-113

16-320-024-02
KS-C-112

Map Location

Legend

- Quarter Mile Grid Segments
- Feature Outline
- Parcels
- AST
- Decon Area
- Chemical Storage
- Containment Area
- Equipment Storage
- Frac Tank
- Fuel Area
- Light Generator
- Roll Off
- Storage Area
- Vac Truck

0 300 600 1,200

Scale in Feet

N

Enbridge Energy

Site: C-0.3

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Drawn:	EC	1/5/2011
Approved:	EC	1/5/2011
Project #:	60162778	

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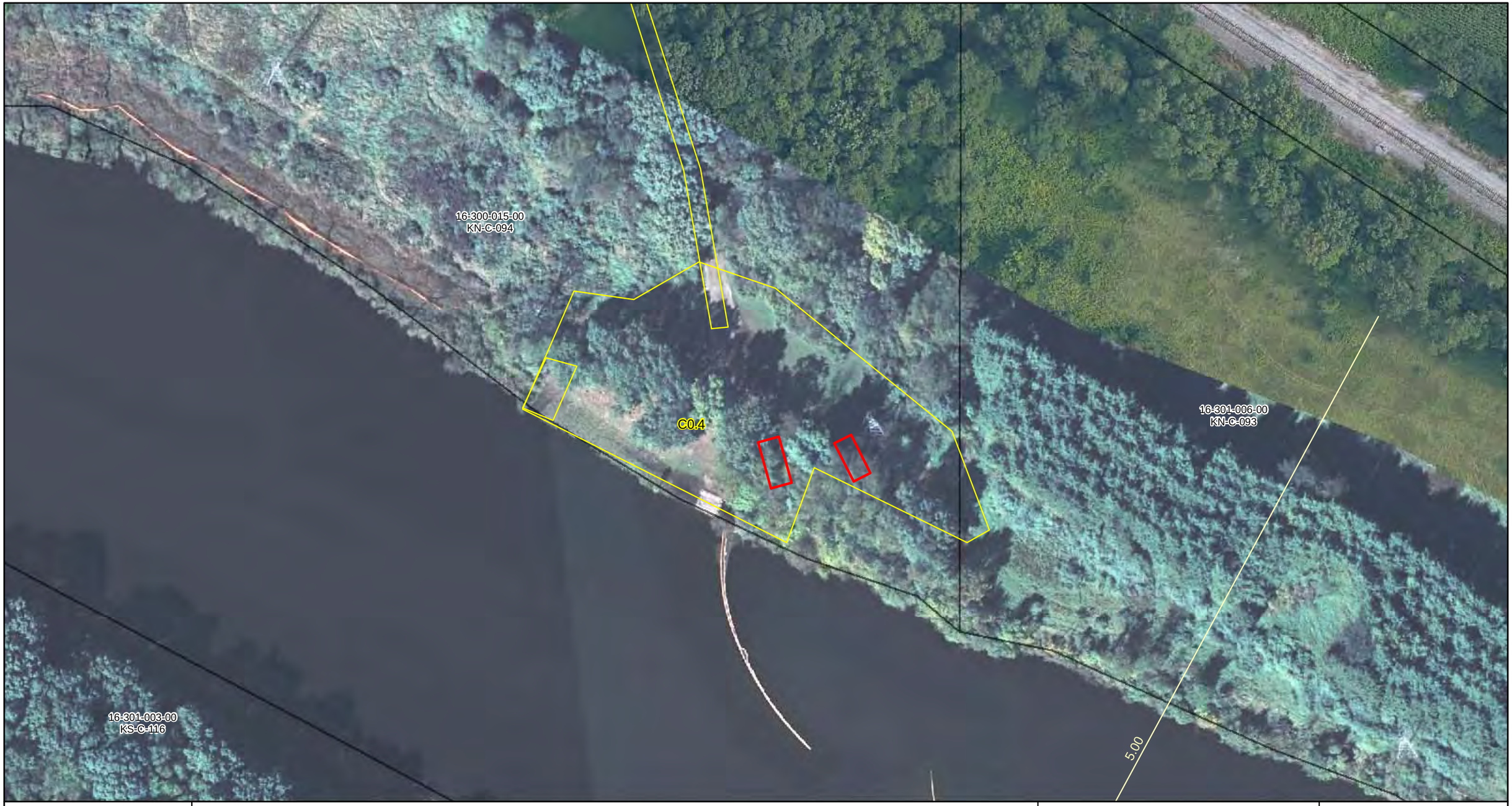
US EPA ARCHIVE DOCUMENT



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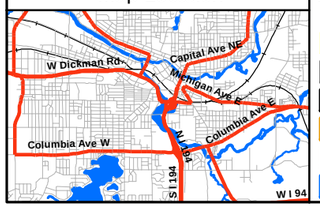

Legend

- Quarter Mile Grid Segments
- Feature Outline
- Parcels
- AST
- Decon Area
- Chemical Storage
- Containment Area
- Equipment Storage
- Frac Tank
- Fuel Area
- Light Generator
- Roll Off
- Storage Area
- Vac Truck

0 75 150 300

Scale in Feet

N

Enbridge Energy

Site: C0.4

ENBRIDGE AECOM

Drawn:	EC	1/5/2011
Approved:	EC	1/5/2011
Project #:	60162778	

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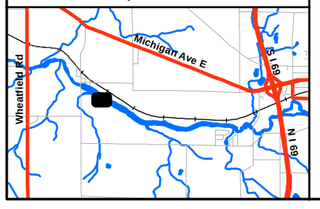
River Aerial Photographed 9/27/10 Overlaid 0n an August 2010 Background Aerial

US EPA ARCHIVE DOCUMENT

Map Location



Legend

- Quarter Mile Grid Segments
- Feature Outline
- Parcels
- AST
- Decon Area
- Chemical Storage
- Containment Area
- Equipment Storage
- Frac Tank
- Fuel Area
- Light Generator
- Roll Off
- Storage Area
- Vac Truck

0 50 100 200

Scale in Feet

N

Enbridge Energy

Site: C0.5

ENBRIDGE AECOM

Drawn:	EC	1/5/2011
Approved:	BS	1/5/2011
Project #:	60162778	

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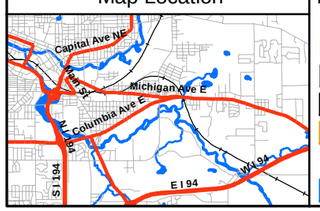
River Aerial Photographed 9/ 27/10 Overlaid on an August 2010 Background Aerial

US EPA ARCHIVE DOCUMENT

Map Location



Legend

- Quarter Mile Grid Segments
- Feature Outline
- Parcels
- AST
- Decon Area
- Chemical Storage
- Containment Area
- Equipment Storage
- Frac Tank
- Fuel Area
- Light Generator
- Roll Off
- Storage Area
- Vac Truck

0 75 150 300

Scale in Feet

N

Enbridge Energy

Site: C0.5

ENBRIDGE AECOM

Drawn:	EC	1/5/2011
Approved:	EC	1/5/2011
Project #:	60162778	

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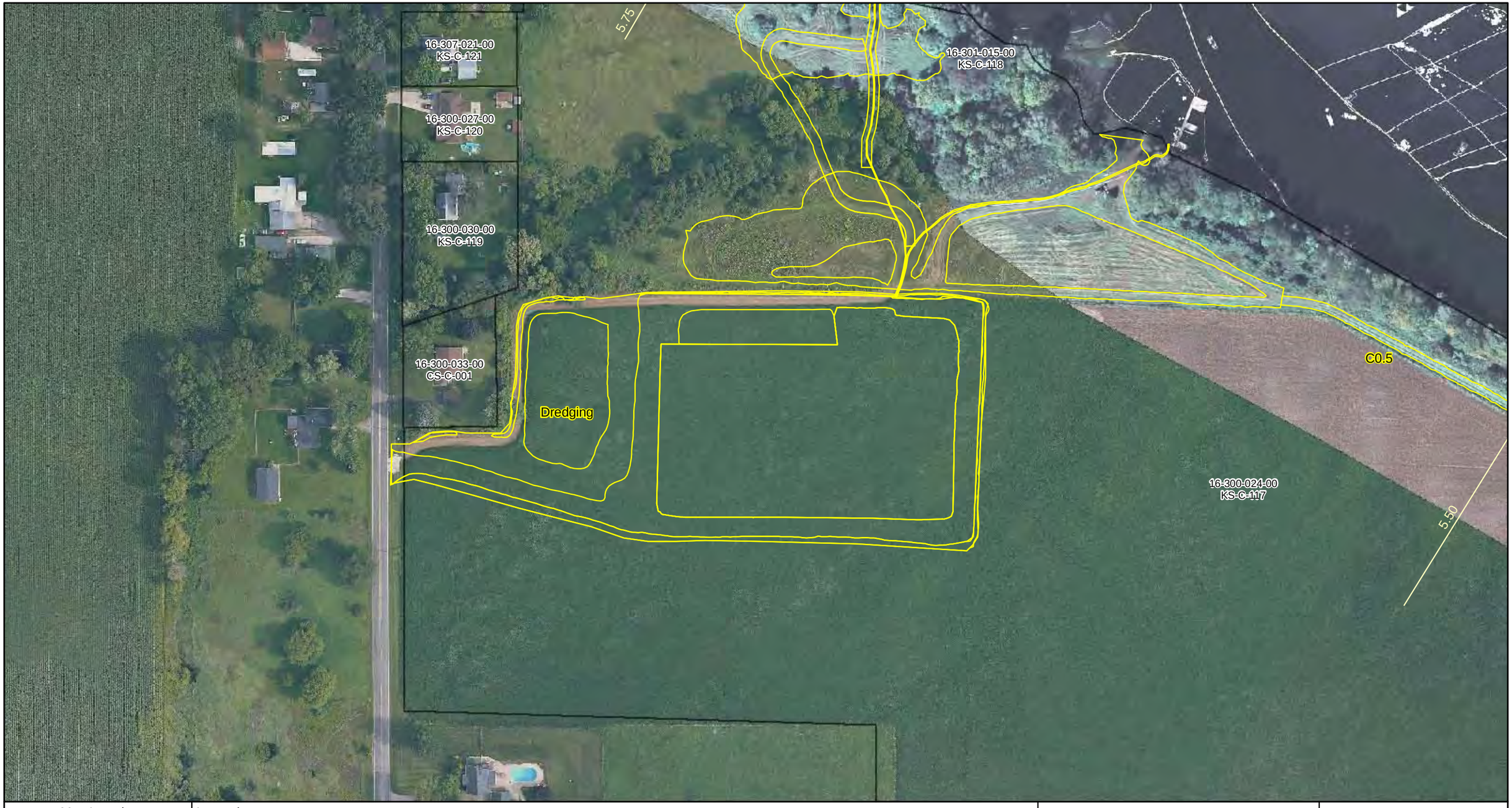
River Aerial Photographed 9/27/10 Overlaid on an August 2010 Background Aerial

US EPA ARCHIVE DOCUMENT



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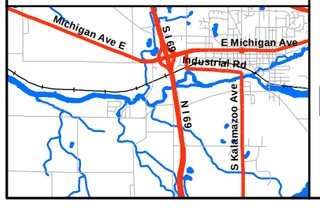


Legend

- Quarter Mile Grid Segments
- Feature Outline
- Parcels

0 150 300 600

Scale in Feet

N

Enbridge Energy

Site: C-0.5 Dredging Area

ENBRIDGE AECOM

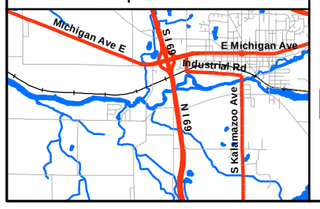
Drawn:	EC	1/5/2011
Approved:	EC	1/5/2011
Project #:	60162778	

Z:\Work\GIS\Site_Demobilization_Plan\MXD\2011_01_05\SitePlan_C_0_5_DredgingArea_010511.mxd

River Aerial Photographed 9/27/10 Overlaid on an August 2010 Background Aerial

US EPA ARCHIVE DOCUMENT

Map Location



Legend

- Quarter Mile Grid Segments
- Feature Outline
- Parcels

0 75 150 300

Scale in Feet

N

Enbridge Energy

Site: C1

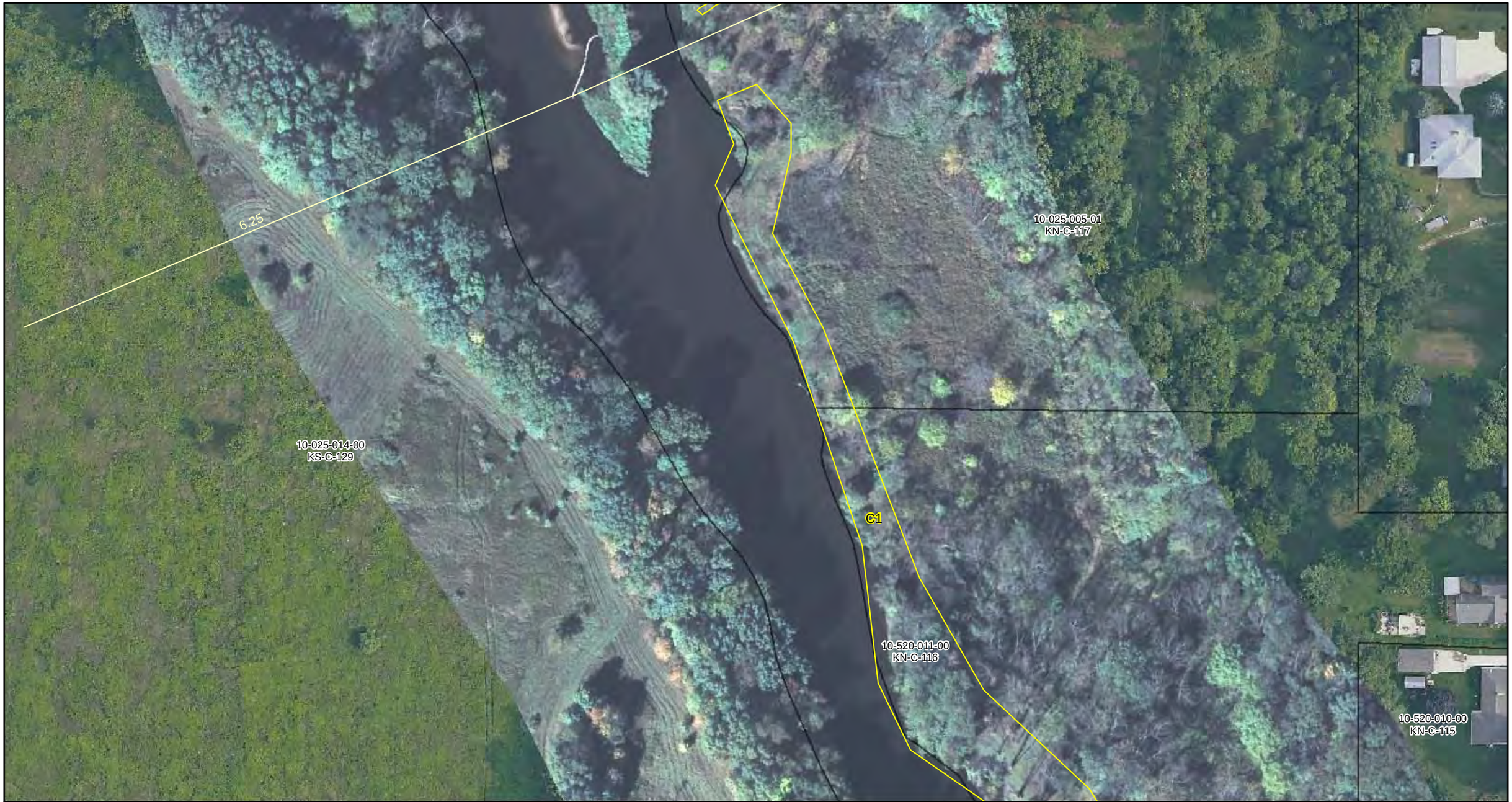
ENBRIDGE AECOM

Drawn:	EC	1/5/2011
Approved:	EC	1/5/2011
Project #:	60162778	

Z:\Work\GIS\Site_Demobilization_Plan\MXD\2011_01_05\SitePlan_C1v1_010511.mxd

River Aerial Photographed 9/27/10 Overlaid on an August 2010 Background Aerial

US EPA ARCHIVE DOCUMENT



Map Location

Legend

- Quarter Mile Grid Segments
- Feature Outline
- Parcels

0 75 150 300

Scale in Feet

N

Enbridge Energy

Site: C1

ENBRIDGE AECOM

Drawn:	EC	1/5/2011
Approved:	EC	1/5/2011
Project #:	60162778	

Z:\Work\GIS\Site_Demobilization_Plan\MXD\2011_01_05\SitePlan_C1v2_010511.mxd

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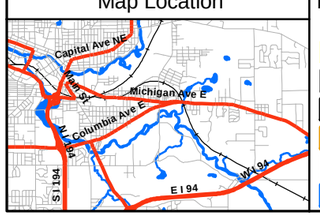
US EPA ARCHIVE DOCUMENT

Map Location



Legend

- Quarter Mile Grid Segments
- Feature Outline
- Parcels
- AST
- Decon Area
- Chemical Storage
- Containment Area
- Equipment Storage
- Frac Tank
- Fuel Area
- Light Generator
- Roll Off
- Storage Area
- Vac Truck

0 37.5 75 150

Scale in Feet

N

Enbridge Energy

Site: C1

ENBRIDGE AECOM

Drawn:	EC	1/5/2011
Approved:	EC	1/5/2011
Project #:	60162778	

Z:\Work\GIS\Site_Demobilization_Plan\MXD\2011_01_05\SitePlan_C1v3_010511.mxd

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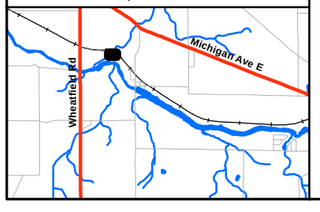
US EPA ARCHIVE DOCUMENT

Map Location



Legend

- Quarter Mile Grid Segments
- Feature Outline
- Parcels
- AST
- Decon Area
- Chemical Storage
- Containment Area
- Equipment Storage
- Frac Tank
- Fuel Area
- Light Generator
- Roll Off
- Storage Area
- Vac Truck

0 40 80 160

Scale in Feet

N

Enbridge Energy

Site: C-1.X

ENBRIDGE AECOM

Drawn:	EC	1/5/2011
Approved:	EC	1/5/2011
Project #:	60162778	

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US EPA ARCHIVE DOCUMENT

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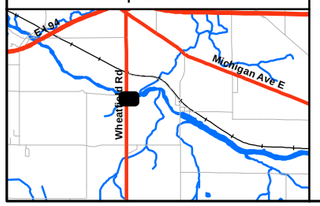

Legend

- Quarter Mile Grid Segments
- Feature Outline
- Parcels
- AST
- Decon Area
- Chemical Storage
- Containment Area
- Equipment Storage
- Frac Tank
- Fuel Area
- Light Generator
- Roll Off
- Storage Area
- Vac Truck

0 60 120 240

Scale in Feet

N

Enbridge Energy

Site: C Driver Access

ENBRIDGE AECOM

Drawn:	EC	1/5/2011
Approved:	EC	1/5/2011
Project #:	60162778	

Z:\Work\GIS\Site_Demobilization_Plan\MXD\2011_01_05\SitePlan_C_DriverAccess_010511.mxd

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US EPA ARCHIVE DOCUMENT

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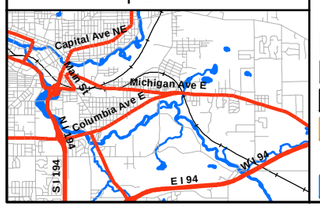

Legend

- Quarter Mile Grid Segments
- Feature Outline
- Parcels
- AST
- Decon Area
- Chemical Storage
- Containment Area
- Equipment Storage
- Frac Tank
- Fuel Area
- Light Generator
- Roll Off
- Storage Area
- Vac Truck

0 37.5 75 150

Scale in Feet

N

Enbridge Energy

Site: C1.5

ENBRIDGE AECOM

Drawn:	EC	1/5/2011
Approved:	EC	1/5/2011
Project #:	60162778	

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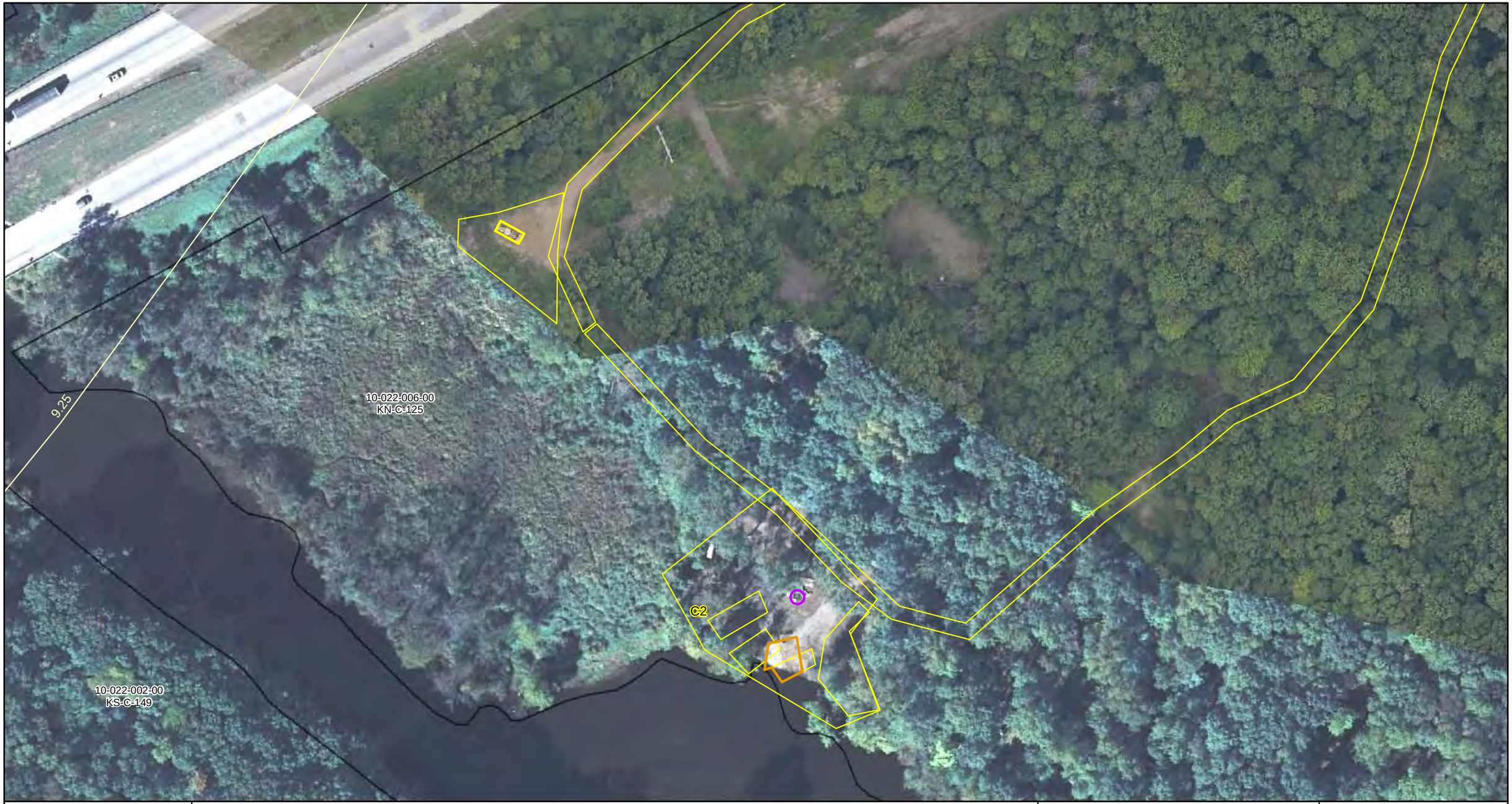
US EPA ARCHIVE DOCUMENT



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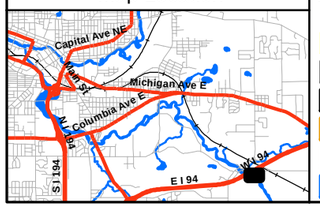


Legend

- Quarter Mile Grid Segments
- Feature Outline
- Parcels
- AST
- Decon Area
- Chemical Storage
- Containment Area
- Equipment Storage
- Frac Tank
- Fuel Area
- Light Generator
- Roll Off
- Storage Area
- Vac Truck

0 75 150 300

Scale in Feet

N

Enbridge Energy

Site: C2

ENBRIDGE AECOM

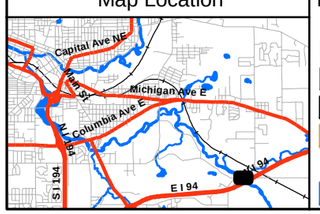
Drawn:	EC	1/5/2011
Approved:	EC	1/5/2011
Project #:	60162778	

Z:\Work\GIS\Site_Demobilization_Plan\MXD\2011_01_05\SitePlan_C2_010511.mxd

River Aerial Photographed 9/27/10 Overlaid on an August 2010 Background Aerial

US EPA ARCHIVE DOCUMENT

Map Location



Legend

- Quarter Mile Grid Segments
- Feature Outline
- Parcels
- AST
- Decon Area
- Chemical Storage
- Containment Area
- Equipment Storage
- Frac Tank
- Fuel Area
- Light Generator
- Roll Off
- Storage Area
- Vac Truck

0 75 150 300

Scale in Feet

N

Enbridge Energy

Site: C3

ENBRIDGE AECOM

Drawn:	EC	1/5/2011
Approved:	EC	1/5/2011
Project #:	60162778	

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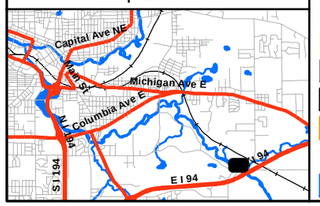
US EPA ARCHIVE DOCUMENT

Map Location



Legend

- Quarter Mile Grid Segments
- Feature Outline
- Parcels
- AST
- Decon Area
- Chemical Storage
- Containment Area
- Equipment Storage
- Frac Tank
- Fuel Area
- Light Generator
- Roll Off
- Storage Area
- Vac Truck

0 75 150 300

Scale in Feet

N

Enbridge Energy

Site: C3

ENBRIDGE AECOM

Drawn:	EC	1/5/2011
Approved:	EC	1/5/2011
Project #:	60162778	

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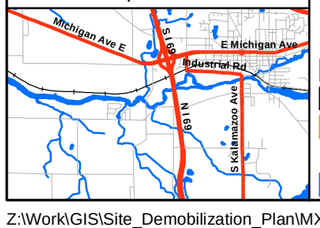
River Aerial Photographed 9/27/10 Overlaid on an August 2010 Background Aerial

US EPA ARCHIVE DOCUMENT

Map Location



Legend

- Quarter Mile Grid Segments
- Feature Outline
- Parcels
- AST
- Decon Area
- Chemical Storage
- Containment Area
- Equipment Storage
- Frac Tank
- Fuel Area
- Light Generator
- Roll Off
- Storage Area
- Vac Truck

0 50 100 200

Scale in Feet

N

Enbridge Energy

Site: C3.2

ENBRIDGE AECOM

Drawn:	EC	1/5/2011
Approved:	EC	1/5/2011
Project #:	60162778	

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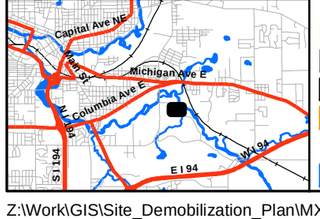
US EPA ARCHIVE DOCUMENT

Map Location



Legend

- Quarter Mile Grid Segments
- Feature Outline
- Parcels
- AST
- Decon Area
- Chemical Storage
- Containment Area
- Equipment Storage
- Frac Tank
- Fuel Area
- Light Generator
- Roll Off
- Storage Area
- Vac Truck

0 75 150 300

Scale in Feet

N

Enbridge Energy

Site: C3.7

ENBRIDGE AECOM

Drawn:	EC	1/5/2011
Approved:	EC	1/5/2011
Project #:	60162778	

Z:\Work\GIS\Site_Demobilization_Plan\MXD\2011_01_05\SitePlan_C3_7_010511.mxd

River Aerial Photographed 9/27/10 Overlaid on an August 2010 Background Aerial

US EPA ARCHIVE DOCUMENT

Map Location

Legend

- Quarter Mile Grid Segments
- Feature Outline
- Parcels
- AST
- Decon Area
- Chemical Storage
- Containment Area
- Equipment Storage
- Frac Tank
- Fuel Area
- Light Generator
- Roll Off
- Storage Area
- Vac Truck

0 40 80 160

Scale in Feet

N

Enbridge Energy

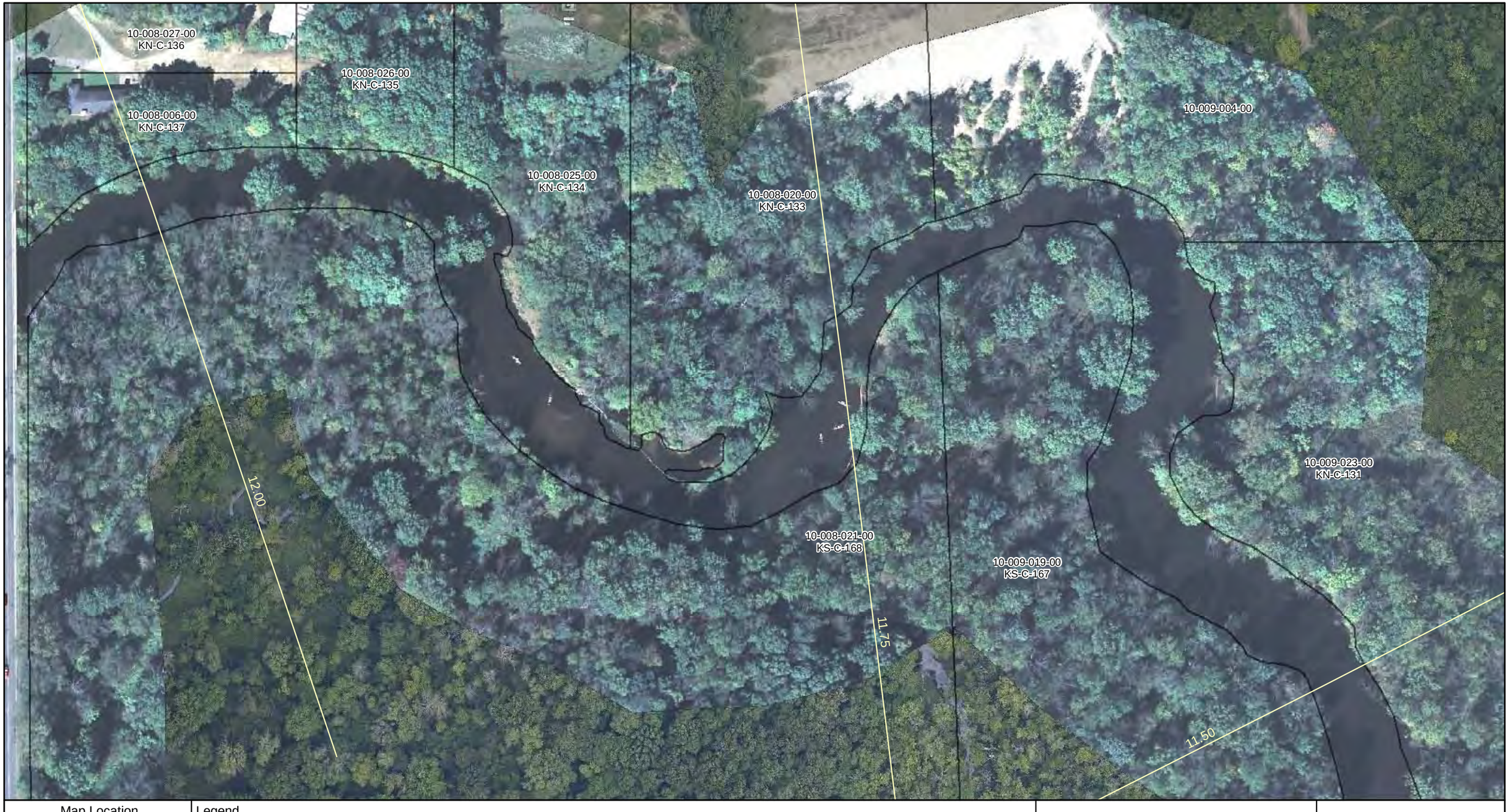
Site: H3.8

Drawn:	EC	1/5/2011
Approved:	EC	1/5/2011
Project #:	60162778	

Z:\Work\GIS\Site_Demobilization_Plan\MXD\2011_01_05\SitePlan_H3_8_010511.mxd

River Aerial Photographed 9/27/10 Overlaid on an August 2010 Background Aerial

US EPA ARCHIVE DOCUMENT



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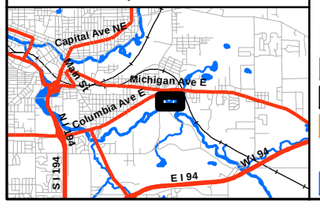

Legend

- Quarter Mile Grid Segments
- Feature Outline
- Parcels
- AST
- Decon Area
- Chemical Storage
- Containment Area
- Equipment Storage
- Frac Tank
- Fuel Area
- Light Generator
- Roll Off
- Storage Area
- Vac Truck

0 75 150 300

Scale in Feet

N

Enbridge Energy

Site: C3.X

ENBRIDGE AECOM

Drawn:	EC	1/5/2011
Approved:	EC	1/5/2011
Project #:	60162778	

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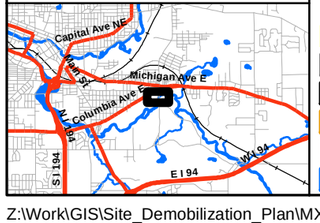
US EPA ARCHIVE DOCUMENT

Map Location



Legend

- Quarter Mile Grid Segments
- Feature Outline
- Parcels
- AST
- Decon Area
- Chemical Storage
- Containment Area
- Equipment Storage
- Frac Tank
- Fuel Area
- Light Generator
- Roll Off
- Storage Area
- Vac Truck

0 75 150 300

Scale in Feet

N

Enbridge Energy

Site: C3.9

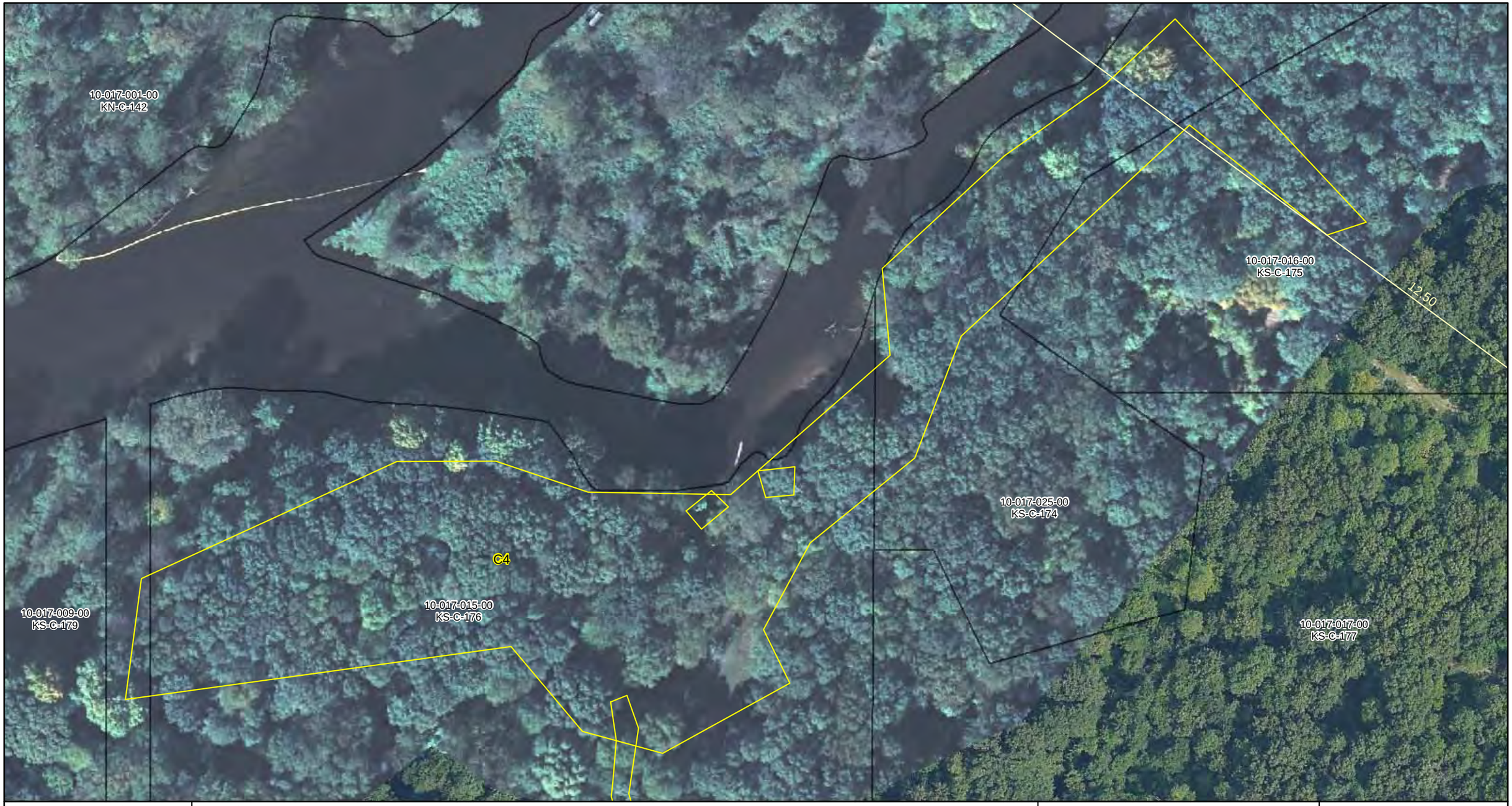
ENBRIDGE AECOM

Drawn:	EC	1/5/2011
Approved:	EC	1/5/2011
Project #:	60162778	

Z:\Work\GIS\Site_Demobilization_Plan\MXD\2011_01_05\SitePlan_C3_9_010511.mxd

River Aerial Photographed 9/27/10 Overlaid on an August 2010 Background Aerial

US EPA ARCHIVE DOCUMENT



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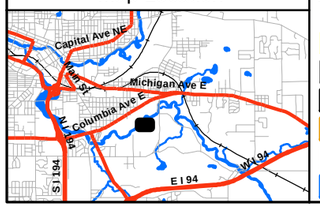

Legend

- Quarter Mile Grid Segments
- Feature Outline
- Parcels
- AST
- Decon Area
- Chemical Storage
- Containment Area
- Equipment Storage
- Frac Tank
- Fuel Area
- Light Generator
- Roll Off
- Storage Area
- Vac Truck

0 75 150 300

Scale in Feet

N

Enbridge Energy

Site: C4

ENBRIDGE AECOM

Drawn:	EC	1/5/2011
Approved:	EC	1/5/2011
Project #:	60162778	

Z:\Work\GIS\Site_Demobilization_Plan\MXD\2011_01_05\SitePlan_C4_010511.mxd

River Aerial Photographed 9/27/10 Overlaid on an August 2010 Background Aerial

US EPA ARCHIVE DOCUMENT

10-080-004-01
KN-C-149
10-080-003-01
KN-C-151
10-080-002-03
KN-C-152
10-080-007-00
KN-C-153
10-730-002-00
KN-C-143
10-017-002-01
KN-C-144
10-080-009-01
KN-C-155
10-080-008-00
KN-C-154
10-017-009-00
KS-C-179
10-080-009-00
KN-C-156
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KS-C-182
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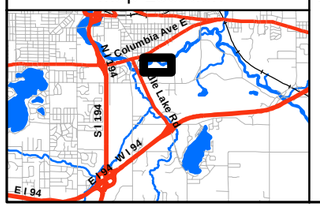
KS-C-185

Map Location



Legend

- Quarter Mile Grid Segments
- Feature Outline
- Parcels
- AST
- Decon Area
- Chemical Storage
- Containment Area
- Equipment Storage
- Frac Tank
- Fuel Area
- Light Generator
- Roll Off
- Storage Area
- Vac Truck

0 125 250 500
Scale in Feet

N

Enbridge Energy

Site: C-4.8

ENBRIDGE AECOM

Drawn:	EC	1/5/2011
Approved:	EC	1/5/2011
Project #:	60162778	

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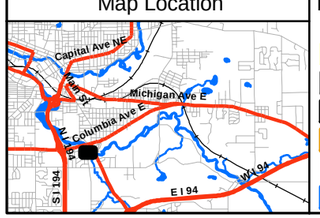
River Aerial Photographed 9/27/10 Overlaid on an August 2010 Background Aerial

US EPA ARCHIVE DOCUMENT

Map Location



Legend

- Quarter Mile Grid Segments
- Feature Outline
- Parcels
- AST
- Decon Area
- Chemical Storage
- Containment Area
- Equipment Storage
- Frac Tank
- Fuel Area
- Light Generator
- Roll Off
- Storage Area
- Vac Truck

0 75 150 300

Scale in Feet

N

Enbridge Energy

Site: C4.85

ENBRIDGE AECOM

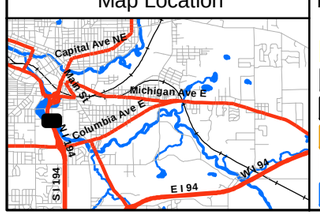
Drawn:	EC	1/5/2011
Approved:	EC	1/5/2011
Project #:	60162778	

Z:\Work\GIS\Site_Demobilization_Plan\MXD\2011_01_05\SitePlan_C4_85_010511.mxd

River Aerial Photographed 9/27/10 Overlaid on an August 2010 Background Aerial

US EPA ARCHIVE DOCUMENT

Map Location



Legend

- Quarter Mile Grid Segments
- Feature Outline
- Parcels
- AST
- Decon Area
- Chemical Storage
- Containment Area
- Equipment Storage
- Frac Tank
- Fuel Area
- Light Generator
- Roll Off
- Storage Area
- Vac Truck

0 75 150 300

Scale in Feet

N

Enbridge Energy

Site: C5

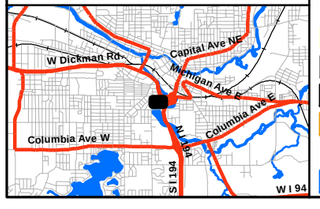
ENBRIDGE AECOM

Drawn:	EC	1/5/2011
Approved:	EC	1/5/2011
Project #:	60162778	

Z:\Work\GIS\Site_Demobilization_Plan\MXD\2011_01_05\SitePlan_C5_010511.mxd

US EPA ARCHIVE DOCUMENT

Map Location



Legend

- Quarter Mile Grid Segments
- Feature Outline
- Parcels
- AST
- Decon Area
- Chemical Storage
- Containment Area
- Equipment Storage
- Frac Tank
- Fuel Area
- Light Generator
- Roll Off
- Storage Area
- Vac Truck

0 75 150 300

Scale in Feet

N

Enbridge Energy

Site: C6

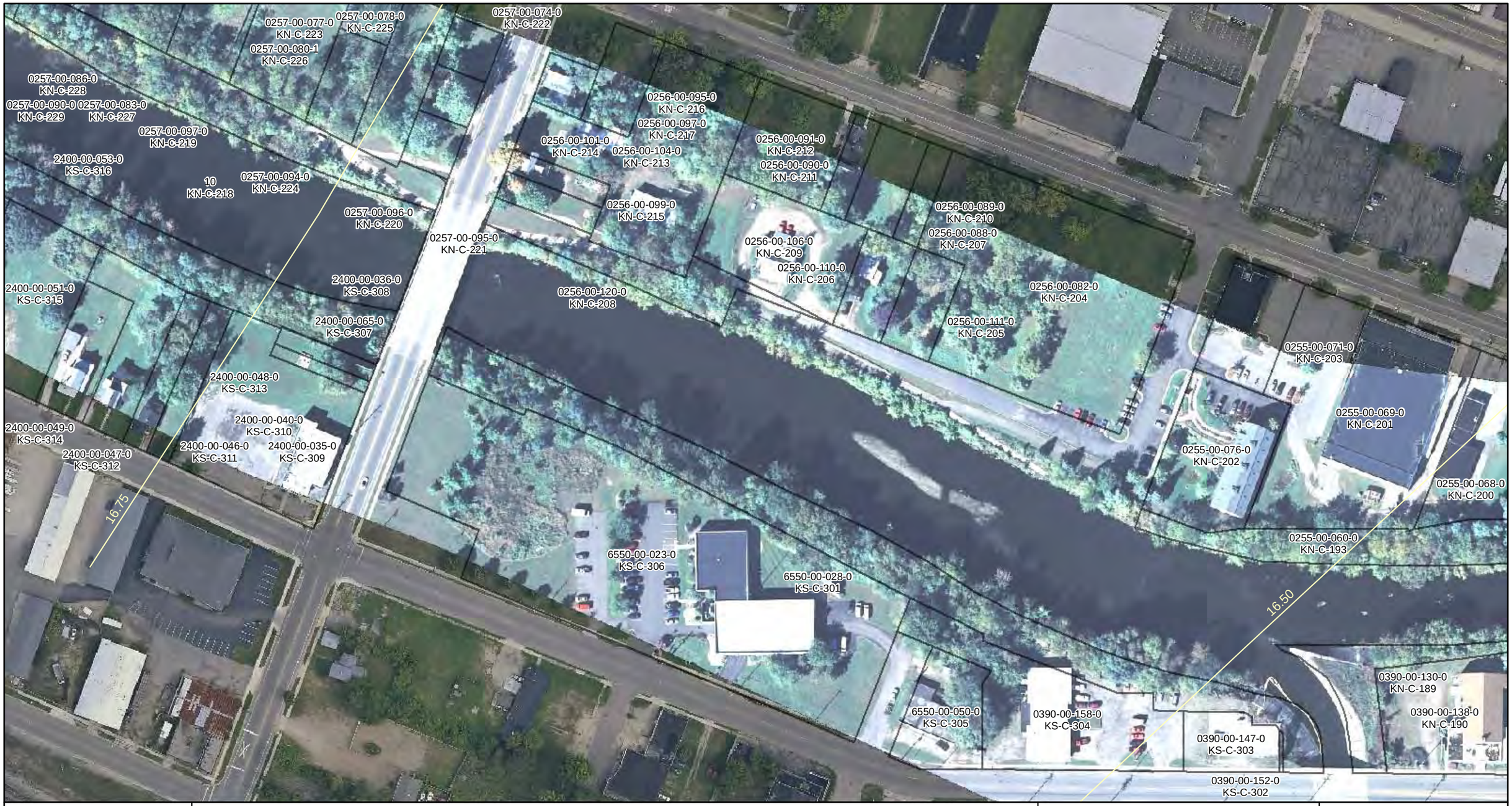
ENBRIDGE AECOM

Drawn:	EC	1/5/2011
Approved:	EC	1/5/2011
Project #:	60162778	

Z:\Work\GIS\Site_Demobilization_Plan\MXD\2011_01_05\SitePlan_C6_010511.mxd

River Aerial Photographed 9/27/10 Overlaid on an August 2010 Background Aerial

US EPA ARCHIVE DOCUMENT



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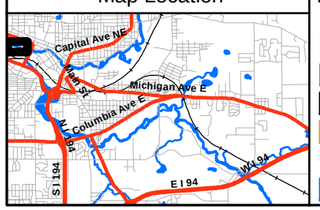


Legend

- Quarter Mile Grid Segments
- Feature Outline
- Parcels
- AST
- Decon Area
- Chemical Storage
- Containment Area
- Equipment Storage
- Frac Tank
- Fuel Area
- Light Generator
- Roll Off
- Storage Area
- Vac Truck

0 75 150 300

Scale in Feet

N

Enbridge Energy

Site:
C-Vandenbrink and C-Coppock

ENBRIDGE AECOM

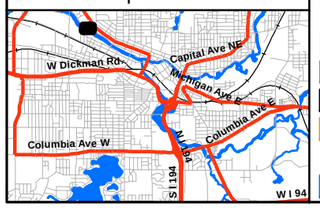
Drawn:	EC	1/5/2011
Approved:	EC	1/5/2011
Project #:	60162778	

Z:\Work\GIS\Site_Demobilization_Plan\MXD\2011_01_05\SitePlan_Cvandenbrink_Ccoppock_010511.mxd

River Aerial Photographed 9/27/10 Overlaid on an August 2010 Background Aerial

US EPA ARCHIVE DOCUMENT

Map Location



Legend

- Quarter Mile Grid Segments
- Feature Outline
- Parcels
- AST
- Decon Area
- Chemical Storage
- Containment Area
- Equipment Storage
- Frac Tank
- Fuel Area
- Light Generator
- Roll Off
- Storage Area
- Vac Truck

0 75 150 300

Scale in Feet

N

Enbridge Energy

Site: D0.5

ENBRIDGE AECOM

Drawn:	EC	1/5/2011
Approved:	EC	1/5/2011
Project #:	60162778	

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River Aerial Photographed 9/27/10 Overlaid on an August 2010 Background Aerial

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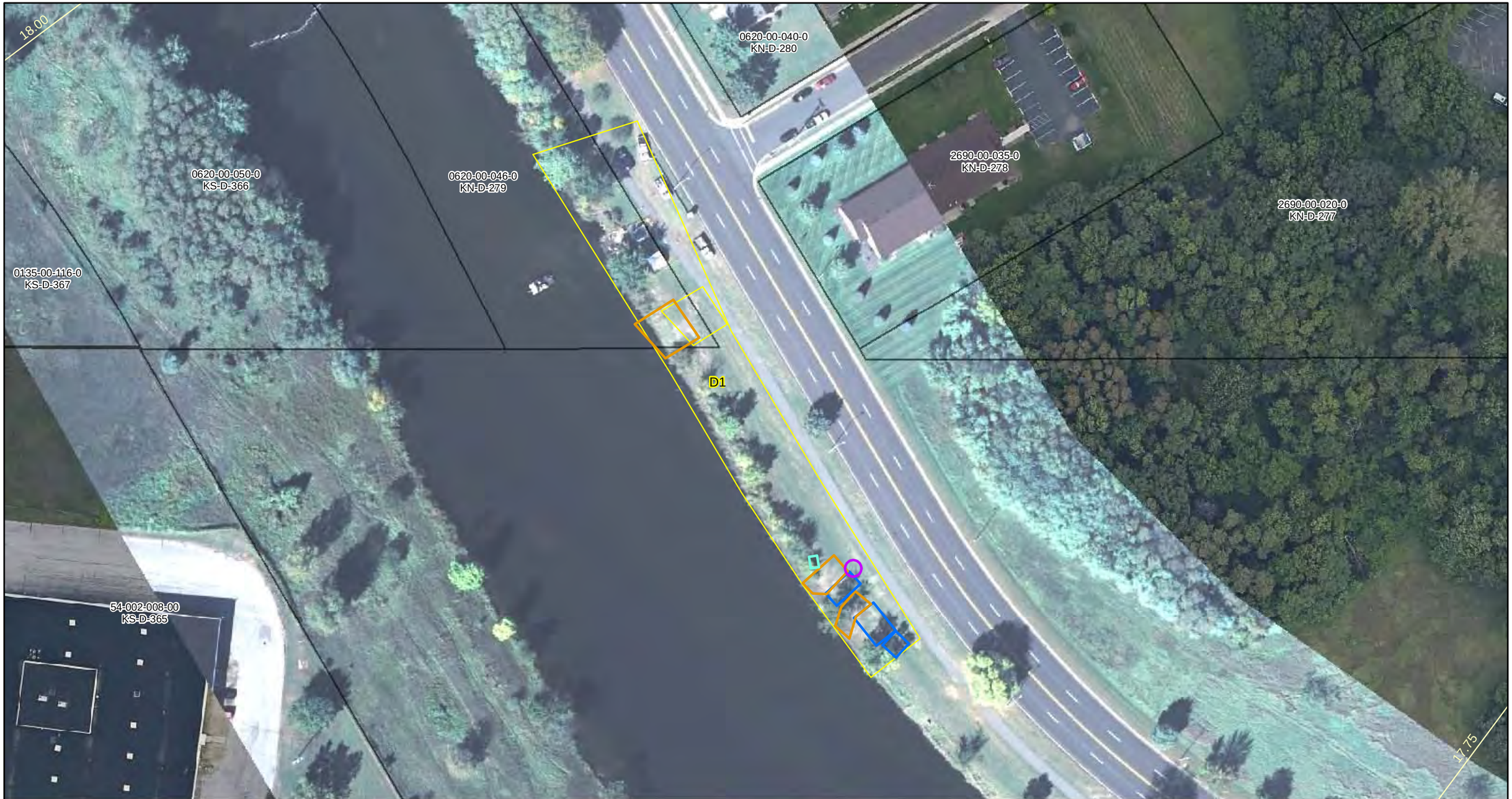

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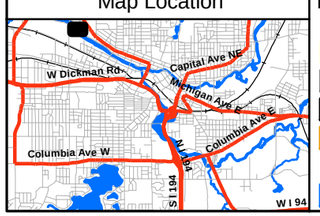

Legend

- Quarter Mile Grid Segments
- Feature Outline
- Parcels
- AST
- Decon Area
- Chemical Storage
- Containment Area
- Equipment Storage
- Frac Tank
- Fuel Area
- Light Generator
- Roll Off
- Storage Area
- Vac Truck

0 75 150 300

Scale in Feet

N

Enbridge Energy

Site: D1

ENBRIDGE AECOM

Drawn:	EC	1/5/2011
Approved:	EC	1/5/2011
Project #:	60162778	

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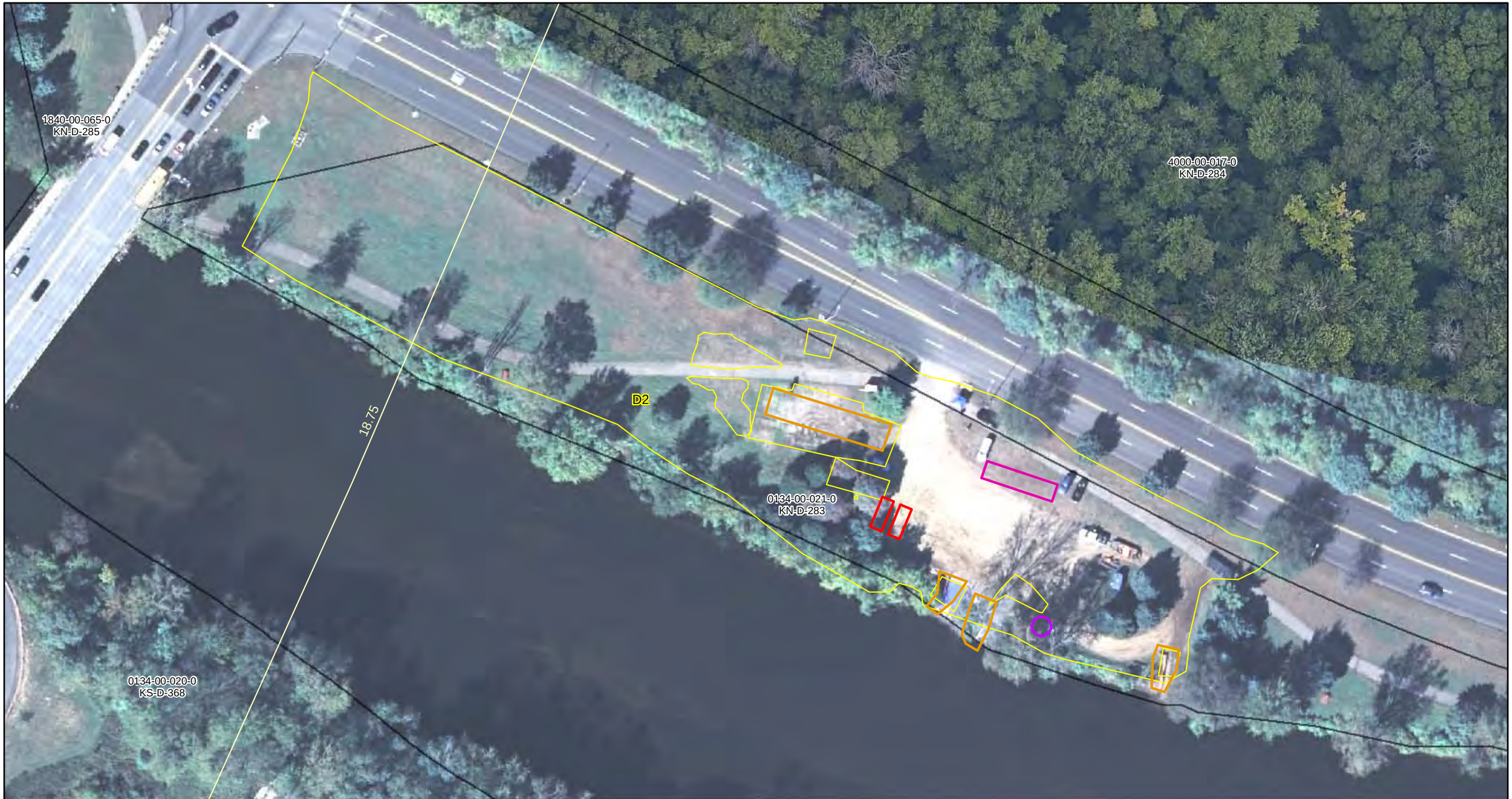
US EPA ARCHIVE DOCUMENT



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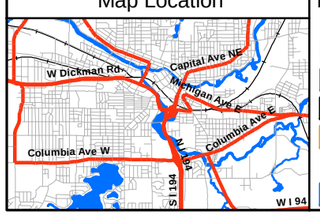

Legend

- Quarter Mile Grid Segments
- Feature Outline
- Parcels
- AST
- Decon Area
- Chemical Storage
- Containment Area
- Equipment Storage
- Frac Tank
- Fuel Area
- Light Generator
- Roll Off
- Storage Area
- Vac Truck

0 75 150 300

Scale in Feet

N

Enbridge Energy

Site: D2

ENBRIDGE AECOM

Drawn:	EC	1/5/2011
Approved:	EC	1/5/2011
Project #:	60162778	

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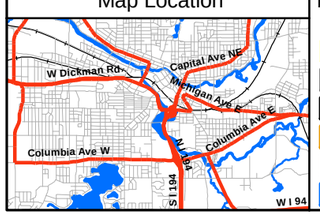
US EPA ARCHIVE DOCUMENT

Map Location



Legend

- Quarter Mile Grid Segments
- Feature Outline
- Parcels
- AST
- Decon Area
- Chemical Storage
- Containment Area
- Equipment Storage
- Frac Tank
- Fuel Area
- Light Generator
- Roll Off
- Storage Area
- Vac Truck

0 75 150 300

Scale in Feet

N

Enbridge Energy

Site: D2.5

ENBRIDGE AECOM

Drawn:	EC	1/5/2011
Approved:	EC	1/5/2011
Project #:	60162778	

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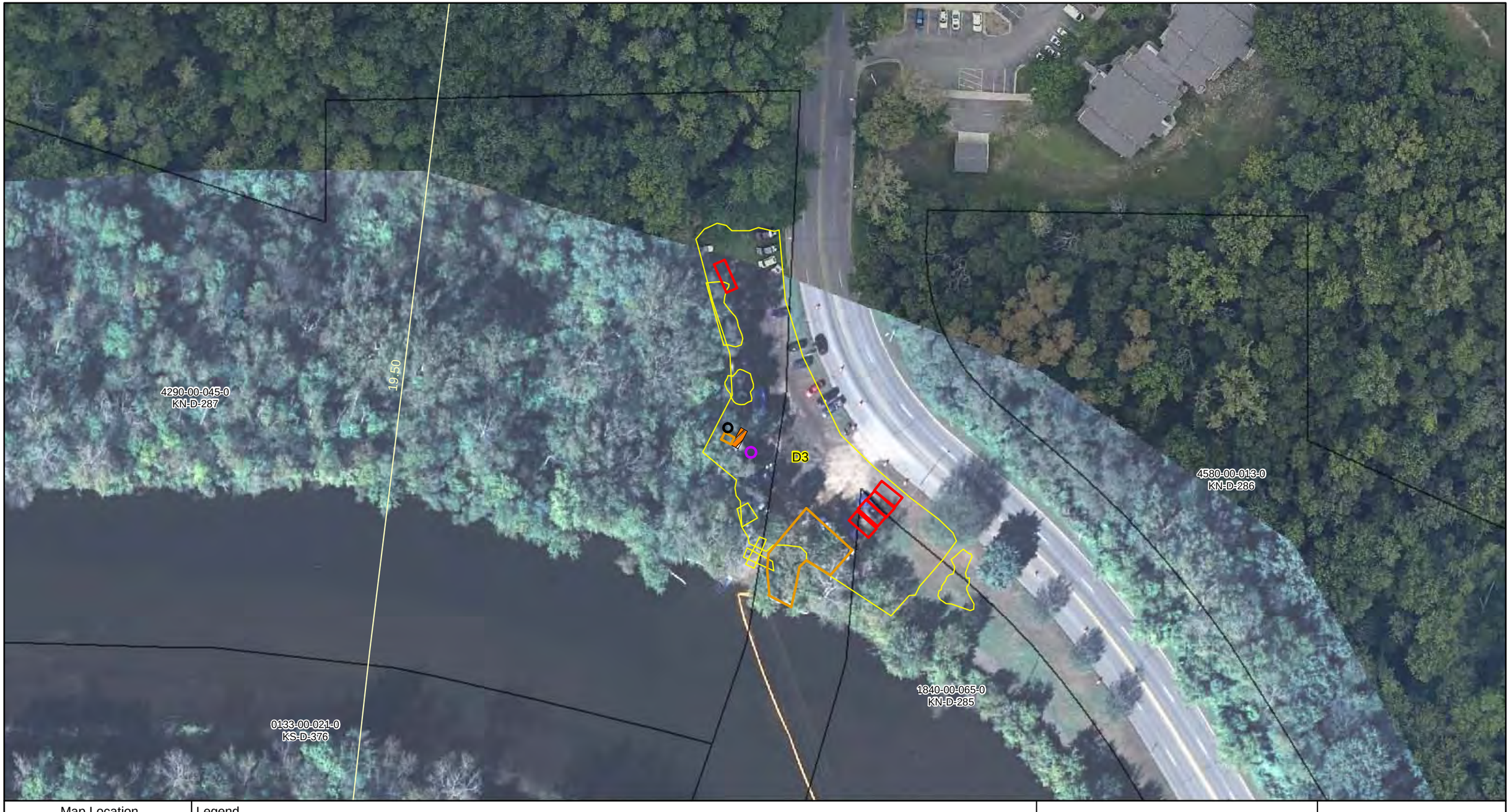
US EPA ARCHIVE DOCUMENT



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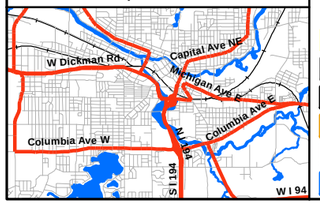

Legend

- Quarter Mile Grid Segments
- Feature Outline
- Parcels
- AST
- Decon Area
- Chemical Storage
- Containment Area
- Equipment Storage
- Frac Tank
- Fuel Area
- Light Generator
- Roll Off
- Storage Area
- Vac Truck

0 75 150 300

Scale in Feet

N

Enbridge Energy

Site: D3

ENBRIDGE AECOM

Drawn:	EC	1/5/2011
Approved:	EC	1/5/2011
Project #:	60162778	

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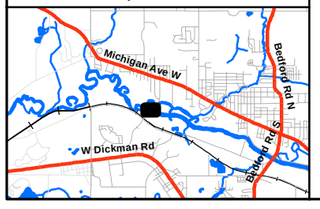
US EPA ARCHIVE DOCUMENT

Map Location



Legend

- Quarter Mile Grid Segments
- Feature Outline
- Parcels
- AST
- Decon Area
- Chemical Storage
- Containment Area
- Equipment Storage
- Frac Tank
- Fuel Area
- Light Generator
- Roll Off
- Storage Area
- Vac Truck

0 50 100 200

Scale in Feet

N

Enbridge Energy

Site: D5

ENBRIDGE AECOM

Drawn:	EC	1/5/2011
Approved:	EC	1/5/2011
Project #:	60162778	

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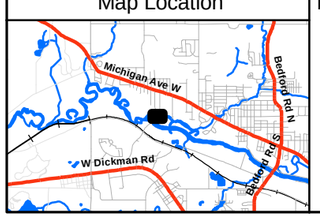
US EPA ARCHIVE DOCUMENT

Map Location



Legend

- Quarter Mile Grid Segments
- Feature Outline
- Parcels
- AST
- Decon Area
- Chemical Storage
- Containment Area
- Equipment Storage
- Frac Tank
- Fuel Area
- Light Generator
- Roll Off
- Storage Area
- Vac Truck

0 50 100 200

Scale in Feet

N

Enbridge Energy

Site: D5

ENBRIDGE AECOM

Drawn:	EC	1/5/2011
Approved:	EC	1/5/2011
Project #:	60162778	

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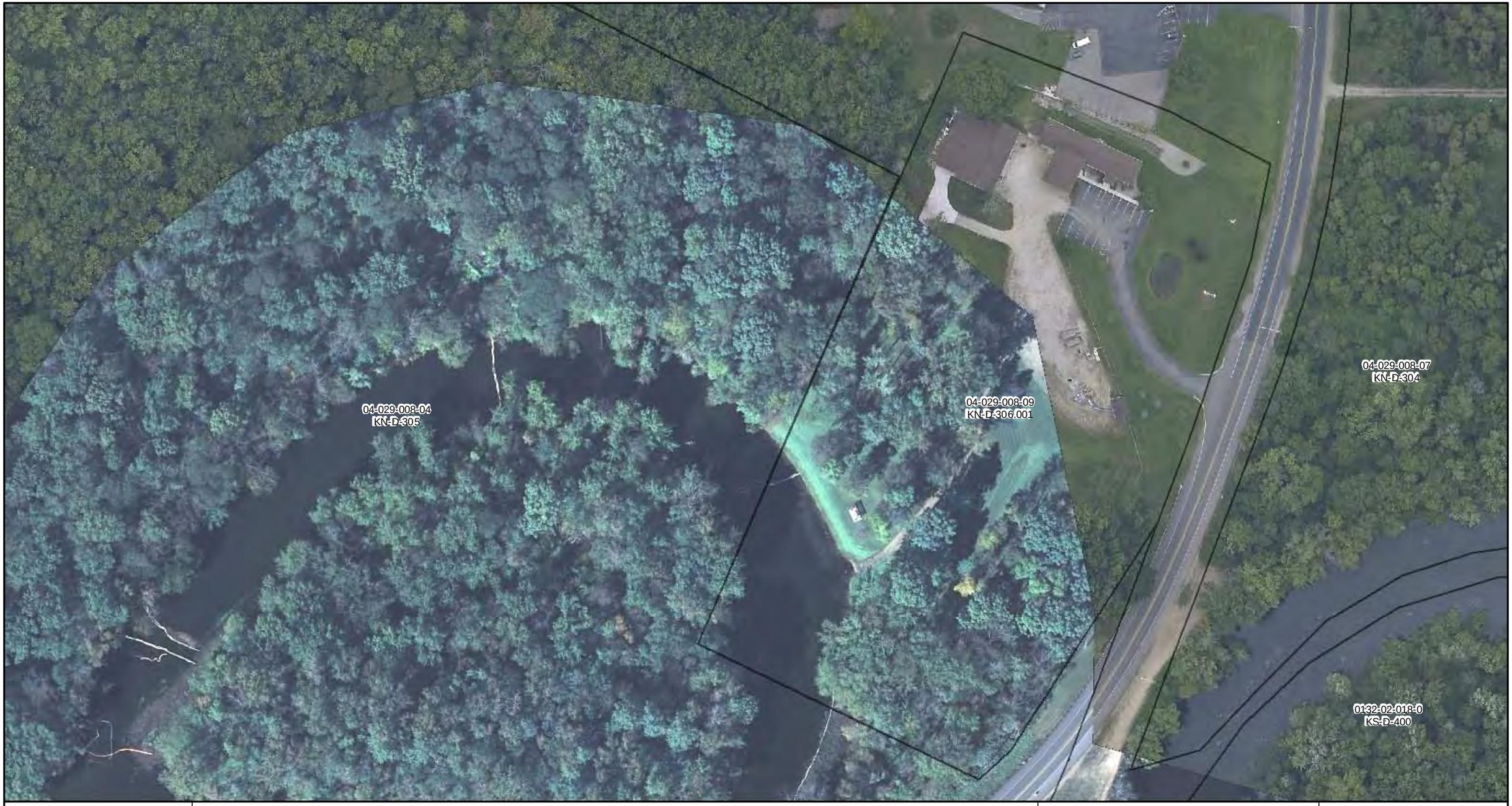
US EPA ARCHIVE DOCUMENT



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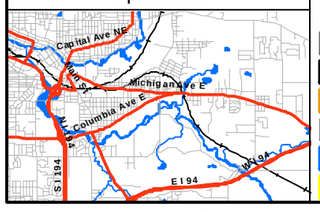

Legend

- Quarter Mile Grid Segments
- Parcels
- AST
- Decon Area
- Chemical Storage
- Containment Area
- Equipment Storage
- Frac Tank
- Fuel Area
- Light Generator
- Roll Off
- Storage Area
- Vac Truck

0 75 150 300

Scale in Feet

N

Enbridge Energy

Site: D5NW (C&M Construction)

ENBRIDGE AECOM

Drawn:	EC	1/5/2011
Approved:	EC	1/5/2011
Project #:	60162778	

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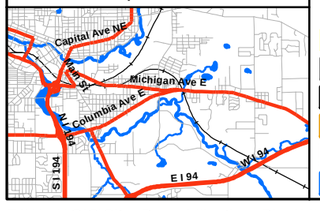
River Aerial Photographed 9/27/10 Overlaid on an August 2010 Background Aerial

US EPA ARCHIVE DOCUMENT

Map Location



Legend

- Quarter Mile Grid Segments
- Feature Outline
- Parcels
- AST
- Decon Area
- Chemical Storage
- Containment Area
- Equipment Storage
- Frac Tank
- Fuel Area
- Light Generator
- Roll Off
- Storage Area
- Vac Truck

0 75 150 300

Scale in Feet

N

Enbridge Energy

Site: E0.1 Containment Access

ENBRIDGE AECOM

Drawn:	EC	1/5/2011
Approved:	EC	1/5/2011
Project #:	60162778	

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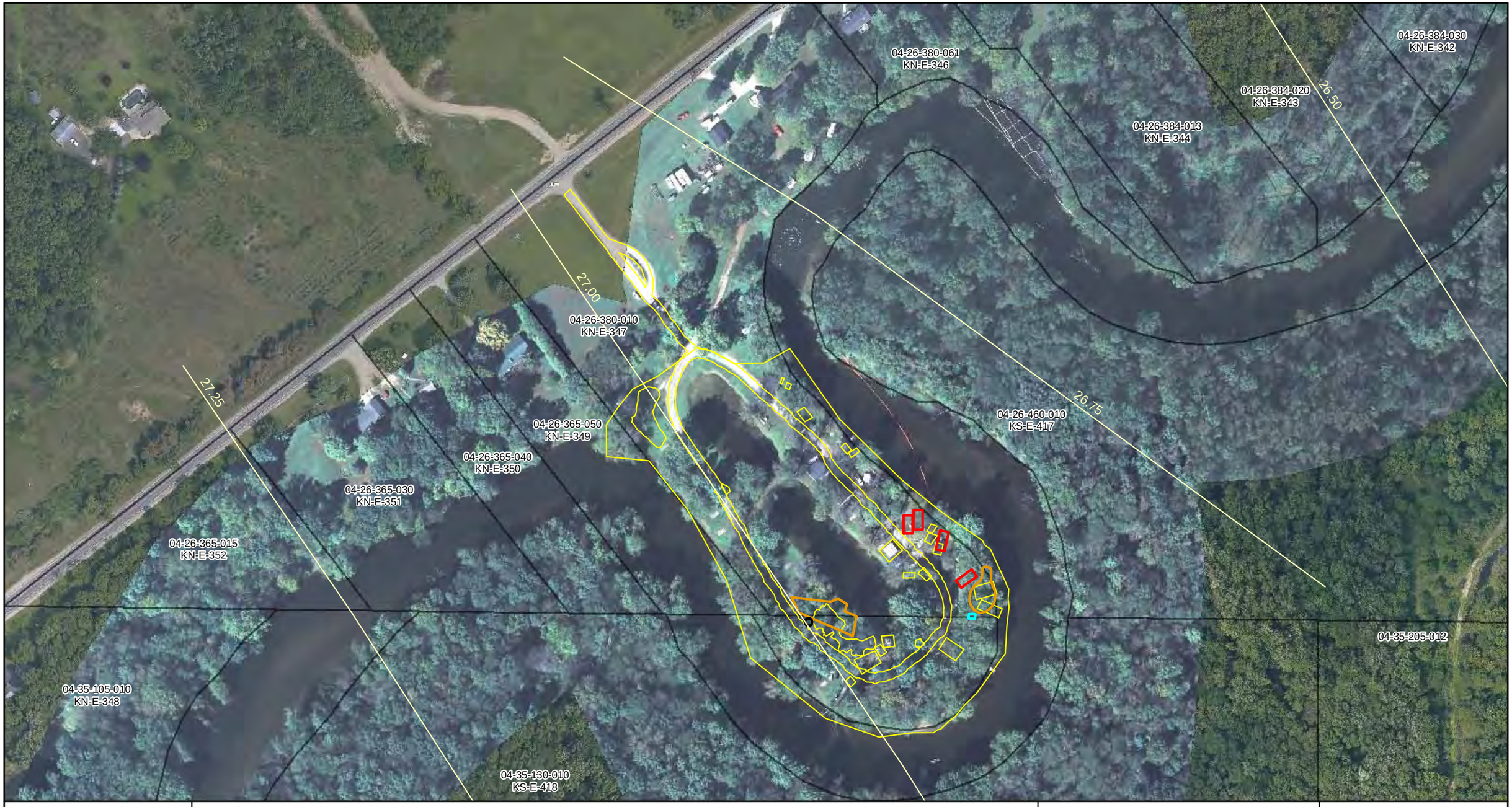

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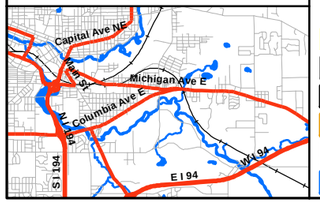

Legend

- Quarter Mile Grid Segments
- Feature Outline
- Parcels
- AST
- Decon Area
- Chemical Storage
- Containment Area
- Equipment Storage
- Frac Tank
- Fuel Area
- Light Generator
- Roll Off
- Storage Area
- Vac Truck

0 150 300 600

Scale in Feet

N

Enbridge Energy

Site: E0.5

ENBRIDGE AECOM

Drawn:	EC	1/5/2011
Approved:	EC	1/5/2011
Project #:	60162778	

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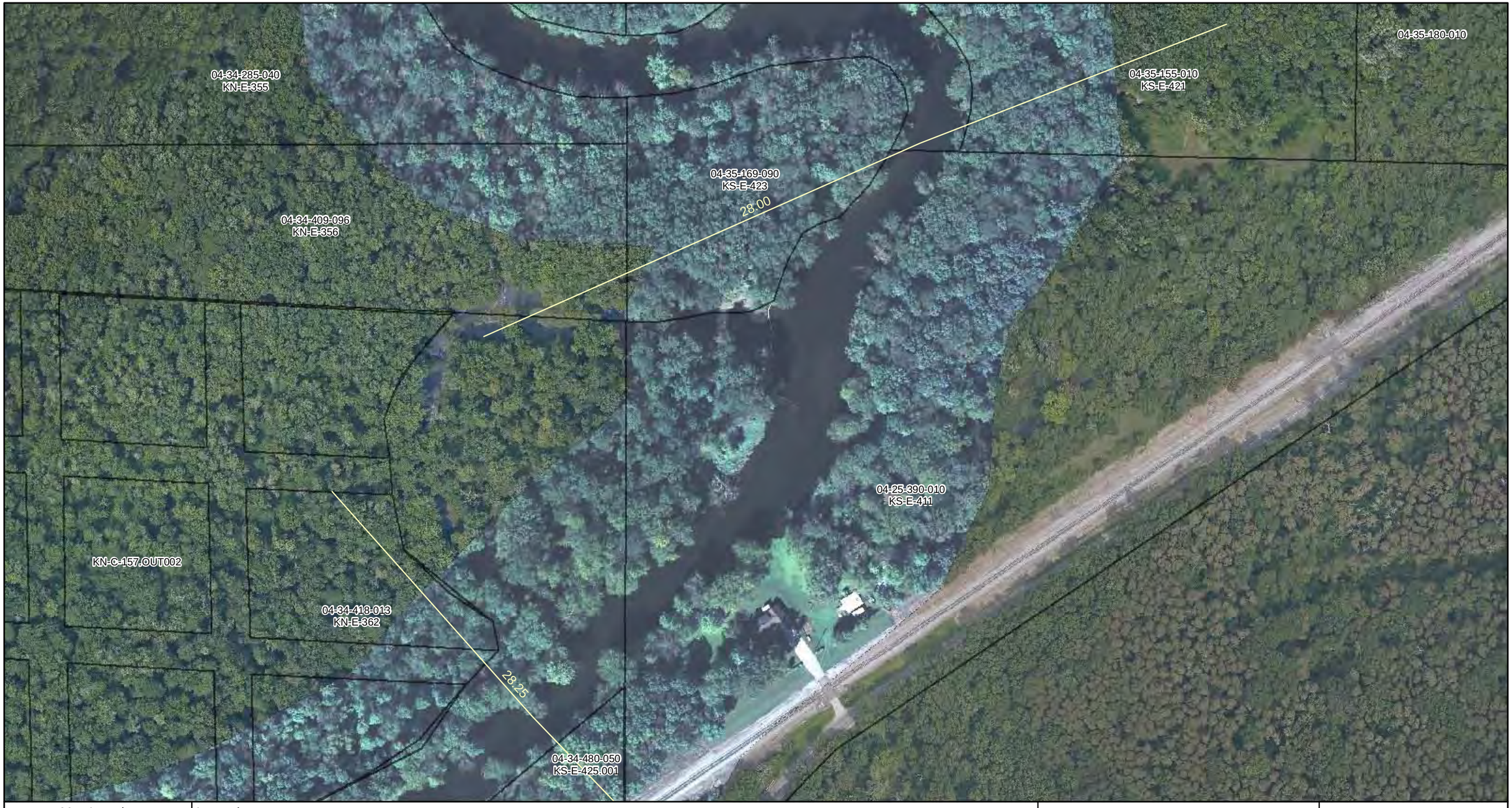

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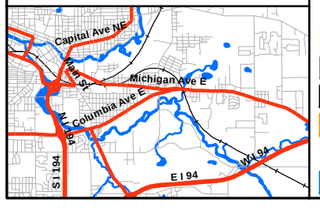

Legend

- Quarter Mile Grid Segments
- Feature Outline
- Parcels
- AST
- Decon Area
- Chemical Storage
- Containment Area
- Equipment Storage
- Frac Tank
- Fuel Area
- Light Generator
- Roll Off
- Storage Area
- Vac Truck

0 150 300 600

Scale in Feet

N

Enbridge Energy

Site: E0.6 Containment Access

ENBRIDGE AECOM

Drawn:	EC	1/5/2011
Approved:	EC	1/5/2011
Project #:	60162778	

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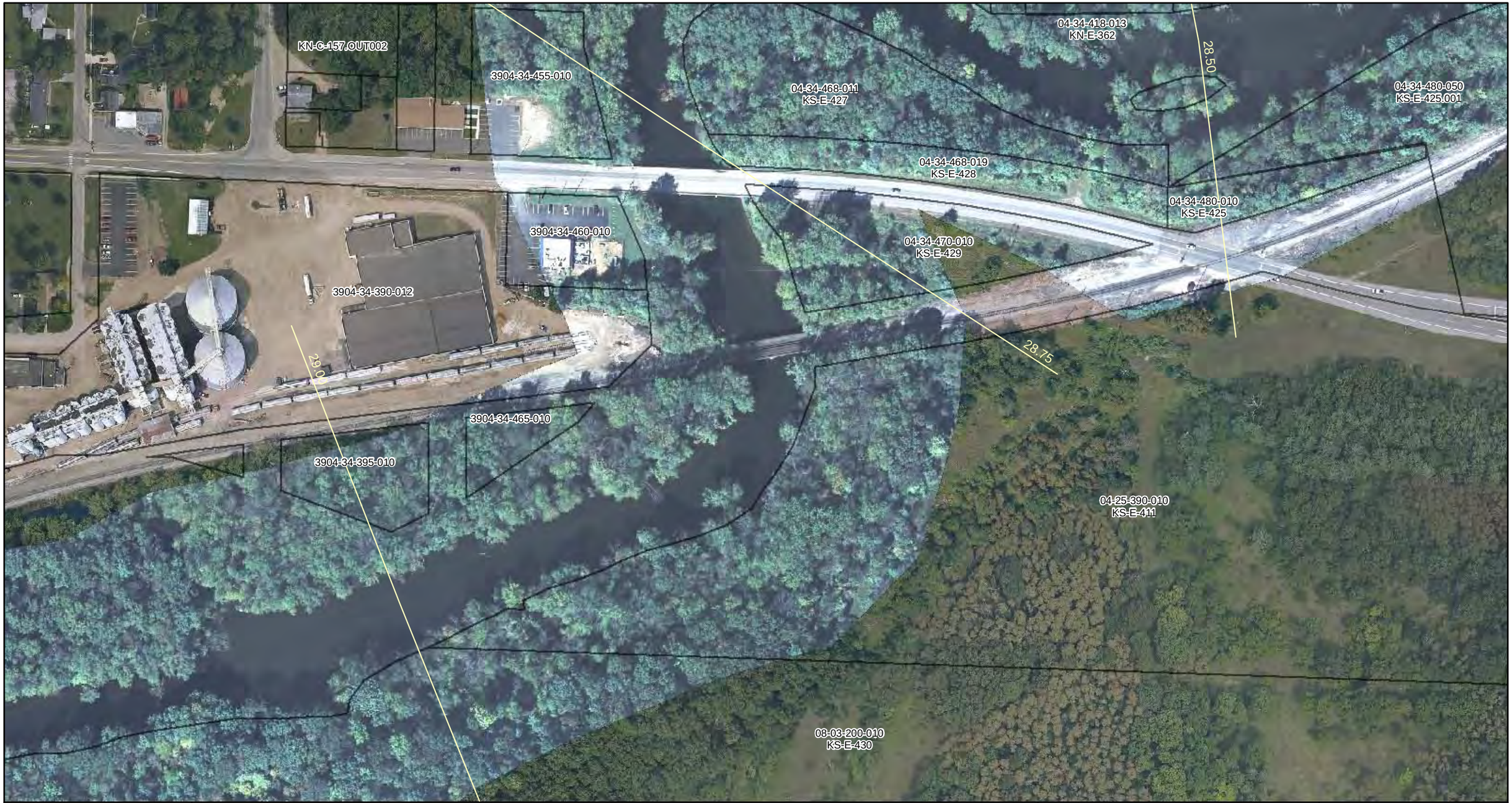
US EPA ARCHIVE DOCUMENT



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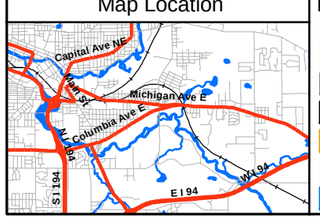

Legend

- Quarter Mile Grid Segments
- Feature Outline
- Parcels
- AST
- Decon Area
- Chemical Storage
- Containment Area
- Equipment Storage
- Frac Tank
- Fuel Area
- Light Generator
- Roll Off
- Storage Area
- Vac Truck

0 150 300 600

Scale in Feet

N

Enbridge Energy

Site: E0.8 Containment Access

Drawn:	EC	1/5/2011
Approved:	EC	1/5/2011
Project #:	60162778	

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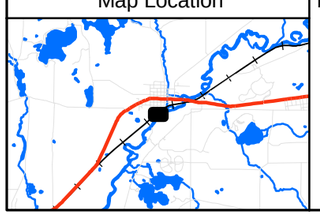
US EPA ARCHIVE DOCUMENT

Map Location



Legend

- Quarter Mile Grid Segments
- Feature Outline
- Parcels
- AST
- Decon Area
- Chemical Storage
- Containment Area
- Equipment Storage
- Frac Tank
- Fuel Area
- Light Generator
- Roll Off
- Storage Area
- Vac Truck

0 50 100 200

Scale in Feet

N

Enbridge Energy

Site: E1

ENBRIDGE AECOM

Drawn:	EC	1/5/2011
Approved:	EC	1/5/2011
Project #:	60162778	

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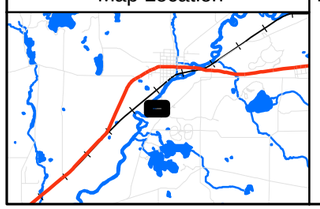
US EPA ARCHIVE DOCUMENT

Map Location



Legend

- Quarter Mile Grid Segments
- Feature Outline
- Parcels
- AST
- Decon Area
- Chemical Storage
- Containment Area
- Equipment Storage
- Frac Tank
- Fuel Area
- Light Generator
- Roll Off
- Storage Area
- Vac Truck

0 50 100 200

Scale in Feet

N

Enbridge Energy

Site: E2

ENBRIDGE AECOM

Drawn:	EC	1/5/2011
Approved:	EC	1/5/2011
Project #:	60162778	

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US EPA ARCHIVE DOCUMENT

Map Location

Legend

- Quarter Mile Grid Segments
- Feature Outline
- Parcels
- AST
- Decon Area
- Chemical Storage
- Containment Area
- Equipment Storage
- Frac Tank
- Fuel Area
- Light Generator
- Roll Off
- Storage Area
- Vac Truck

0 40 80 160

Scale in Feet

N

Enbridge Energy

Site: E2.3

ENBRIDGE AECOM

Drawn:	EC	1/5/2011
Approved:	EC	1/5/2011
Project #:	60162778	

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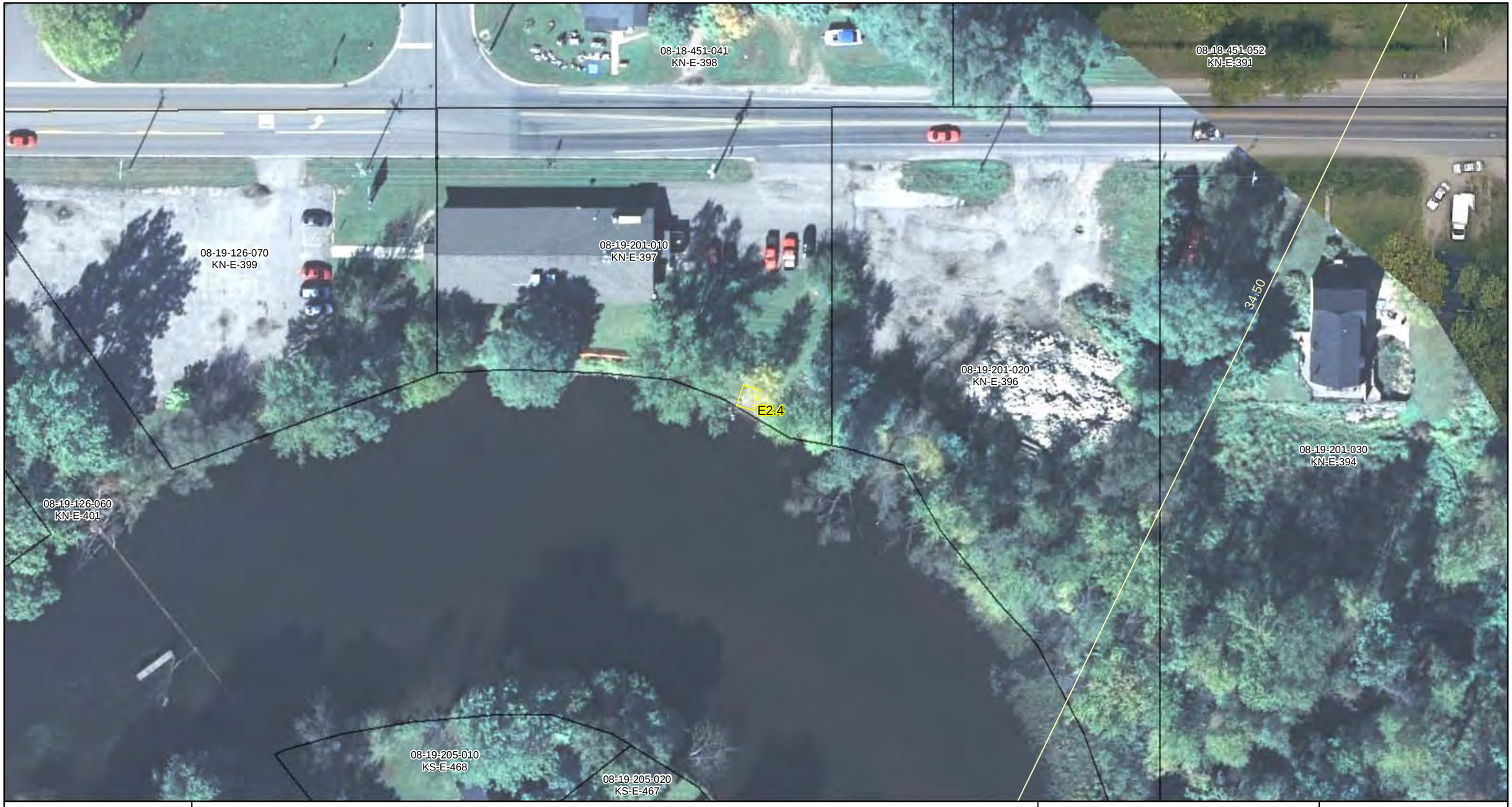
US EPA ARCHIVE DOCUMENT



Map Location

Legend

- Quarter Mile Grid Segments
- Feature Outline
- Parcels
- AST
- Decon Area
- Chemical Storage
- Containment Area
- Equipment Storage
- Frac Tank
- Fuel Area
- Light Generator
- Roll Off
- Storage Area
- Vac Truck

0 40 80 160

Scale in Feet

N

Enbridge Energy

Site: E2.4

ENBRIDGE AECOM

Drawn:	EC	1/5/2011
Approved:	EC	1/5/2011
Project #:	60162778	

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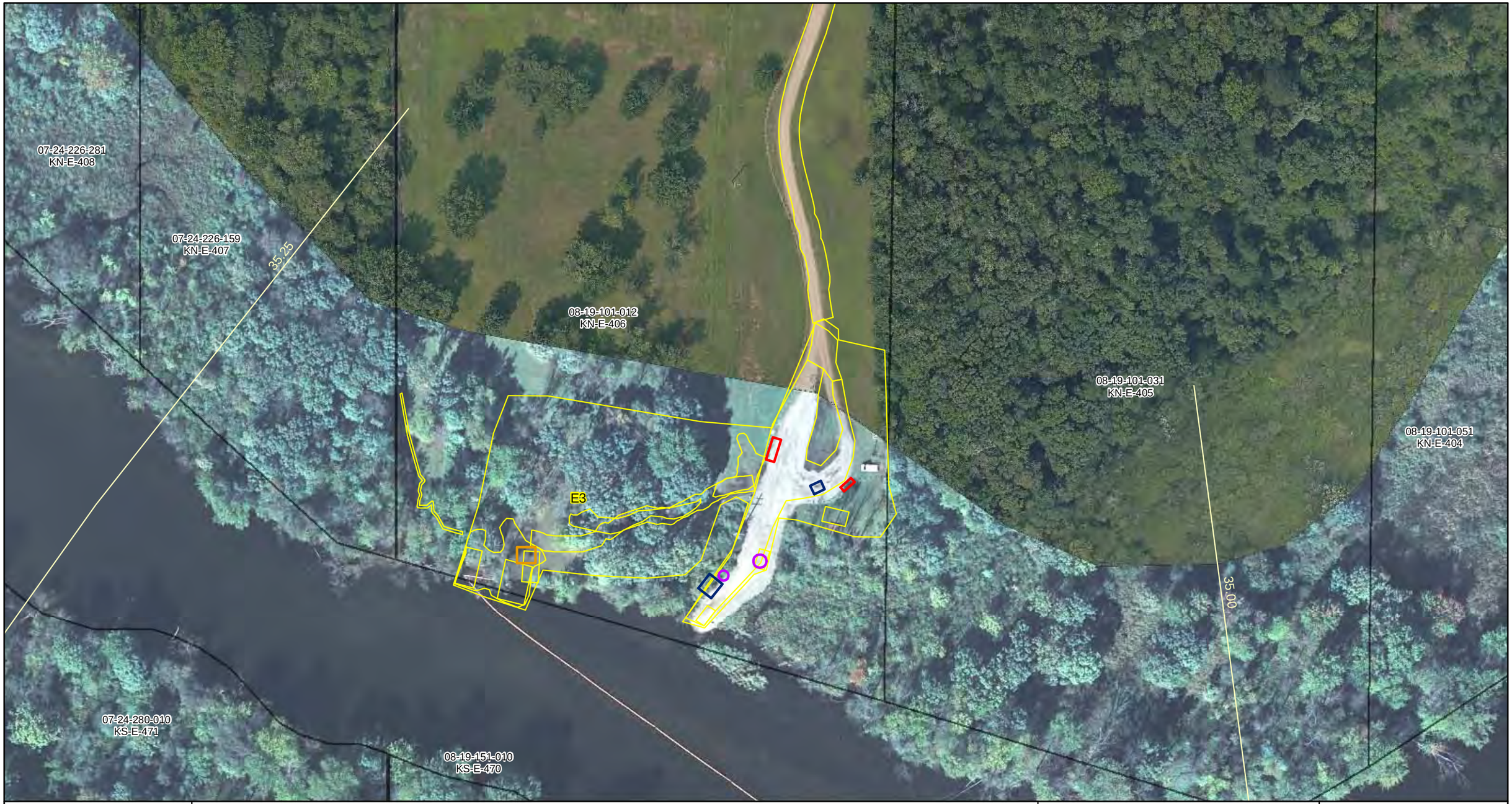
US EPA ARCHIVE DOCUMENT



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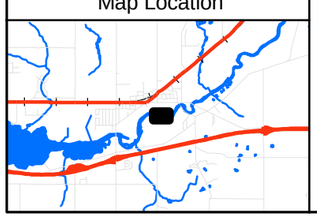

Legend

- Quarter Mile Grid Segments
- Feature Outline
- Parcels
- AST
- Decon Area
- Chemical Storage
- Containment Area
- Equipment Storage
- Frac Tank
- Fuel Area
- Light Generator
- Roll Off
- Storage Area
- Vac Truck

0 50 100 200

Scale in Feet

N

Enbridge Energy

Site: E3

ENBRIDGE AECOM

Drawn:	EC	1/5/2011
Approved:	EC	1/5/2011
Project #:	60162778	

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US EPA ARCHIVE DOCUMENT

Map Location

Legend

- Quarter Mile Grid Segments
- Feature Outline
- Parcels
- AST
- Decon Area
- Chemical Storage
- Containment Area
- Equipment Storage
- Frac Tank
- Fuel Area
- Light Generator
- Roll Off
- Storage Area
- Vac Truck

0 50 100 200

Scale in Feet

N

Enbridge Energy

Site: E3

ENBRIDGE AECOM

Drawn:	EC	1/5/2011
Approved:	EC	1/5/2011
Project #:	60162778	

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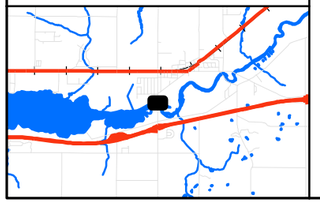
US EPA ARCHIVE DOCUMENT

Map Location



Legend

- Quarter Mile Grid Segments
- Feature Outline
- Parcels
- AST
- Decon Area
- Chemical Storage
- Containment Area
- Equipment Storage
- Frac Tank
- Fuel Area
- Light Generator
- Roll Off
- Storage Area
- Vac Truck

0 50 100 200

Scale in Feet

N

Enbridge Energy

Site: E3.5

ENBRIDGE AECOM

Drawn:	EC	1/5/2011
Approved:	EC	1/5/2011
Project #:	60162778	

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US EPA ARCHIVE DOCUMENT

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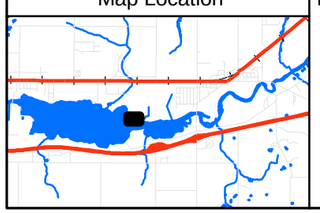


Legend

- Quarter Mile Grid Segments
- Feature Outline
- Parcels
- AST
- Decon Area
- Chemical Storage
- Containment Area
- Equipment Storage
- Frac Tank
- Fuel Area
- Light Generator
- Roll Off
- Storage Area
- Vac Truck

0 50 100 200

Scale in Feet

N

Enbridge Energy

Site: E4

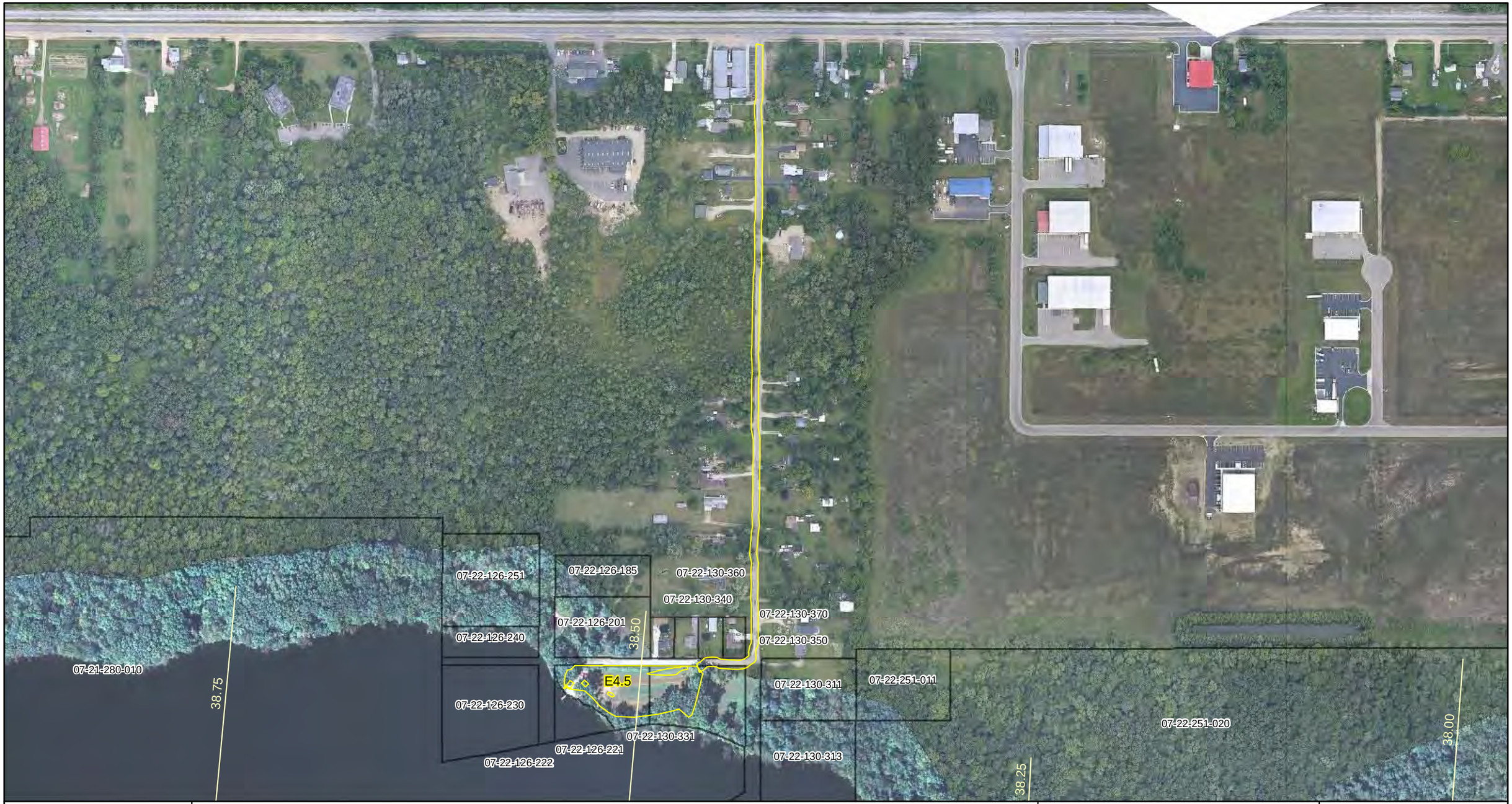
ENBRIDGE AECOM

Drawn:	EC	1/5/2011
Approved:	EC	1/5/2011
Project #:	60162778	

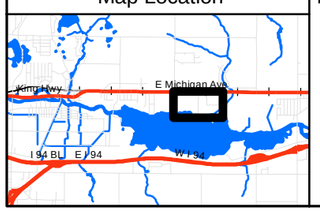
Z:\Work\GIS\Site_Demobilization_Plan\MXD\2011_01_05\SitePlan_E4_010511.mxd

River Aerial Photographed 9/27/10 Overlaid on an August 2010 Background Aerial

US EPA ARCHIVE DOCUMENT



Map Location



Legend

- Quarter Mile Grid Segments
- Feature Outline
- Parcels
- AST
- Decon Area
- Chemical Storage
- Containment Area
- Equipment Storage
- Frac Tank
- Fuel Area
- Light Generator
- Roll Off
- Storage Area
- Vac Truck

0 250 500 1,000

Scale in Feet

N

Enbridge Energy

Site: Ramp E4.5

ENBRIDGE AECOM

Drawn:	EC	1/5/2011
Approved:	EC	1/5/2011
Project #:	60162778	

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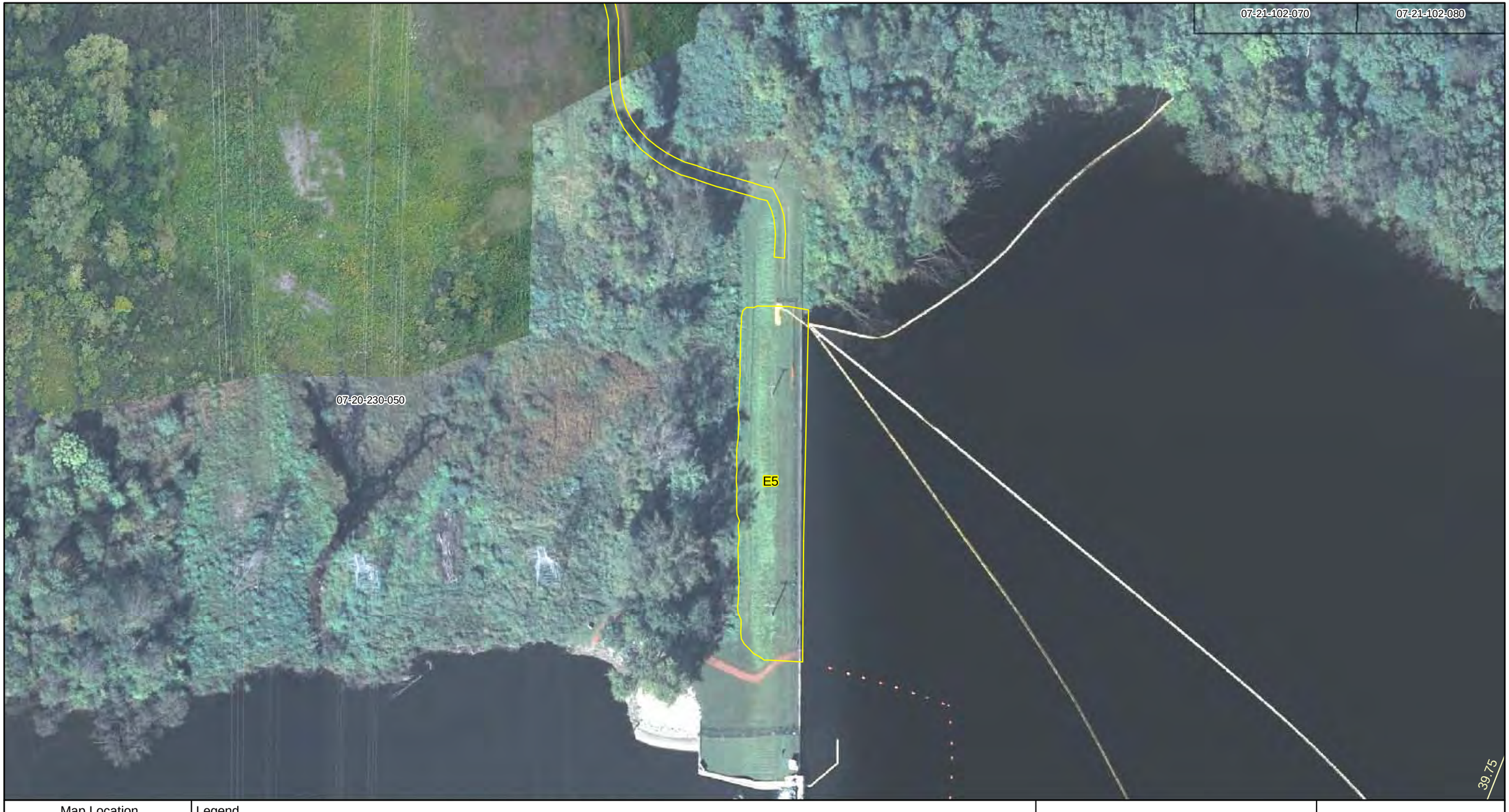
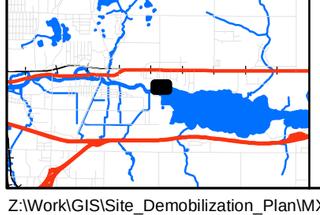


Map Location



Legend

- Quarter Mile Grid Segments
- Feature Outline
- Parcels
- AST
- Decon Area
- Chemical Storage
- Containment Area
- Equipment Storage
- Frac Tank
- Fuel Area
- Light Generator
- Roll Off
- Storage Area
- Vac Truck

0 50 100 200

Scale in Feet

N

Enbridge Energy

Site: E5

ENBRIDGE AECOM

Drawn:	EC	1/5/2011
Approved:	EC	1/5/2011
Project #:	60162778	

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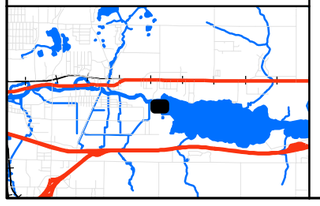
US EPA ARCHIVE DOCUMENT

Map Location



Legend

- Quarter Mile Grid Segments
- Feature Outline
- Parcels
- AST
- Decon Area
- Chemical Storage
- Containment Area
- Equipment Storage
- Frac Tank
- Fuel Area
- Light Generator
- Roll Off
- Storage Area
- Vac Truck

0 50 100 200

Scale in Feet

N

Enbridge Energy

Site: E5

ENBRIDGE AECOM

Drawn:	EC	1/5/2011
Approved:	EC	1/5/2011
Project #:	60162778	

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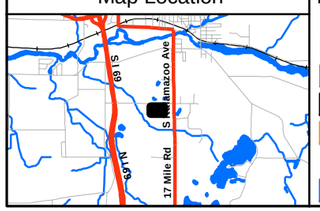
River Aerial Photographed 9/27/10 Overlaid on an August 2010 Background Aerial

US EPA ARCHIVE DOCUMENT

Map Location



Legend

- Quarter Mile Grid Segments
- Feature Outline
- Parcels
- AST
- Decon Area
- Chemical Storage
- Containment Area
- Equipment Storage
- Frac Tank
- Fuel Area
- Light Generator
- Roll Off
- Storage Area
- Vac Truck

0 75 150 300

Scale in Feet

N

Enbridge Energy

Site: Staging Yard 1

ENBRIDGE AECOM

Drawn:	EC	1/5/2011
Approved:	EC	1/5/2011
Project #:	60162778	

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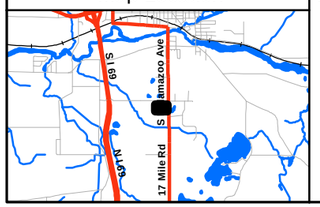
US EPA ARCHIVE DOCUMENT

Map Location



Legend

- Quarter Mile Grid Segments
- Feature Outline
- Parcels
- AST
- Decon Area
- Chemical Storage
- Containment Area
- Equipment Storage
- Frac Tank
- Fuel Area
- Light Generator
- Roll Off
- Storage Area
- Vac Truck

0 50 100 200

Scale in Feet

N

Enbridge Energy

Site: Staging Yard 2

ENBRIDGE AECOM

Drawn:	EC	1/5/2011
Approved:	EC	1/5/2011
Project #:	60162778	

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US EPA ARCHIVE DOCUMENT

Map Location

Legend

- Quarter Mile Grid Segments
- Feature Outline
- Parcels
- AST
- Decon Area
- Chemical Storage
- Containment Area
- Equipment Storage
- Frac Tank
- Fuel Area
- Light Generator
- Roll Off
- Storage Area
- Vac Truck

0 125 250 500

Scale in Feet

N

Enbridge Energy

Site: Staging Yard 3

ENBRIDGE AECOM

Drawn:	EC	1/5/2011
Approved:	EC	1/5/2011
Project #:	60162778	

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US EPA ARCHIVE DOCUMENT

Map Location

Legend

- Quarter Mile Grid Segments
- Feature Outline
- Parcels

0 75 150 300

Scale in Feet

N

Enbridge Energy

Site: Staging Yard 5

Drawn:	EC	1/5/2011
Approved:	EC	1/5/2011
Project #:	60162778	

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River Aerial Photographed 9/27/10 Overlaid on an August 2010 Background Aerial

US EPA ARCHIVE DOCUMENT

Map Location

Legend

- Quarter Mile Grid Segments
- Feature Outline
- Parcels
- AST
- Decon Area
- Chemical Storage
- Containment Area
- Equipment Storage
- Frac Tank
- Fuel Area
- Light Generator
- Roll Off
- Storage Area
- Vac Truck

0 50 100 200

Scale in Feet

N

Enbridge Energy

Site: B5

ENBRIDGE AECOM

Drawn:	EC	1/5/2011
Approved:	EC	1/5/2011
Project #:	60162778	

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River Aerial Photographed 9/27/10 Overlaid on an August 2010 Background Aerial

US EPA ARCHIVE DOCUMENT

Attachment C

Site Closure
Site Environmental Evaluation Form
Enbridge Line 6B MP 608 Pipeline Release

A) Site Name: _____ Date: _____

Approximate Size & Location of the Site: _____

Inspectors: _____

☐ Initial Inspection ☐ Final Inspection

Others Present: _____

Site Supervisors/ Firm: _____

_____

B) Interview

Name _____

Employer _____

Contact Information _____

Association with site _____

Date of interview _____

Activities at site _____

Identification of spills or other releases during use and occupancy based on interview (specify)

_____

Current Owner/Occupant of the Site: _____

Historical Use of the Site: _____

Description of Access Ways: _____

C) Activities at Site (based on interview, visual inspection or other sources)

☐ Decontammination
☐ Boat Launch
☐ Boom Maintence
☐ Roll Offs
☐ Porta Potties/ Handwash
☐ Mats/ Geotextiles
☐ Earthwork
☐ Access Roads (New)
☐ Secondary containment
☐ Generators/ Light Plants
☐ VAC Trucks
☐ Streambank Stabilization
☐ Fueling
(If so, list types of containers (eg. ASTs, 5-gallon buckets) in Section H
☐ Chemical Storage
(If so, list types & container sizes in Section H)
☐ Other (specify) _____

D) Any Remaining Equipment or consumables: _____

_____

_____

Site Closure
Site Environmental Evaluation Form
Enbridge Line 6B MP 608 Pipeline Release

E) Site Visual Inspection

E.1) Observations related to site occupancy and use (Note Locations on map and take photograph)

- ☐ Soil Disturbance
- ☐ Vegetation Disturbance
- ☐ Litter
- ☐ Evidence of release (staining, verbal communication)
- ☐ Fill areas in flood plain, wetlands or river
- ☐ Excavated areas in floodplain, wetlands or river
- ☐ Brush/ Stumps/ Trees
- ☐ Fencing damage
- ☐ Evidence of release/staining in or around former decon areas
- ☐ Evidence of release/staining in or around former fueling areas
- ☐ Evidence of release/ staining in or around the former roll off areas

E.2) Observations related to release

- ☐ Sheen on surface water
- ☐ Oil on river/creek banks and rocks
- ☐ Petroleum odor
- ☐ Citrus odor
- ☐ Oil on tree trunks, vegetation, logs
- ☐ Oil on structures (piers, bulkheads, bridges, culverts)
- ☐ Other (specify)

Notes _____

_____

E.3) Adjoining Properties

North: _____

South: _____

East: _____

West: _____

F) Records reviewed (Describe)

- ☐ Aerial photographs (dates and source) _____
- ☐ Other photographs (dates and source) _____
- ☐ Inspection reports (date and source) _____
- ☐ Other (specify) _____
- ☐ Identification of spills or other releases based on records review (specify)

_____

G) Recommendations: _____

_____

_____

H) Other Notes: _____

_____

_____

Site Closure
Site Environmental Evaluation Form
Enbridge Line 6B MP 608 Pipeline Release

I) If Phase II Activities or remediation occured on-site provide the following information:

Date of Remediation Activities:

Location & Desciption of Area:

Size of Area Remediated (including square footage & depth):

Description of Activities Performed:

No. of Samples Collected:

Backfilling/Restoration Activities:

Notes:

US EPA ARCHIVE DOCUMENT

Attachment B

Talmadge Creek Swamp Mat Removal Sampling Plan

US EPA ARCHIVE DOCUMENT

LINE 6B INCIDENT – TALMADGE CREEK SWAMP MAT REMOVAL SAMPLING PLAN

Purpose

The purpose of this plan is to identify the process by which the swamp mats adjacent to Talmadge Creek will be removed, and how oil contaminated soil located under the swamp mats will be excavated. Samples will be collected following excavation to document the condition following removal and to be used to direct subsequent investigation and/or remediation efforts

The goal of this plan is to complete the removal of the swamp mat roads no later than the end of October, 2010. It is not intended that this is the final process for the restoration of the Creek, but rather an interim means to eliminate the safety hazards and land owner issues of leaving the swamp mat roads in place over the winter and spring seasons, and to return the Creek to a more natural state in the community. It is understood that further restorative and remediation work may be needed in the future, and the means to do so will be evaluated at that time.

Overview of Process

The existing mat roads will be removed in a logical fashion. It is anticipated that mat removal will begin at Division A5 and Division B4 on September 29, 2010. Mats will be removed based on traffic patterns, completion of restoration activities, availability of equipment, and landowner limitations. The locations where mat road removal occurs is expected to vary based on the above factors. To facilitate EPA and MDNRE planning of resources, Enbridge will communicate to EPA and MDRE by noon each day the locations that will be removed the following day. Enbridge will coordinate with the EPA and MDNRE (and/or their designated onsite representatives) to make sure they are present at each mat clearing location prior to conducting activities.

Contaminated mats will be segregated and transported to the contaminated material staging area at Cell 1 where they will be chipped and added to the contaminated material stockpiles for subsequent disposal at a landfill. Uncontaminated mats will be transported to staging areas in Yard 4 and near the source area. Uncontaminated mats that are not needed for potential future use may be demobilized.

Areas of potential concern located near the confluence of Talmadge Creek and the Kalamazoo River as well as the area immediately east of 16 Mile Road will be not be evaluated or addressed during mat removal. Rather they will be evaluated during the subsequent MDNRE remedial investigation phase.

Logistics of Soil Identification and Sampling

Potential areas of oil contamination adjacent the mat roads were identified during the EPA clearing process. These areas were identified as:

1. having free oil observed in the observation trench (located adjacent up bank of the Talmadge Creek)
2. locations where the X-tex fabric was placed in the excavation to segregate oil impacted soil from clean fill material
3. where free oil was suspected of being under the mat roads based on observations and/or site conditions

The attached figure and table indicates the known and suspected areas for oil contamination beneath the mat roads.

During the mat removal process, an environmental representative will be on site to provide direction for oil contaminated soil removal and verification sampling. This representative will observe the mat

removal process and identify areas of oil impact. The representative will direct the excavation of oil contaminated soil and will collect a sample once visual observation of the excavation indicates that no oil remains. Soil samples will be collected from the floor of the excavated areas in general accordance with the MDNRE guidance document entitled Sampling Strategies and Statistics Training Materials (S^3TM). To make the sample grid process simplified in the field, for excavations less than 60 lineal feet, one soil sample will be collected from each 25-feet of linear excavation and submitted for laboratory analysis. Excavations longer than 60 lineal feet may follow this 25-foot sampling frequency (which exceeds S^3TM requirements) or will have a sampling frequency calculated to follow the S^3TM guidance document. Samples will be analyzed for total petroleum hydrocarbons (TPH) parameters including Gasoline Range Organics (GRO), Diesel Range Organics (DRO), and Oil Range Organics (ORO). Soil samples will also be analyzed for volatile organic compounds (VOCs), polynuclear aromatic hydrocarbons (PNAs), and select metals including barium, iron, nickel, vanadium, and molybdenum.

Once the soil sample has been collected from the excavation, the area will be immediately backfilled and restored as per the MDNRE approved restoration work plan. The limits of the excavation, field observations, and the location of the soil sample will be documented for future reference. The results of the soil sample analysis will be tabulated and used to direct future investigation and interim response activities.

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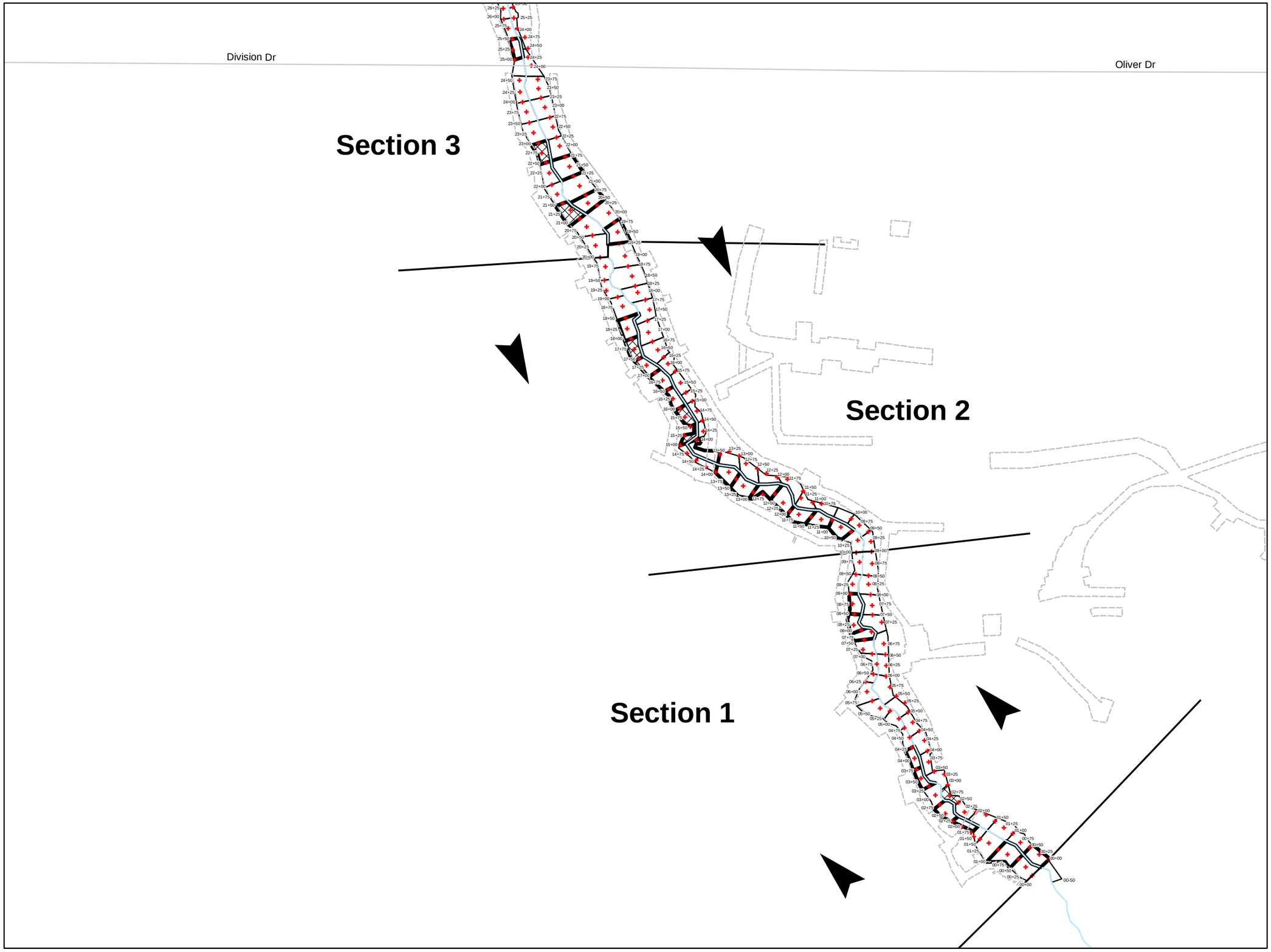
US EPA ARCHIVE DOCUMENT



Legend

- Areas
- Roads
- Mat Roads
- Talmadge Creek
- Potential Areas of Concern
- Xtex Fabric Cells
- Env Clearance Area

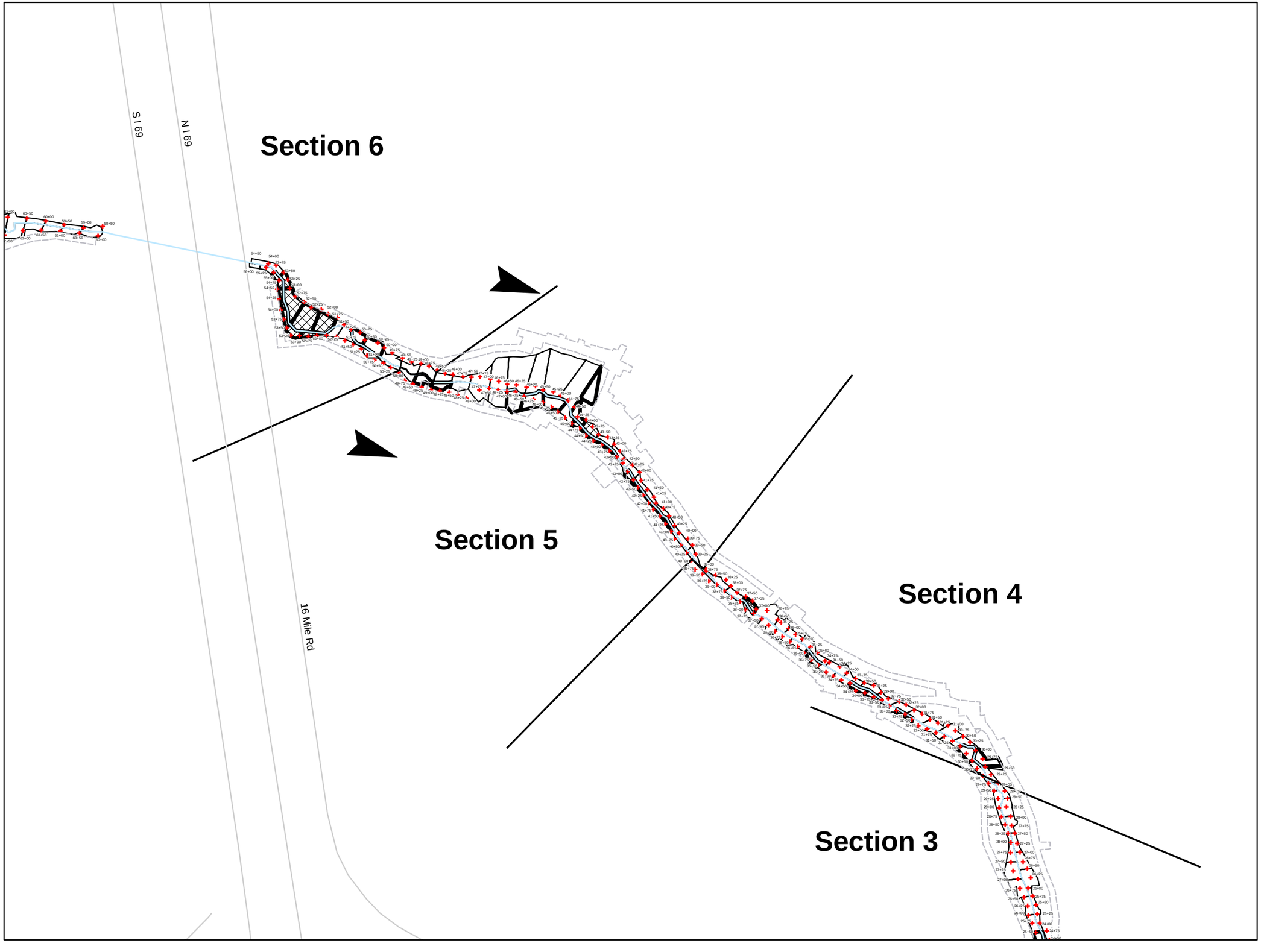
N

Feet

100 0 100 200

Figure X
Talmadge Creek
Swamp Mat Removal Plan
Sections 1, 2 & 3
Line 6B Release
Enbridge Energy
Marshall, MI

US EPA ARCHIVE DOCUMENT



Legend

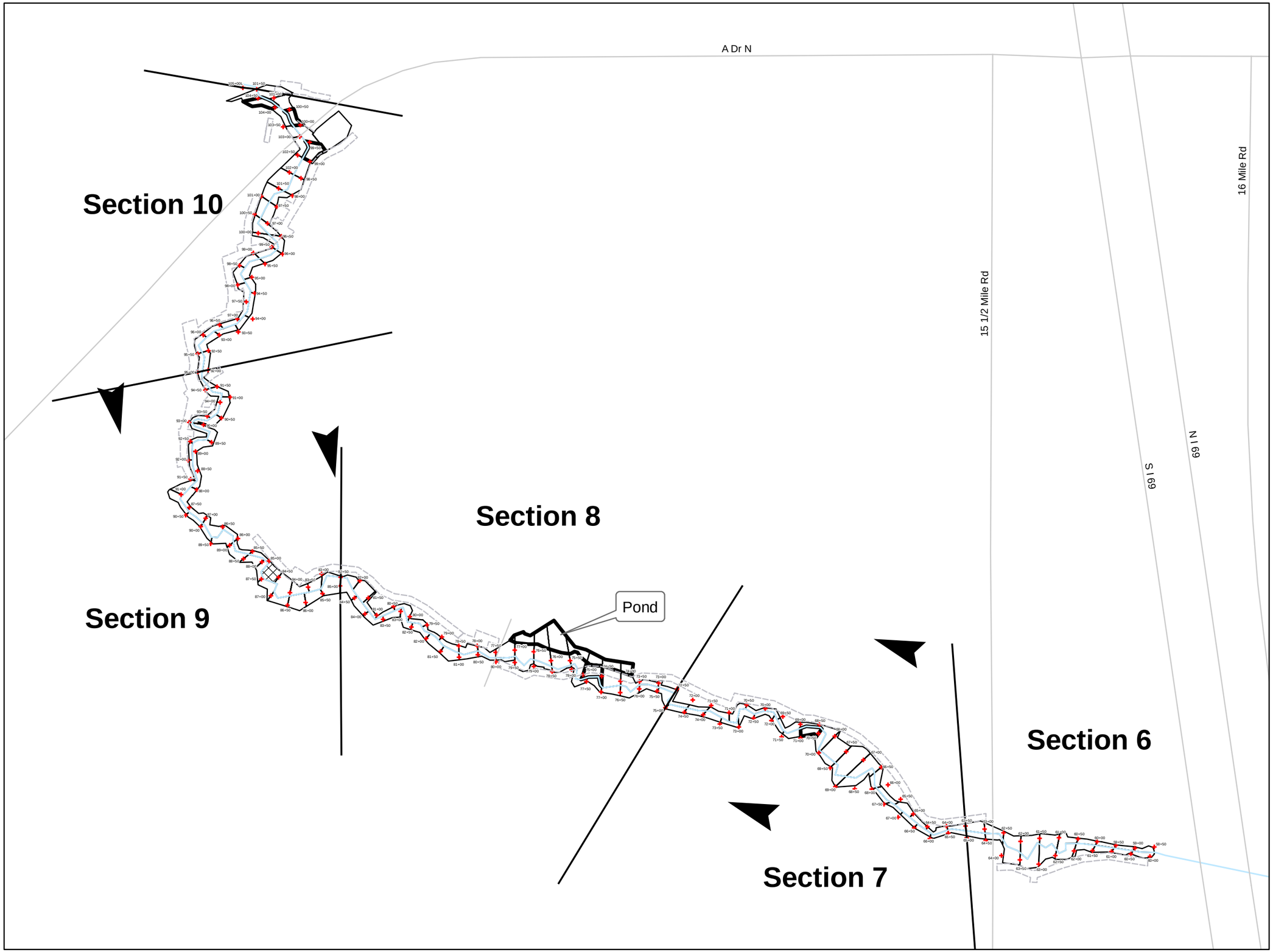
- Areas
- Road
- Mat Roads
- Talmadge Creek
- Xtex Fabric Cells
- Env Clearance Area
- Potential Areas of Concern

N

Feet
100 0 100 200

Figure X
Talmadge Creek
Swamp Mat Removal Plan
Sections 3, 4, 5 & 6
Line 6B Release
Enbridge Energy
Marshall, MI

US EPA ARCHIVE DOCUMENT



Legend

- Areas
- Road
- Mat Roads
- Talmadge Creek
- Xtex Fabric Cells
- Env Clearance Area
- Potential Areas of Concern

N

Feet
100 0 100 200

Figure X
Talmadge Creek
Swamp Mat Removal Plan
Sections 6, 7, 8, 9 & 10
Line 6B Release
Enbridge Energy
Marshall, MI

RESPONSE TO COMMENTS LOG

Re: U.S. EPA Notice of Conditional Approval of Enbridge Energy, Limited Partnership's May 13, 2011, Waste Treatment, Transportation and Disposal Plan in response to the Administrative Order issued by U.S. EPA on July 27, 2010, pursuant to§311(c) of the Clean Water Act (Docket No.CWA 1321-5-10-001) and Supplement to the Administrative Order issued by U.S. EPA on September 23, 2010.

Based on our review of your letter dated May 17, 2011, we have revised the Enbridge Line 6B MP 608, Marshall, MI Pipeline Release, Waste Treatment, Transportation and Disposal (WTTD) Plan, Enbridge Energy, Limited Partnership, (initially dated August 2, 2010, revised: August 8, 2010, supplemental revision: August 8, 2010, Supplemental revision October 28, 2010, revised: March 4, 2011, revised: March 23, 2011,revised: May 2, 2011, revised: May 13, 2011) as noted below. The changes are provided in the attached revised WTTD Plan and discussed in the following letter. Our modifications are outlined in bold and follow the agencies comments from the letter.

Waste Treatment, Transportation and Disposal Plan

Specific comments are set forth below and shall be incorporated into a revised WTTD Plan.

a) Section 3.4.2 Control Point Sampling Procedure.
   i) Second set of bullets, seventh bullet: please replace “Aliquots for the debris composite aliquot sample are…” with “Aliquots for the debris composite sample are…

      Response: Corrected

b) Section 3.6 De Minimis Hazardous Waste
   i) Please provide a detailed description of staging and handling of de minimis hazardous waste prior to off-site disposal.

      Response: Corrected/ De minimis hazardous waste such as spent bug repellent, spent degreasers, spent mechanical or automotive products, spent batteries, etc. will be manually collected, staged within ICP’s designated location in sealed, leak proof containers and disposed of properly in accordance with all applicable federal, state, and local regulations.

c) Section 4.2 Liquid Waste Water
   i) The referenced Water Management Plan (WMP) was previously approved. Therefore, please change the status of the WMP to approved.

      Response: Corrected

d) Section 4.3 Oil Impacted Media and Debris
   i) Please remove “etc.” from the third sentence.

      Response: Corrected

e) Section 4.4 Municipal Solid Waste
   i) Fourth paragraph: please provide a detailed description of staging and handling of miscellaneous small waste streams prior to off-site disposal.

US EPA ARCHIVE DOCUMENT

Response: Corrected/ These have been characterized individually, manually collected, staged within ICP's designated location in sealed, leak proof containers, and are disposed of properly in accordance with all applicable federal, state, and local regulations.

f) Attachments, Flow Charts
   i) Please use a single term consistently to reference Enbridge's representatives throughout the flow charts.

   Response: Corrected

g) Attachment II, Transfer Plan – Transfer of Operations from Site A to Frac Tank City
   i) Phase III, second paragraph: please change "EPA" to "USEPA."

   Response: Corrected

   ii) Figures 2 and 3: Please indicate the specific location within "Frac Tank City" where fractionation tanks ("frac" tanks) and roll-off containers will be staged. Additionally, please indicate if different areas will be used for frac tank/roll-off containers that are in-use, versus staging for potential use.

   Response: Corrected

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