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Enbridge Energy, Limited Partnership
1601 Pratt Avenue
Marshall, Michigan 49068

July 30, 2011

Mr. Ralph Dollhopf
Federal On-Scene Coordinator and Incident Commander
U.S. Environmental Protection Agency
801 Garfield Avenue, #229
Traverse City, MI 49686

Re: In the Matter of Enbridge Energy Partners, L.P., *et al*,
Docket No. CWA 1321-5-10-001

Dear Mr. Dollhopf:

The United States Environmental Protection Agency (U.S. EPA) in a letter dated July 27, 2011, gave Notice of Disapproval of two Enbridge Energy, Limited Partnership's (Enbridge) work plans titled as follows:

1. *Addendum to Response Plan for Downstream Impacted Areas and the Work Plan for Permanent Recovery of Submerged Oil and Oil-Contaminated Sediments at Priority locations and Ceresco Dam Dredging; as an Attachment to the supplemental modification of the Response Plan for downstream Impact Area and the Source Area response Plan, Strategy, and Tactics for Permanent Recovery of Submerged Oil and Oil-Contaminated Sediment (Commonly referred to as the "2011 Summer Strategic Work Plan") dated June 29, 2011.*

2. *Supplement to the 2011 Summer Strategic Work Plan for the Performance of Dredging Submerged Oil Impacted Sediments (Commonly referred to as the "Dredging Supplement") dated July 14, 2011.*

Enbridge has revised the work plans based on the comments received in the U.S. EPA Notice of Disapproval letter. Therefore, please find the following revised work plans which are being submitted for your review and approval.

1. *Addendum to Response Plan for Downstream Impacted Areas and the Work Plan for Permanent Recovery of Submerged Oil and Oil-Contaminated Sediments at Priority locations and Ceresco Dam Dredging; as an Attachment to the supplemental modification of the Response Plan for downstream Impact Area and the Source Area response Plan, Strategy, and Tactics for Permanent Recovery of Submerged Oil and Oil-Contaminated Sediment (Commonly referred to as the "2011 Summer Strategic Work Plan") dated July 30, 2011.*

2. *Supplement to the 2011 Summer Strategic Work Plan for the Performance of Dredging Submerged Oil Impacted Sediments (Commonly referred to as the "Dredging Supplement") dated July 30, 2011.*

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In addition, a combined response to comments log is also enclosed along with 5 CDs that each contain an electronic copy of the work plan, response to comments log and a Word text file.

If you have any questions about these materials, please do not hesitate to contact me.

Sincerely,

ENBRIDGE ENERGY, LIMITED PARTNERSHIP
By Enbridge Pipelines (Lakehead) L.L.C.
Its General Partner

Richard Adams
Vice President, U.S. Operations

CC: Joel W. Kanvik, Enbridge
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RESPONSE TO COMMENTS LOG

Re: U.S. EPA Notice of Disapproval of Enbridge Energy, Limited Partnership's June 29 and July 14, 2011 submittals 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

The United States Environmental Protection Agency (U.S. EPA) has completed its review of the following documents submitted by Enbridge Energy, Limited Partnership, Enbridge Pipelines (Lakehead) L.L.C., Enbridge Pipelines (Wisconsin), and Enbridge Energy Partners, L.P. (herein collectively referred to as "Enbridge"):

1. *Enbridge Line 6B MP 608, Marshall, MI Pipeline Release, Addendum to Response Plan for Downstream Impacted Areas and the Work Plan for Permanent Recovery of Submerged Oil and Oil-Contaminated Sediments at Priority locations and Ceresco Dam Dredging; as an Attachment to the supplemental modification of the Response Plan for downstream Impact Area and the Source Area response Plan, Strategy, and Tactics for Permanent Recovery of Submerged Oil and Oil-Contaminated Sediment (Commonly referred to as the "2011 Summer Strategic Work Plan") Prepared for United States Environmental Protection Agency, Enbridge Energy, Limited Partnership; Submitted: June 29, 2011*
2. *Enbridge Line 6B MP 608, Marshall MI Pipeline Release, Supplement to the 2011 Summer Strategic Work Plan for the Performance of Dredging Submerged Oil Impacted Sediments(Commonly referred to as the "Dredging Supplement") Prepared for United States Environmental Protection Agency, Enbridge Energy, Limited Partnership: Submitted July 14, 2011.*

Pursuant to Paragraph 19 of the July 27, 2010 Order, U.S. EPA disapproves Enbridge's above-referenced *2011 Summer Strategic Work Plan* ("SSWP") submitted to U.S. EPA on June 29, 2011 and above-referenced *Dredging Supplement* ("DS") submitted to U. S. EPA on July 14, 2011. Specific comments are set forth below and shall be incorporated into revised work plans.

Comments specific to the SSWP are presented below.

1) Please add a section entitled "Purpose" and provide a detailed narrative describing the purpose of the SSWP and specific goals/objectives.

Response: A purpose section has been added describing the purpose of the SSWP including the goals and objectives.

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2) Please add a section entitled "Post-Recovery Assessment," which shall proceed from upstream to downstream and will be performed after oil removal is performed. The narrative shall provide a detailed description of poling and/or other activities that will be performed to confirm the removal of all submerged oil

Response: Section 3.4.6 has been added. The existing U.S. EPA approved poling SOP will be used to perform poling at a level-of-effort consistent with the Spring 2011 reassessment. Approximately 5 poling teams required 8 weeks to perform the work. The poling teams work will be consistent with the Spring 2011 reassessment using a top-to-bottom approach after oil recovery work has been completed in the river.

3) Section 1.0:

a. Second full paragraph: Please describe the referenced monitoring that will be performed and include additional monitoring methods (i.e., automated sheen monitoring, quantitative analyses, etc.).

Response: The text was modified. Monitoring (poling and visual observation of sheen and oil) will be performed by a dedicated poling team during implementation and the results presented. The Water Quality Monitoring Standard Operating Procedure, Attachment P, approval pending has been referenced and attached.

b. Last paragraph: please quantify the end point for the recovery work (i.e., until light or no submerged oil is detected) or provide a reference to the end points if referenced elsewhere in the SSWP

Response: The endpoint reference is included in several locations for clarification.

4) Section 1.1:

a. Please replace "…..identified areas where oil posing a threat to navigable waters remains as both submerged oil and in the flood plain (overbank)." with "…..identified areas where oil posing a threat to navigable waters remains as submerged oil and/or in the flood plain (overbank)."

Response: Text in Section 1.1 has been modified as requested.

b. In addition to or as a replacement for the existing paragraph, please provide clear and concise objectives for the SSWP.

Response: The paragraph has been rewritten to provide a clear objective.

5) Section 1.2:

a. Please review and revise, if necessary, the locations and sequence of submerged oil areas to be addressed.

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Response: Minor revisions have been made.

b. In the first sentence, please replace "…oil remains." With "…heavy and moderate oil remains."

Response: Text in Section 1.2 has been modified as requested.

c. Ensure all moderate submerged oil areas are reflected in Attachments A through E referenced in this section.

Response: Progress updates and updated schedules for oil recovery operations have been presented at the 1700 Operations Meeting.

6) Section 2.0:

a. First paragraph: please clarify that the referenced "property owner input" is limited to restoration activities, and not oil recovery methods.

Response: Modified as requested.

b. Please revise the status of the referenced *Turbidity Monitoring Work Plan* to reflect the submission/approval date.

Response: Water Quality Monitoring Standard Operating Procedure, Attachment P, submitted July 26, 2011, approval pending.

c. Second bullet of second bullet list: please replace "Air Water Injector…" with "Air and/or Water Injector…"

Response: Text in Section 2.0 has been modified as requested.

7) Section 3.0:

a. Please define which river segments/mile posts are included in the "upper river" and "lower river" as these terms are used in the SSWP.

Response: The "upper river" and "lower river" segment designations are marginally applicable to the SSWP. Previously the two river segments were divided at MP 15.6 Kalamazoo River Dam. There are now three river segments as described in the introduction of the SSWP. These segments are defined by the major depositional areas at Ceresco Dam, Kalamazoo River Dam, and the Morrow Lake Delta. Clarification has been added.

b. Fourth set of bullets:

i. Second bullet: please replace "…agencies as an…" with "agencies at the Recovery Task Force meetings as an…"

Response: Text in Section 3.0 has been modified as requested.

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ii. Third bullet: please identify the title of persons that will record the referenced coordinates.

Response: Text in Section 3.0 has been modified as requested.

8) Section 3.3: please provide the referenced "Submerged Oil and Submerged Oil Addendum Toolbox" as an addendum to the SSWP and ensure that it includes methods for measuring turbidity and water flow velocities.

Response: The Submerged Oil and Submerged Oil Addendum Toolbox documents do not address water quality or flow measurements. The Approval Pending Water Quality Measurement Standard Operating Procedure, submitted on July 26, 2011 has been attached as Attachment P.

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9) Section 3.3.1:

a. Please clarify what is meant by the "open face of the river channel."

Response: The surface boom will be deployed from the edge of the river thalweg to the shoreline. Text has been added.

b. Please replace "floatation" with "flotation."

Response: Text in Section 3.3.1 has been modified as requested.

c. Please replace "…with 12-inch skirting…" with "…with at least a 12-inch skirting…"

Response: Text in Section 3.3.1 has been modified as requested.

d. Please replace "…along any shoreline areas…" with "along any shoreline and/or vegetated areas…"

Response: Text in Section 3.3.1 has been modified as requested.

10) Section 3.3.2: Please provide the referenced *Submerged Oil Recovery Monitoring Plan (as revised)* as an addendum to the SSWP.

Response: The Submerged Oil Recovery Monitoring Plan has been modified as the Approval Pending Water Quality Measurement Standard Operating Procedure, submitted on July 26, 2011 has been attached as Attachment P.

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11) Section 3.4.3:

a. Please replace the first bullet with the "Submerged Oil Recovery end points: the absence of sheen or presence of only light sheen during post-poling verification operations."

   Response: Text in Section 3.4.3 has been modified as requested.

b. Please replace the last sentence with "Target Areas that do not meet the defined end points will trigger continued oil recovery activities."

   Response: Text in Section 3.4.3 has been modified as requested.

12) Section 3.4.3.1:

a. Please replace 20 with 200.

   Response: Enbridge would like to discuss the request for the dramatic increase of the number of sediment cores. Additional data should be collected based upon a clear need for information required to assist project decision-making requirements.

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b. Second sentence: please replace "...locations will be selected by a fluvial geomorphologist" with "…locations shall be selected by a fluvial geomorphologist."

Response: Text in Section 3.4.3.1 has been modified as requested.

c. Please add the following to the end of the second sentence "and shall include locations known to contain heavy and moderate submerged oil prior to oil recovery activities."

Response: Text in Section 3.4.3.1 has been modified as requested.

d. Please replace the fourth sentence with "Results of the core logging process and photographs shall be used to aid in the evaluation of the effectiveness of submerged oil recovery actions."

Response: Text in Section 3.4.3.1 has been modified as requested.

e. Please add a provision stating that the vertical extent of oil-containing sediments will be determined during the evaluation of sediment cores.

Response: The text does indicate that the depth of the submerged oil will be evaluated from the core evaluation.

13) Section 4.0: please provide revised and updated schedules.

Response: Progress updates and updated schedules for oil recovery operations have been presented at the 1700 Operations Meeting.

14) Section 4.1:

a. Please specify when the hydrodynamic and oil mobilization risk evaluations will be performed and when the results will be submitted to the U.S. EPA.

Response: The initial hydrodynamic model has been populated and model output generated for the September, 2008 and April, 1947 storm events. These results will be discussed with U.S. EPA.

b. Please provide a mechanism for providing regular/periodic updates on the hydrodynamic and oil mobilization risk evaluations.

Response: The hydrodynamic model can be updated regularly based upon discussions between Enbridge and U.S. EPA.

c. Please provide a mechanism for providing updates on the hydrodynamic and oil mobilization risk evaluations if conditions change.

Response: The hydrodynamic model output can be evaluated for a variety of conditions based upon discussions between Enbridge and U.S. EPA. The results will be available in a 24 to 48 hour period based

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upon the number and variability of the adjustments to the key model parameters.

15) Section 5.0, last sentence: Please specify a time period for reacting to new situations or change of conditions.

Response: New situations or change of conditions will be reacted to immediately. The results of the corrective measures employed to address the concerns created by these situations may require additional time to access.

16) Please modify the Standard Operating Procedure (SOP) for turbidity to include an action level of twice background or 50 Nephelometric Turbidity Units (NTU), whichever is greater. Please include the revised SOP as an attachment to the revised SSWP.

Response: This has been included in the Approval Pending Water Quality Measurement Standard Operating Procedure, submitted on July 26, 2011 has been attached as Attachment P.

17) Please add a provision requiring continuous qualitative assessment for submerged oil at locations downstream of containment in the Morrow Lake Delta and in Morrow Lake.

Response: A poling team has been working to provide continuous qualitative assessments for submerged oil in this area.

18) Please add provisions for performing geomorphic mapping of deposition areas and conducting grain size analyses of sediments.

Response: Geomorphic mapping of erosional and deposition areas is being performed. Grain size distribution (GSD) of sediments will be performed to inform the hydrodynamic model and support the geomorphic mapping. Existing sediment cores will be used to secure the samples required by the geotechnical laboratory for this analysis.

Comments specific to the DS are presented below.

A) Please ensure that data reported in Table 1 are consistent with data in the text of the work plan; specifically ensure consistency with estimated dredge volumes.

Response: Table 1 has been reconciled with the text of the Work Plan.

B) Please include a treatability study for the sediments at the dam/spillway near Mile Post (MP) 15.75 and in the Morrow Lake Delta.

Response: Section 1.6 Bench Scale Test has been added as requested.

C) Please include a section entitled “Legacy Sites” and provide a detailed summary (including data, tables, figures, narrative and attachments, as necessary) review of

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potential impacts from legacy sites (i.e., PCBs) which may have affected contaminants present in the sediment.

Response: Section 2 has been added as requested.

D) Please provide a reassessment plan, proceeding from upstream to downstream, which will be performed after sediment removal is performed.

Response: A poling team will perform verification poling during the dredging operation. The poling team will certify the dredge cut achieved daily and establish the presence or absence of submerged oil. The existing EPA approved poling SOP will be used to accomplish this task. After the dredge has removed the design volume identified across the project footprint a final confirmation pass will be performed by the poling team to verify existing conditions.

E) Section 1.0:

i. Please add other known significant submerged oil areas (including MP 19.25 and the oxbows) to the DS plan or provide justification for not including them.

Response: Enbridge has confidence in the effectiveness of achieving the end point of oil recovery at submerged oil sites using the submerged oil recovery tool box techniques, therefore no additional areas have been proposed for dredging. Alternatives to address areas that do not achieve the end points will be evaluated with the agencies as the oil recovery continues.

ii. Please stipulate if the dredging efforts will be performed top down (i.e., upstream to downstream) or concurrent.

Response: Text in Section 1.0 has been modified as requested.

iii. Please change the first sentence in the second paragraph to read, "As it has been observed, it appears that submerged oil may continue to migrate and accumulate in the depositional areas."

Response: Text in Section 1.0 has been modified as requested.

iv. In the last sentence of the second paragraph, please include evaluation of an interim report and/or post-recovery data on submerged oil recovery effectiveness as one of the key considerations in deciding to dredge.

Response: Text in Section 1.0 has been modified as requested.

v. Please specify which contaminants will be evaluated in the dredging decision and how they will be considered.

Response: Dredging will not be performed in locations where PCB legacy contamination has been identified. Riparian landowners have expressed concerns about the mobilization potential of these legacy

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contaminants. The tool box techniques will be used to recover submerged oil to minimize disturbance of deeper legacy contaminants. The tool box techniques allow the existing "sediment cap" to remain over the deeper legacy contaminants reducing their mobilization potential.

F) Section 1.1: Please define the process for identifying a lay down area for the dam/spillway near MP-15.75

Response: Text in Section 1.1.2 has been modified as requested.

G) Section 1.1.1:

i. Please provide the estimated minimum and maximum cut depths, with technical justification, in the second and last sentences.

Response: Text in Section 1.2 has been modified as requested.

ii. Please specify the type of water treatment system that will be utilized.

Response: Text in Section 1.2 has been modified as requested.

iii. Coring and qualitative data shall be provided to justify actual dredge depths.

Response: Text in Section 1.2 has been modified as requested.

H) Section 1.1.2: Please provide a conceptual plan for the dewatering pad and equipment lay down area with a description of how material will be transported from excavations.

Response: Text in Section 1.2 has been modified as requested.

I) Table 1, Dredge Volume column: please deduct volumes not planned for dredging (i.e., addressed through "tool box methods") and remove the corresponding footnote.

Response: Table 1 and the corresponding footnote have been modified.

J) Section 1.2.1: Please remove the work precision when referring to cut depths.

Response: Text in Section 1.2.1 has been modified as requested.

K) Section 1.4: Please replace "access" with "assess" in the third sentence.

Response: Text in Section 1.4 has been modified as requested.

L) Section 1.5: Surface boom shall have a minimum skirt of 12 inches.

Response: Text in Section 1.5 has been modified as requested.

M) Section 1.7

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i. Please identify the source of clean water.

Response: Uncontaminated water from a municipal water supply will be trucked in for use.

ii. Please stipulate that the water system is a Granular Activated Carbon (GAC) system.

Response: Text in Section 1.8 has been modified as requested.

N) Section 1.9.1: Please revise the paragraph to begin with "General dredging schedules have been developed and are presented in Attachment E. Specific dredging schedules will….."

Response: Text in Section 1.15 has been modified as requested.

O) Section 1.12: Please remove the last bullet.

Response: Text in Section 1.12 has been modified as requested.

P) Section 1.13: Please state specifically what qualitative and quantitative data will be included in the assessment.

Response: Text in Section 1.13 has been modified as requested.

Q) Section 1.15**:** Please add bathymetry data in Geographical Information System (GIS) format consistent with previous GIS deliverables to the list of contents of the Completion Report.

Response: Bathymetry data in GIS format is included in this deliverable.

R) Please clarify the number of Geotubes® to be delivered to each of the dredge sites.

Response: Text in Section 3.3 has been modified as requested.

S) Please confirm that polymer feed pumps are adjusted based upon flow and density rather than percent solids.

Response: The following sentence is in Section 4.3: "The desired dosage rate will be entered into the polymer feed controls system, which will adjust the output of the polymer feed pump(s) based upon real-time measurements of dredge flow and density."

T) All dredge spoils shall include waste characterization for disposal. The analytical suite shall be the same as listed in Section 2.4.1 with the addition of testing for PCBs.

Response: PCB analysis has been added to the analytical suite in section 3.3.1.

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Approval Pending

Enbridge Line 6B MP 608

Marshall, MI Pipeline Release

Addendum to Response Plan for Downstream Impacted Areas and the Work Plan for Permanent Recovery Of Submerged Oil and Oil-Contaminated Sediments at Priority Locations and Ceresco Dam Dredging

As an Attachment to the Supplemental Modification of the Response Plan for Downstream Impact Area and the Source Area Response Plan, Strategy, and Tactics for Permanent Recovery of Submerged Oil and Oil-Contaminated Sediment

Commonly referred to as the "2011 Summer Strategic Work Plan"

Prepared for United States Environmental Protection Agency

Enbridge Energy, Limited Partnership

Submitted: June 29, 2011

Resubmitted: July 30, 2011

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Attachment B Overbank Excavation Schedule

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Attachment N **Data Capture Process Flow**

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Attachment P **Water Quality Measurement Standard Operating Procedure**

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LIST OF ACRONYMS

DRO	diesel range organics
EI	Enbridge Environmental Inspector
Enbridge	Enbridge Energy, Limited Partnership
FI	Enbridge Final Inspector
GIS	geographic information system
GPS	global positioning system
MDEQ	Michigan Department of Environmental Quality
MDEQ Order	Administrative Consent Order And Partial Settlement Agreement entered *In the Matter of Enbridge Energy Partners, L.P., and Enbridge Energy, Limited Partnership*, proceedings under the Michigan Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, MCL 324.101 et seq. signed November 1, 2010
MP	Mile Post
OI	Enbridge Operations Inspector
ORO	oil range organics
PNAs	polynuclear aromatic hydrocarbons
SCAT	Shoreline Cleanup Assessment Technique.
SORT	Shoreline and Overbank Reassessment Technique
Strategic Plan	*Strategic Planning, 2011 Summer Operations*
Supplemental Order	Supplement to Order for Compliance Under Section 311(c) of the Clean Water Act, issued by U.S. EPA Region 5 on September 23, 2010 to Enbridge Energy Partners, L.P. *et al*., Respondents, Docket No: CWA 1321-5-10-001
U.S. EPA	United States Environmental Protection Agency
U.S. EPA Order	U.S. EPA 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
UV	ultra violet
VOCs	volatile organic compounds
WTTD	*Waste Treatment, Transportation and Disposal Plan*

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1.0 INTRODUCTION

This *Addendum to the Response Plan for Downstream Impacted Areas, August 2, 2010, Revised August 17, 2010 per United States Environmental Protection Agency (U.S. EPA) August 17, 2010* letter and the *Work Plan for Permanent Recovery Of Submerged Oil and Oil-Contaminated Sediments at Priority Locations and Ceresco Dam Dredging, as an Attachment to the Supplemental Modification of the Response Plan for Downstream Impact Area and the Source Area Response Plan, Strategy, and Tactics for Permanent Recovery of Submerged Oil & Oil-Contaminated Sediment, October 7, 2010* commonly referred to as the "*Summer 2011 Strategic Work Plan"* (work plan) is in response to the requirements of the U.S. EPA Notice of Oil Recovery Directive for Summer 2011 to Enbridge Energy, Limited Partnership (Enbridge) dated June 17, 2011. The notice directs Enbridge to perform oil recovery activities pursuant to the Administrative Order issued by the U.S. EPA on July 27, 2010 and a Supplement to Order for Compliance under Section 311(c) of the Clean Water Act issued ("Supplement") by the U.S. EPA on September 23, 2010. Paragraph 6 (Item 18.i and 18.j) of the Supplement requires that Enbridge complete oil recovery of all submerged oil, oil sheen, oil-containing soils, and oil-containing sediments. Oil recovery includes, but is not limited to, locations identified in the *Strategic Planning, 2011 Summer Operations* (*Strategic Plan*), submitted on June 3, 2011.

This work plan includes an identification of targeted recovery areas, description of techniques proposed to address target areas, description of end points for oil recovery, identification of the process to achieve the end points, contingency options, and a detailed schedule to achieve the U.S. EPA mandated deadline of August 31, 2011. The work plan will meet the directives as detailed in the Notice.

<u>Purpose</u>

The purpose of this *Summer 2011 Strategic Work Plan* is to present the plan to recover remaining oil resulting from the spill. The work plan describes the methods that will be used to recover oil located at or near to the ground surface of banks and floodplains, identified in the subsurface soil, and present in the river channel and other submerged locations. The work plan compiles and presents the various methods that have been and are currently being employed (approved standard operating procedures and/or "tool box" techniques).

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To evaluate the effectiveness of the oil recovery efforts, a procedure has been developed with the U.S. EPA and the MDEQ and is presented in this work plan. This process includes agencies oversight during recovery activities, and an acknowledgement process document specifying that objectives have been met.

The overall general approach will be to implement oil recovery from upstream locations working downstream. This will ensure that oil recovery efforts will not recontaminate areas downstream that have been cleared previously.

The specific goals of the submerged oil recovery are to define and target areas that pole heavy or moderate. The qualitative end point under the strategic plan is to encounter light to no sheen at post recovery poling locations. The specific goals of the overbank oil recovery efforts are to remove the free oil which currently poses a risk for migration or sheening in the river. This qualitative end point objective under the strategic plan is to remove currently free oil which could potentially re-mobilize or contribute sheen to the river.

Protection of Morrow Lake from migrating submerged oil is a priority. A two step approach for submerged oil recovery will be used to protect the Lake. The first step will accomplish gross recovery from the Lake and the Delta. This action will stabilize the area. A second recovery step will be implemented at the Lake and Delta upon completion of the top-to-bottom approach for the river reach from Battle Creek to the Dam. Monitoring (poling and visual observation of sheen and oil) will be performed by a dedicated poling team during implementation and the results presented. Additional water quality monitoring will be conducted as described in the *Water Quality Measurement Standard Operating Procedure in Attachment P*. Corrective measures will be discussed and implemented to address migrating submerged oil concentrations that represent a concern.

1.1 Objectives

The objective of this work plan is to describe how remaining oil will be recovered in compliance with the U.S. EPA June 17, 2011 directive. Reassessment activities completed in the spring of 2011 described in the *Shoreline and Overbank Reassessment, MP 0.00 to 40.00 and Poling Reassessment, MP 0.00 to 37.80 Report and the Addendum to the Poling Reassessment MP 37.08 to MP 40.00 Report*, identified areas where oil posing a threat to navigable waters remains as submerged oil and/or in the flood plain (overbank). The information presented in these reports was used to develop a list of target areas. This list

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was presented and reviewed with regulatory agencies to develop a strategy to conduct recovery activities to collect submerged oil, oil sheen, oil-containing soils, and oil-containing sediments. Toolbox techniques were developed to recover oil for both submerged and overbank oil. A Strategic Plan, including an overall proposed implementation schedule, was developed and provided to the U.S. EPA describing how the target areas would be addressed. This work plan expands upon that *Strategic Plan* presenting a plan to achieve oil recovery end points at identified locations.

1.2 Target Areas

The reassessment of the entire spill area conducted during the Spring of 2011 identified a number of target areas where heavy and moderate oil remains. These areas were segregated into the following categories for the implementation of oil recovery activities as per the *Strategic Plan* and discussions with agency personnel the week of June 20, 2011. Recovery of Submerged Oil will utilize a top-to-bottom approach for work sequencing to maximize efficiency.

- Submerged Oil mile post (MP) 0.0 to MP 6.0, Talmadge Creek to Ceresco Dam,
- Submerged Oil MP 6.0 to MP 15.75, Ceresco Dam to Battle Creek,
- Submerged Oil MP 15.75 to MP 39.75, Battle Creek to Morrow Lake,
- Overbank Surface Soils (currently 240 identified locations), and
- Overbank Excavations (currently ten identified locations).

The identification of the sites contained within each of the site categories are provided in the task specific oil recovery schedules (*Attachments A through E*) and identified in *Figure 1*, *Figure 2*, and *Figure 3*. The maps included *in Attachments A through E* referenced in this section reflect heavy and moderate submerged oil.

2.0 OIL RECOVERY METHODS

A number of oil recovery techniques have been implemented to recover oil and oil-containing media. Techniques described in the Shoreline Cleanup Assessment Technique (SCAT) have been implemented and expanded upon based on conditions encountered at each location. The selection of the technique or techniques for each targeted area consider accessibility, ecological sensitivity, type of oil impact present, depth of water, depth of oil in

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sediment or soil, property owner input (for restoration issues only), and other factors. Proposed oil recovery techniques for submerged as well as floodplain have been described and presented to the U.S. EPA in various documents including:

- *Overbank Oil Recovery Standard Operating Procedure* (Overbank Toolbox), *Attachment F*, approved,
- *Submerged Oil Recovery Standard Operating Procedure* (Submerged Oil Toolbox), *Attachment G,* see below for approval status,
- *Submerged Oil Recovery Standard Operating Procedure, Inclusion of Peat and/or Moss for Surface Oil Recovery* (Submerged Oil Toolbox Addendum), *Attachment H*, approval pending, and
- *Water Quality Monitoring Standard Operating Procedure, Attachment P,* submitted July 26, 2011, approval pending.

The Submerged Oil Toolbox techniques were submitted as individual pilot studies, and the status of these methods are as follows:

- *Submerged Oil Pilot Study – Rotating Stingers*, approval with modifications,
- *Submerged Oil Pilot Study –Air and/or Water Injector (Hand-Held Stinger),* approval with modifications,
- *Submerged Oil Pilot Study – Manual Raking*, approval with modifications,
- *Submerged Oil Pilot Study – Hand-Held Tiller*, approval with modifications,
- *Submerged Oil Pilot Study – Chain Drag*, approval with modifications,
- *Submerged Oil Pilot Study – Vessel Mounted Bottom Drag*, approval pending,
- *Submerged Oil Pilot Study – Water Flushing Pipe Drag*, approval pending, and
- *Submerged Oil Pilot Study – Rotating Stingers*, approval pending.

2.1 Oil-Containing Soil

Oil recovery techniques have been developed for target areas based on the location (depth) of the observed impact. Surface and shallow soils generally refer to oil located at or within six inches of the surface. This includes tar patties, globules, oiled vegetation, etc. Oil containing soil at depths greater than six inches generally will require mechanical excavation.

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2.1.1 Surface and Shallow Soils

As described in the *Overbank Toolbox*, approved on June 8, 2011, the selection of sites for overbank oil recovery using the outlined techniques will be based upon current observed site conditions and the results of the reassessment process. Specific application of one or more of the presented oil recovery procedures will depend upon a number of factors including those prescribed in the *Overbank Toolbox*.

2.1.2 Subsurface Soils

Oil identified at a depth greater than six inches may be recovered under the Overbank Excavation Group, and in some cases may require a site-specific work plan to be submitted for agency approval per the Michigan Department of Environmental Quality Order (MDEQ Order). Any permits pursuant to state requirements will be obtained as well prior to implementation of the oil recovery. The current status of permits can be found in *Table 1*.

2.2 Submerged Oil

As described in the *Submerged Oil Toolbox*, the selection of submerged oil recovery techniques will be dependent upon site-specific conditions and the results of the reassessment, and will be verified during oil recovery activities by pre-poling. These procedures may be used separately or in combination with other tool box techniques to achieve oil recovery objectives. The oil recovery objectives are defined as poling that cause no or light sheening.

2.3 Sheen

The recovery of oil as sheen will be accomplished by removal of the oil that is creating the said sheen. This will be accomplished by identifying the overbank and/or submerged oil that is creating the sheen and recovering the oil using the methods described above.

As described in the *Submerged Oil Toolbox*, actions will be taken including, but not limited to, the deployment of boom and absorbent materials to capture sheen that has been generated through poling and oil recovery activities.

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3.0 OIL RECOVERY PROCEDURES

A procedure has been developed to plan, execute, and document oil recovery activities. Field and record-keeping procedures have been developed to perform and document the oil recovery processes at sites identified in the *Strategic Plan*. Appropriate equipment and personnel will be optimally deployed to the site based on proposed recovery techniques and site characteristics, and data will be collected and preserved.

Implementation of the *Strategic Plan* is being accomplished using a team approach, further dissecting the general Overbank and Submerged Oil recovery efforts (*Attachment I*). Five Leadership Sub-Groups have been assembled to focus on the recovery operations and include:

- Shallow Soil Excavation,
- Deep Soil Excavation,
- Submerged Oil (MP 0.00 to 15.75),
- Submerged Oil (MP 15.75 to 37.8), and
- Morrow Lake.

The “upper river” and “lower river” segment designations are currently minimally applicable to the SSWP. Previously the two river segments were divided at MP 15.75 Kalamazoo River Dam. There are now three river segments as described in the introduction of the SSWP. These segments are defined by the major depositional areas at Ceresco Dam, Kalamazoo River Dam, and the Morrow Lake Delta.

Each Leadership Sub-Group is comprised of the following roles:

- Operations Team Leader, and
- Environmental Team Leader.

Each general Oil Recovery Group (i.e., Overbank and Submerged Oil) include support from the following roles:

- Planning Group Leader,
- Safety Group Leader,
- Right-of-Way (ROW) Group Leader,

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- Finance Group Leader, and
- Procurement Group Leader.

In general, the process for oil recovery efforts is (*Attachment J*):

- The Leadership Sub-Group Team Leaders coordinate, prioritize, and schedule the individual Target Areas for clean up,
- The work activities for the Oil Recovery Groups are presented to the agencies at the Recovery Task Force meetings as an updated schedule as well as in daily work orders,
- Coordinates of the specific target areas, identified during the Spring 2011 reassessment, are uploaded by general field staff into a portable global positioning survey (GPS) unit capable of sub-meter accuracy,
- Oil Recovery Field Teams consisting of an Operations Inspector (OI), Environmental Inspector (EI), and supports workers (as well as agency observers) are mobilized to the site to execute the work,
- Pre, during, and post photographs and documentation is collected,
- Oil recovery/cleanup work is conducted until endpoint is achieved (see *Section 3.4.2 End Points*),
- Enbridge Operations signs Oil Removal Field Activity Log signifying that the end points have been achieved,
- Enbridge and the agencies sign their names on the Oil Removal Field Activity Log and (for overbank sites) depart the site,
- Inspection team with agency representation return to submerged oil site at least 24 hours later to determine if end point has been met,
- Enbridge and the agencies present sign their names on the Oil Removal Field Activity Log and Enbridge submits the document to be uploaded and the planning metrics are updated,
- The target area is discussed during a meeting with the agencies and information reviewed, and
- If information review is satisfactorily completed, the agencies and Enbridge acknowledge the Multi-Tiered Data Evaluation Form.

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3.1 Overbank Surface Soil Oil Recovery Procedures

Overbank Target Areas will be delineated and flagged prior to recovery operations based upon GPS points (sub-meter accuracy) collected during the reassessment. After recovery activities have been completed, additional GPS coordinates will be collected to confirm oil recovery locations. Oil recovery procedures will be conducted in accordance with the *Overbank Toolbox* in a manner that minimizes the potential to contaminate adjacent areas, and minimize impact to ecological sensitive areas. Daily activities are captured in the *Daily Progress Report* found in *Attachment K*. All generated waste will be containerized, transported, and disposed of pursuant to the approved *Waste Treatment, Transportation and Disposal Plan (WTTD).*

3.2 Overbank Excavation Oil Recovery Procedures

Overbank locations will be delineated and flagged prior to excavation activities based upon GPS points collected during the reassessment and remedial investigation activities. After recovery activities have been completed, additional GPS coordinates will be collected to document oil recovery locations (actual excavation boundaries, verification sample locations, etc.). Oil recovery activities will be conducted in accordance with approved work plans and permits in a manner that minimizes the potential to contaminate adjacent areas, including the migration of contaminants deeper into the soil. Daily activities are captured in the Daily Progress Report. All generated waste will be containerized, transported, and disposed of pursuant to the approved *WTTD*.

3.3 Submerged Oil Recovery Procedures

Submerged oil locations identified during the reassessment will be verified and delineated prior to recovery operations. Oil recovery activities commence with pre-poling verification to confirm these identified locations. Oil recovery procedures will be conducted in accordance with the *Submerged Oil and Submerged Oil Addendum Toolbox* in a manner that minimizes the potential to contaminate downstream areas by placing hard containment boom and X-Tex or Geotextile curtain prior to recovery technique implementation to prevent contamination from migration. Recovery operations will be completed in each area by moving from upstream to downstream. Floating oil and sheen will be directed to a collection area within the boomed work area and recovered using sorbent materials. Daily activities are captured in the Daily Progress Report. Verification of the absence of contamination will

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be documented in accordance with the *Turbidity Work Plan*. All generated waste will be containerized, transported, and disposed of pursuant to the approved *WTTD*.

3.3.1 Containment

A contained cell will be constructed around the perimeter of the work area. This cell will consist of surface and subsurface containment deployed around the outside extent of the impacted area sealing it from the flow of the river.

The boom will be anchored to the shoreline as well as in-stream as required, depending on the contours of the work area. The surface boom will consist of a hard Boom (22-ounce PVC coated 6-inch flotation with at least a 6-inch skirting, 5/16-inch high tension cable, 3/8 inch ballast chain at bottom of skirt). X-Tex curtain equipped with a ballast chain will be attached to the surface boom. This X-Tex curtain will extend from the water surface to the bottom of the channel. Absorbent boom will be installed along any shoreline and/or vegetated areas that could potentially become impacted by the surface product/sheen. Site containment will be inspected prior to start up each day as well as throughout the work period. Increased containment will be installed as required dependent on flow rate, water depth and general site conditions.

3.3.2 Monitoring

Monitoring will be performed during submerged oil recovery operations in accordance with the *Submerged Oil Recovery Monitoring Plan* submitted June 25, 2011. This plan provides specific provisions for turbidity monitoring, collection, and logging of sediment cores for qualitative and quantitative data, and reporting of the results. A dedicated poling team will be utilized to monitor the inventory of submerged oil in Morrow Lake and the braided delta. The results will be used to ensure the protection of Morrow Lake from migrating submerged oil. Changes in submerged oil concentrations will be reported and potential corrective measures discussed at the Recovery Task Force Meetings. A poling team has been working to provide continuous qualitative assessments for submerged oil in the Morrow Lake Delta and Morrow Lake Fan.

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3.4 Field and Office Quality Assurance/Quality Control (Overbank and Submerged Oil)

Oil Recovery Field Teams will be led by an OI who is responsible for the team's location and execution. The EI leads the production of field and photo documentation. In a combined effort, both the OI and EI are responsible for the progress of the Target Areas to achieve end points.

3.4.1 Final Inspections

Final inspections are initiated by the OIs, as recommended by the EIs and the clean up team including the agencies. The inspections proceed through the OI and the EI who is responsible for documenting the oil recovery operations through Daily Progress Reports and the Field Activity Logs and photos. After the site has achieved clearance (attainment of end points) from the OI, the Oil Removal Field Activity Log will be signed by Enbridge and the agencies (*Attachment L and M,* respectively). If the site does not achieve clearance, appropriate response actions will resume and continue again through clearance until the defined end points have been achieved.

3.4.2 Overbank End Points

Oil recovery end points for overbank Target Areas can be defined as follows:

- Overbank Oil Recovery end points: the absence of visual oil after the completion of excavation operations.

Target Areas will attain a designation of "oil recovery activities complete" agreed upon by U.S. EPA, MDEQ, and Enbridge representation, captured as the Acknowledgement Signatures on the Overbank Oil Removal Field Activity Log. Target Areas unable to obtain the Acknowledgement Signatures indicating that the oil recovery is incomplete will continue oil recovery activities. The focus of this work plan is to recover submerged oil, oil sheen, oil-containing soils, and oil-containing sediments.

3.4.3 Submerged Oil End Points

Oil recovery end points for submerged oil Target Areas can be defined as follows: the absence of sheen or presence of only light sheen during post-poling verification operations.

Target Areas will attain a designation of "oil recovery activities complete" agreed upon by U.S. EPA and Enbridge representation, captured as the Acknowledgement Signatures on

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the Oil Removal Field Activity Log. Target Areas that do not meet the defined end points will trigger continued oil recovery activities. The focus of this work plan is to recover submerged oil that causes sheening and oil sheen.

3.4.3.1 Sediment Core Logging in Morrow Lake

Approximately 20 sediment cores will be collected pre- and post-recovery on the sediment fan and in the braided delta. The locations shall be selected by a fluvial geomorphologist and shall include locations known to contain heavy and moderate submerged oil prior to oil recovery activities. Each core will be logged to identify the volume present and depth of submerged oil. The sheen test and UV light will be used during the core logging process. Results of the core logging process and photographs shall be used to aid in the evaluation of the effectiveness of submerged oil recovery actions. An attempt will be made to use the information to evaluate the effectiveness of submerged oil recovery implementation.

Enbridge and their consultants do not feel it is in the best interest of the project to arbitrarily add an additional 180 sample locations in the Morrow Lake delta and Morrow Lake fan. It is appropriate to discuss what additional sampling is required to obtain chemistry and core logging data required to understand the progress of the oil recovery work, and the status of mobilization of submerged oil into the area. This discussion should focus on the appropriate number and locations for the sediment cores. Additional data should only be collected based upon a clear need for information required to assist project decision-making requirements.

3.4.3.2 Analytical Data in Morrow Lake

Chemistry data will be obtained on the samples secured from the sediment cores collected in Morrow Lake and the braided delta. Samples will be taken from each layer of the sediment core based upon the professional judgment of the fluvial geomorphologist. Analysis will be performed for volatile organic compounds (VOCs), Diesel Range Organics (DRO), Oil Range Organics (ORO), polynuclear aromatic hydrocarbons (PNAs), and five metals (molybdenum, beryllium, nickel, vanadium, and iron). An attempt will be made to use the chemistry data to evaluate the effectiveness of submerged oil recovery implementation.

3.4.4 Field Data Capture and Planning Updates

Oil recovery activities will be documented on Daily Progress Reports, GPS-referenced photographs (including pre-, during, and post-recovery), Field Activity Logs, and field photo

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logs. Oil recovery locations will be collected electronically for integration into the geographic information system (GIS) for the project. Capture of this documentation is described in the Data Capture Process Flow found in *Attachment N*. In addition, OIs will communicate status of sites to their planning group representatives daily for accurate tracking and presentation of progress of oil recovery activities.

3.4.5 Completeness Checks

After oil recovery activities have been completed, final clearance has been approved by Enbridge Management, and the Oil Removal Field Activity Log has obtained all Acknowledgement Signatures, field data and documentation will be reviewed by U.S. EPA, MDEQ, and Enbridge representatives and documented in the Multi-Tiered Data Evaluation Form found in *Attachment O*.

3.4.6 Submerged Oil Post Recovery Assessment

The existing U.S. EPA approved poling SOP will be used to perform poling at a level-of-effort consistent with the Spring 2011 reassessment. Approximately five poling teams required eight weeks to perform the work. The poling teams work will be consistent with the Spring 2011 reassessment using a top-to-bottom approach after oil recovery work has been completed in the river.

4.0 SCHEDULE

Oil recovery schedules can be found in *Attachments A through E* for Overbank Surface; Overbank Excavation; Submerged Oil MP 0.0 to MP 6.0, Talmadge Creek to Ceresco Dam; Submerged Oil MP 6.0 to MP 17.0, Ceresco Dam to Battle Creek; and Submerged Oil MP 17.0 to 39.75, Battle Creek to Morrow Lake, respectively. Pursuant to the U.S. EPA mandate, the recovery of all oil is scheduled to be complete by August 31, 2011. The identified dates for each individual target area, proceeding from upstream to downstream, are presented for general scheduling purposes only and will be modified based on numerous factors including river conditions, access, and re-prioritization of areas. Updates to the oil recovery schedule will be ongoing throughout the project and will be presented to the U.S. EPA and MDEQ on a daily basis.

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4.1 Morrow Lake Schedule

4.1.1 Hydrodynamic Considerations

The professional judgment of a senior scientist that has performed hydrodynamic modeling on similar river systems will be used to ascertain the risk of mobilizing submerged oil further into Morrow Lake. An evaluation will be performed to determine the conditions required to mobilize submerged oil from the braided delta into Morrow Lake. A similar evaluation will be performed to determine the conditions required to mobilize submerged oil from the sediment fan located on the East side of Morrow Lake (MP 38 to MP 38.25) further into the Western portion of the Lake and potentially over the Morrow Lake dam (MP 39.75). This evaluation will include a discussion on the seiche effect in Morrow Lake. An attempt will be made to determine the seiche influence on maintaining submerged oil deposition on the sediment fan, as well as moving submerged oil from the West to the East onto the sediment fan. The results of this evaluation will be used to inform the design and placement of containment systems used in the submerged oil recovery implementation.

The initial hydrodynamic model has been populated and model output generated for the September, 2008 and April, 1947 storm events. These results will be discussed presented to the U.S. EPA. The hydrodynamic model output can be evaluated for a variety of conditions based upon discussions between Enbridge and U.S. EPA. The results will be available in a 24 to 48 hour period based upon the number and variability of the adjustments to the key model parameters.

The hydrodynamic model will be updated regularly based upon discussions between Enbridge and U.S. EPA.

4.1.2 Geomorphology Considerations

The professional judgment of a senior scientist that has performed geomorphic-induced sediment remediation on similar river systems will be used to ascertain the risk of mobilizing submerged oil further into Morrow Lake. The results of this evaluation will be used to inform the design and placement of containment systems used in the submerged oil recovery implementation. An evaluation will be performed to determine the potential of mobilizing submerged oil inventory identified by poling from the braided delta into Morrow Lake during recovery implementation. An attempt will be made to determine the conditions required to mobilize submerged oil inventory from the braided delta into Morrow Lake during storm events.

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Geomorphic mapping of erosional and deposition areas is being performed. Grain size distribution (GSD) of sediments will be performed to inform the hydrodynamic model and support the geomorphic mapping.

5.0 CONTINGENCIES

This work plan presents a strategy designed to achieve the requirements in the timeframe mandated by the U.S. EPA in the U.S. EPA Notice to Enbridge dated June 17, 2011. Adverse weather or river conditions may delay or impact the efficiency and timing of oil recovery efforts. Overbank excavation locations may require work plan or permit approval prior to the commencement of recovery efforts. Target areas may require additional response activities based on site conditions encountered during operations. Small excavation sites may become larger excavations (requiring work plans and permits) if the extent of oil encountered is greater than initially anticipated and if tool box techniques are not adequate. Submerged sites may become overbank sites as river conditions and water levels decrease. A process for relocating target areas from one team to another has been established to optimize recovery. Permit applications, required to conduct sediment and/or soil in certain areas are being prepared for submission to the MDEQ in the event the current proposed oil recovery efforts for target areas are not optimal to achieve the desired end points (*Table 1*). For submerged oil, dredging strategies and procedures are well into the planning phase to recover submerged oil supplementing the submerged oil tool box. As new situations arise, Enbridge will swiftly react, in consultation with the U.S. EPA and MDEQ, to develop a response strategy to achieve the end points.

New situations or change of conditions will be reacted to immediately. The results of the corrective measures employed to address the concerns created by these situations may require additional time to access.

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Table

Table 1. Permit Application Status
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

Mile Post	Document	Submitted Date	Agency Approval	Comments
9.50	MDEQ Permit 9.50 I1	6/28/11		
23.25-28.75	MDEQ Permit - Submerged Oil Recovery 23.25-28.75	6/20/11		MDEQ Permit combined with 28.75-36.75
28.75-36.75	MDEQ Permit - Submerged Oil Recovery 28.75-36.75	6/20/11		MDEQ Permit combined with 23.25-28.75
4.25	MDEQ Permit 4.25 IE	6/15/11		
4.50	MDEQ Permit 4.50 IF	6/15/11		
4.50	MDEQ Permit 4.50 L1	6/10/11		JF New Delivered to MD Combined with 4.25-5.75
21.50	MDEQ Permit 21.5	6/10/11		JF New Delivered to MD
4.25-5.75	MDEQ Permit 4.25-5.75	6/10/11		JF New Delivered to MD
11.25	MDEQ Permit 11.25 R1/R2	6/7/11	6/23/11	Original along with payment voucher was delivered to the district office on 6/7/11
NA	MDEQ Permit Bridge & Access	6/6/11	6/14/11	Original Document with check returned so we could deliver to the district office - completed 6/6/11.

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Figures

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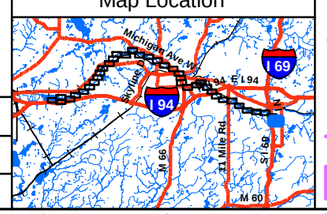
ENBRIDGE

Drawn:	GM	6/28/2011
Approved:	DP	6/28/2011
Project #:	60162778	

Map Location



Legend

Overbank Surface Locations

- Tar Patty Site (Point)
- Tar Patty Site (Line)
- Tar Patty Site (Polygon)
- Final Inundation Model
- Quarter Mile Grid Segment

N

0 175 350 700

Scale in Feet

FIGURE 1
OVERBANK SURFACE OIL
TARGET AREAS

Sheet 1 of 38

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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Aerial Photography Date: April 2011

ENBRIDGE

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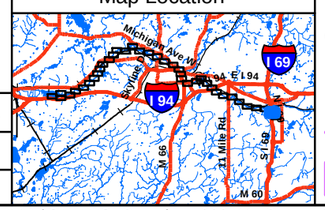

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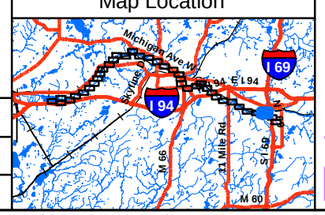

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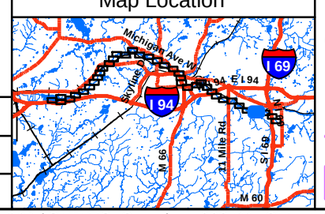

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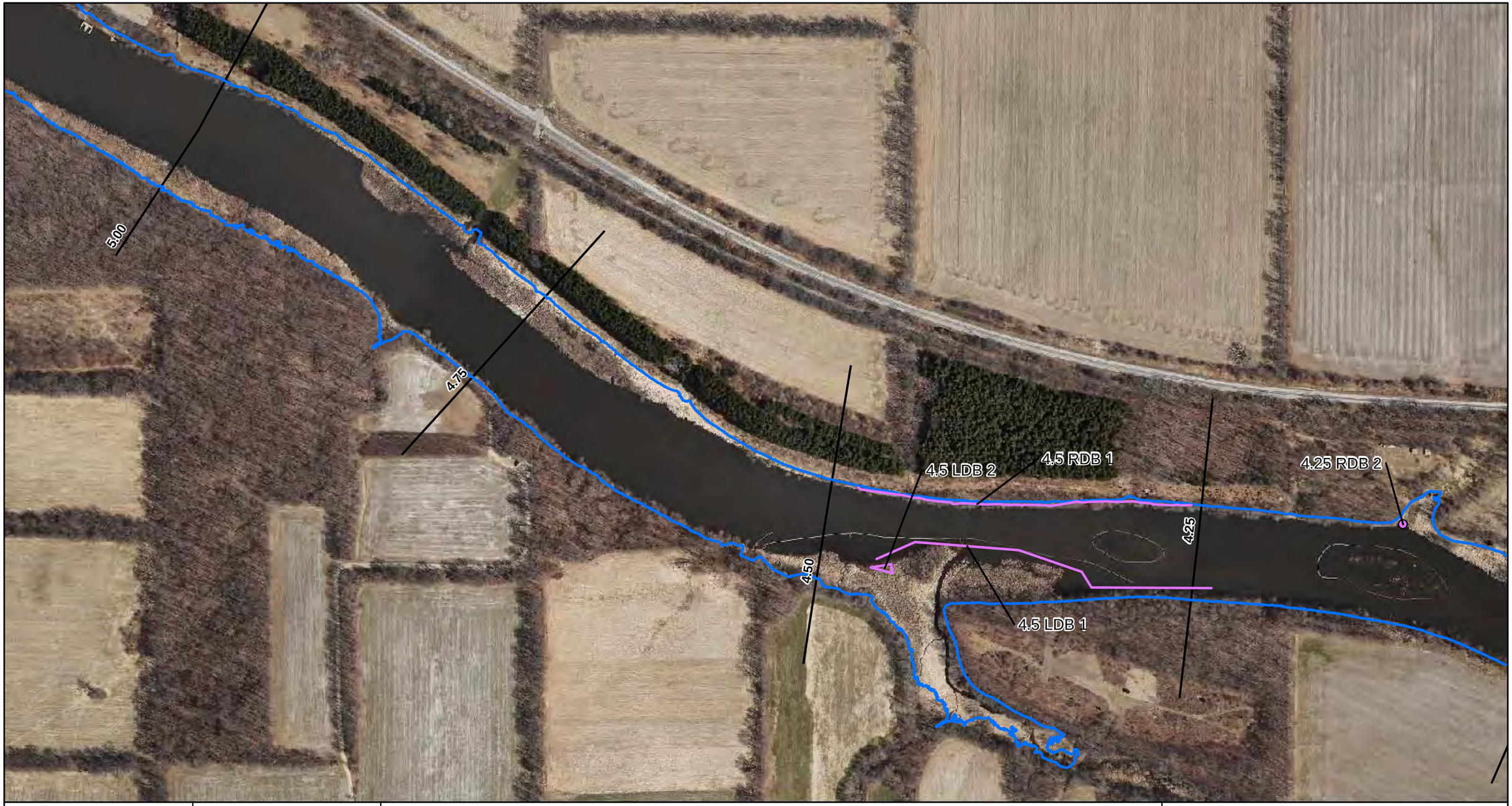

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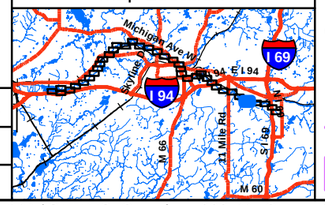

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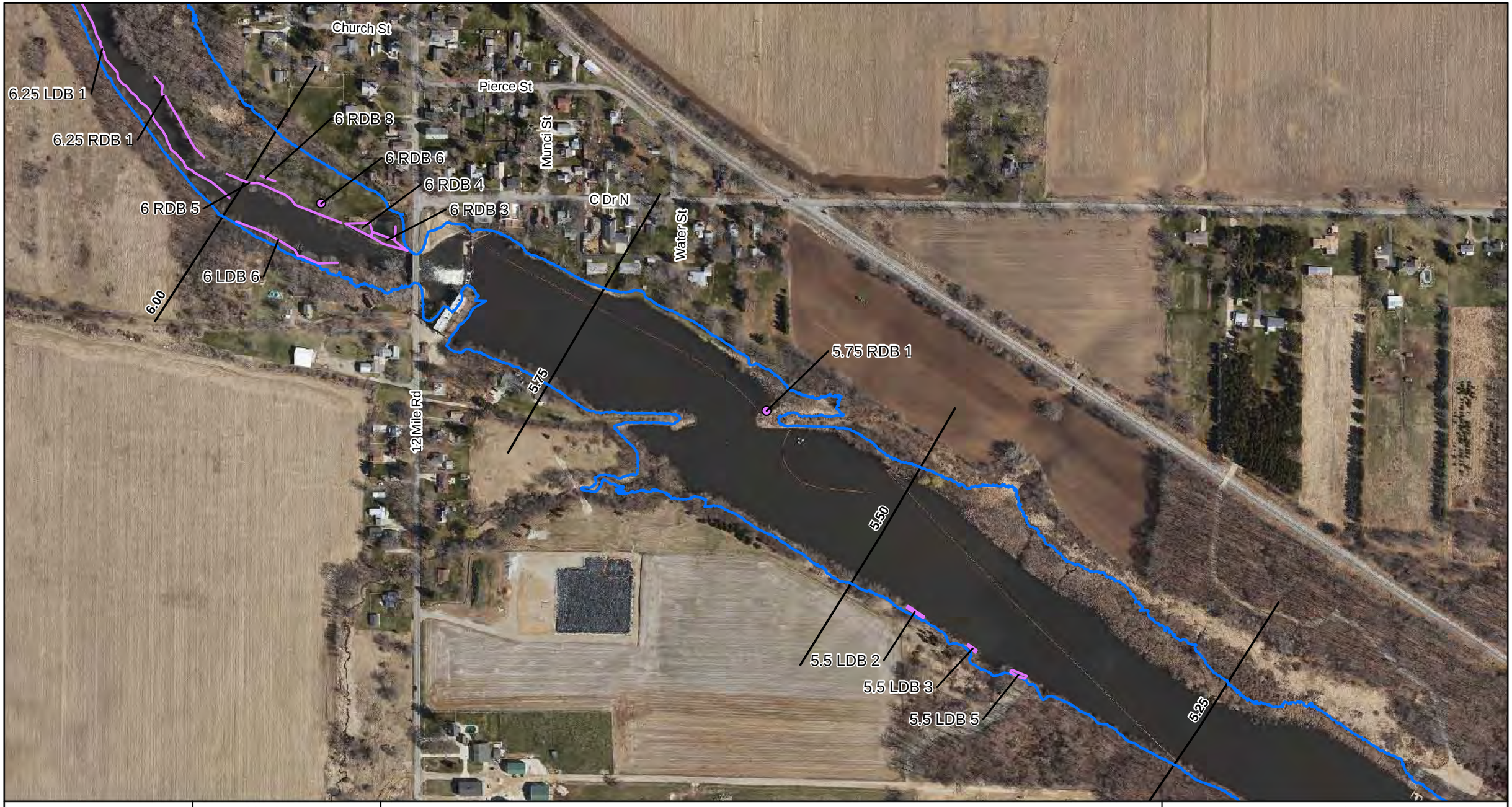

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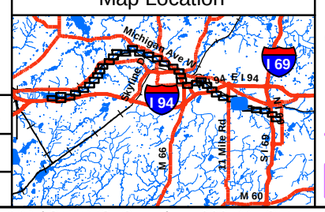

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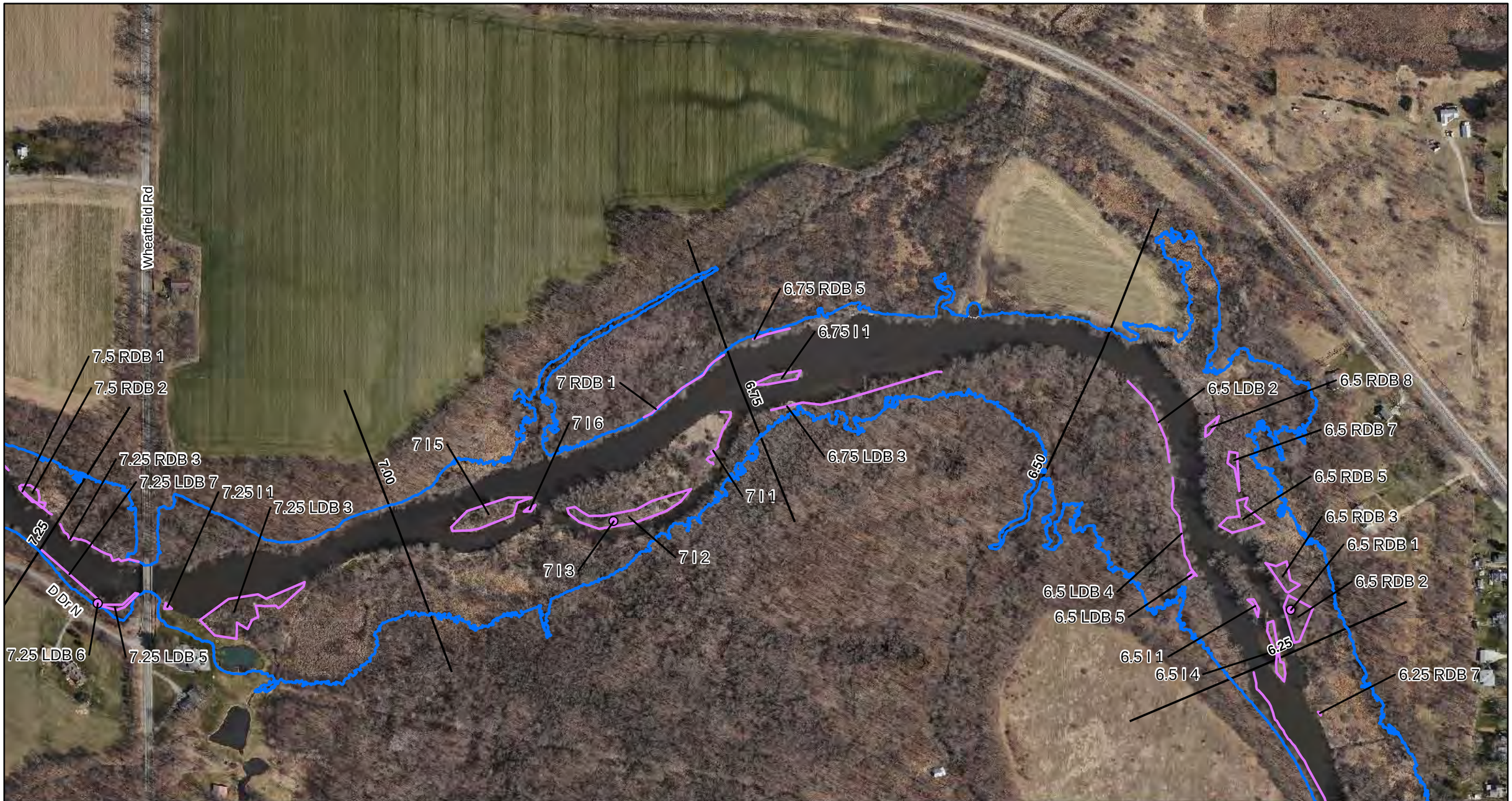

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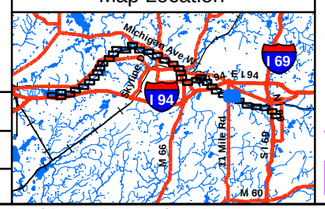

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Scale in Feet

FIGURE 1
OVERBANK SURFACE OIL
TARGET AREAS

Sheet 7 of 38

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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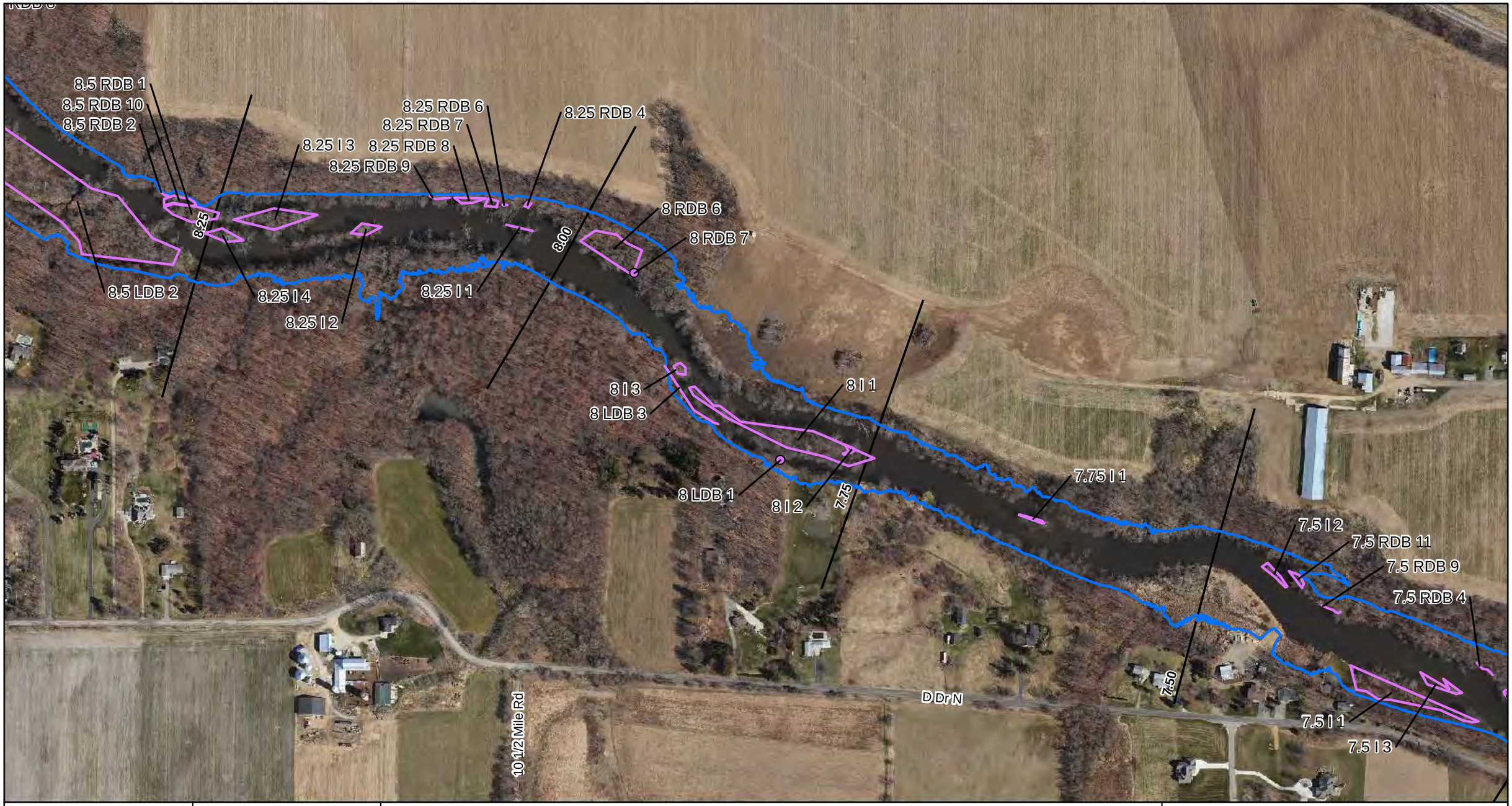
Aerial Photography Date: April 2011



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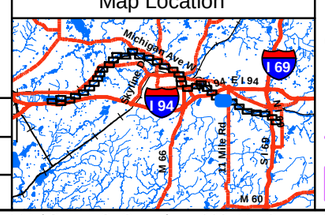
Project #:	60162778	

Map Location



Legend

Overbank Surface Locations

- Tar Patty Site (Point)
- Tar Patty Site (Line)
- Tar Patty Site (Polygon)
- Final Inundation Model
- Quarter Mile Grid Segment

N

0 175 350 700

Scale in Feet

FIGURE 1
OVERBANK SURFACE OIL
TARGET AREAS

Sheet 8 of 38

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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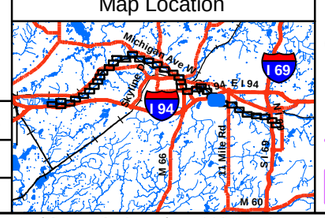
Map Location



Legend

Overbank Surface Locations

- Tar Patty Site (Point)
- Tar Patty Site (Line)
- Tar Patty Site (Polygon)
- Final Inundation Model
- Quarter Mile Grid Segment

N

0 175 350 700

Scale in Feet

FIGURE 1
OVERBANK SURFACE OIL
TARGET AREAS

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ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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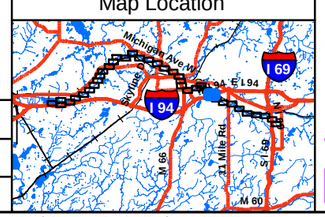

Legend

Overbank Surface Locations

- Tar Patty Site (Point)
- Tar Patty Site (Line)
- Tar Patty Site (Polygon)
- Final Inundation Model
- Quarter Mile Grid Segment

N

0 175 350 700

Scale in Feet

FIGURE 1
OVERBANK SURFACE OIL
TARGET AREAS

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ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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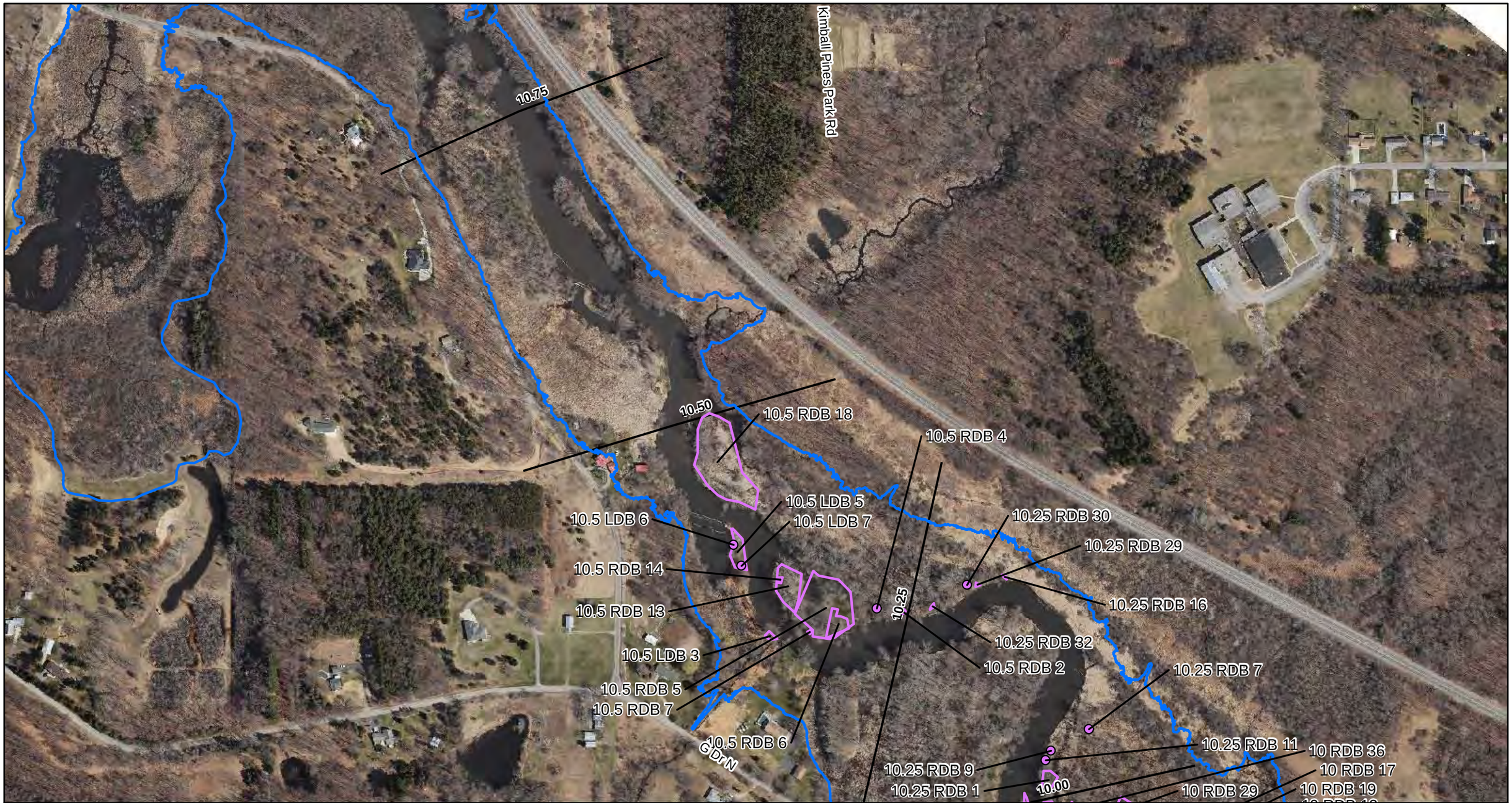

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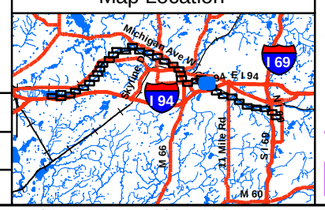

Legend

Overbank Surface Locations

- Tar Patty Site (Point)
- Tar Patty Site (Line)
- Tar Patty Site (Polygon)
- Final Inundation Model
- Quarter Mile Grid Segment

N

0 175 350 700

Scale in Feet

FIGURE 1
OVERBANK SURFACE OIL
TARGET AREAS

Sheet 11 of 38

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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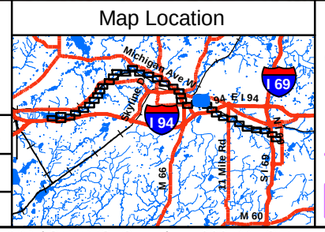
Map Location



Legend

Overbank Surface Locations

- Tar Patty Site (Point)
- Tar Patty Site (Line)
- Tar Patty Site (Polygon)
- Final Inundation Model
- Quarter Mile Grid Segment

N

0 175 350 700

Scale in Feet

FIGURE 1
OVERBANK SURFACE OIL
TARGET AREAS

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ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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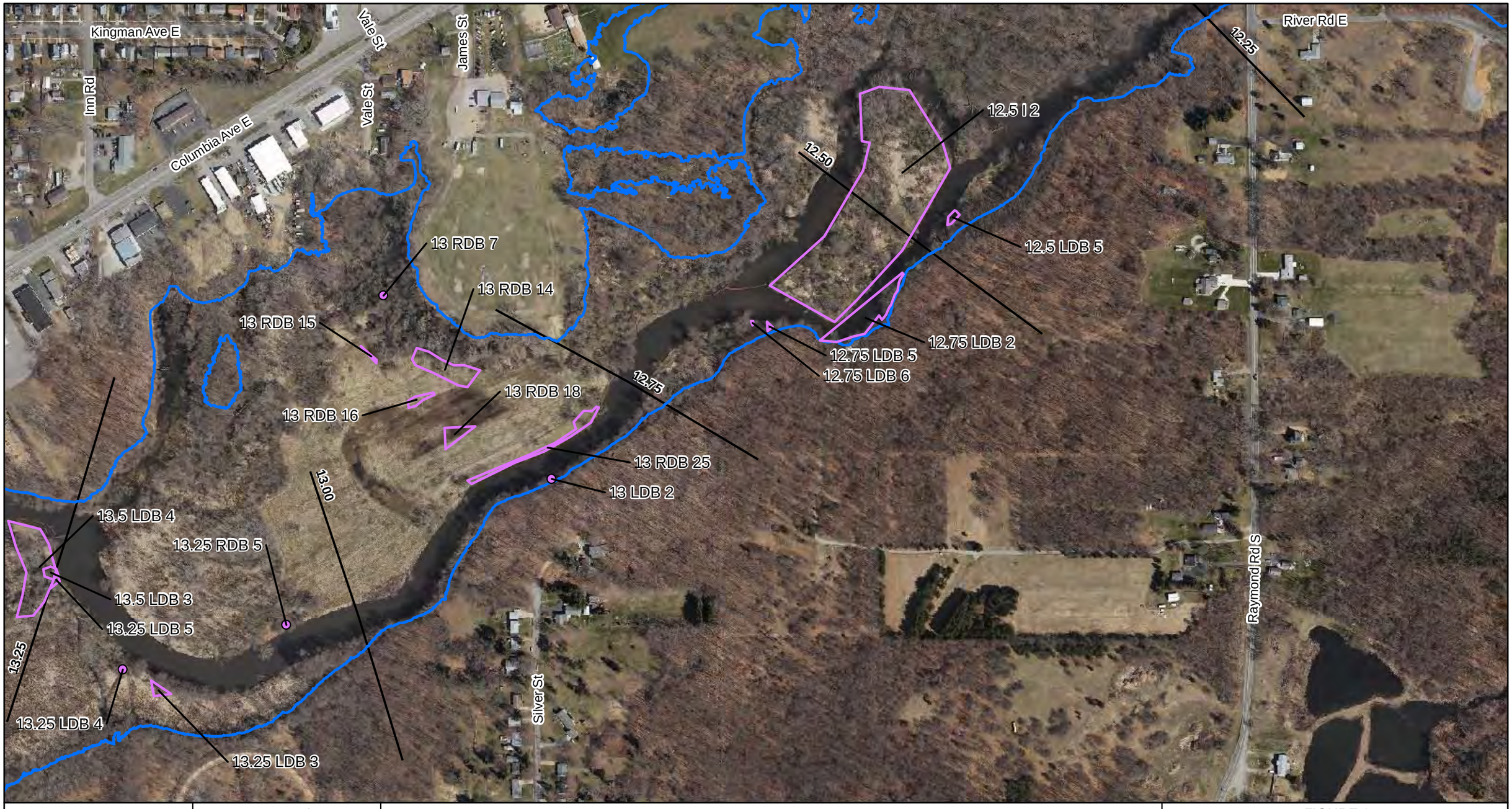

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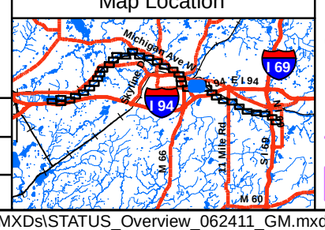

Legend

Overbank Surface Locations

- Tar Patty Site (Point)
- Tar Patty Site (Line)
- Tar Patty Site (Polygon)
- Final Inundation Model
- Quarter Mile Grid Segment

N

0 175 350 700

Scale in Feet

FIGURE 1
OVERBANK SURFACE OIL
TARGET AREAS

Sheet 13 of 38

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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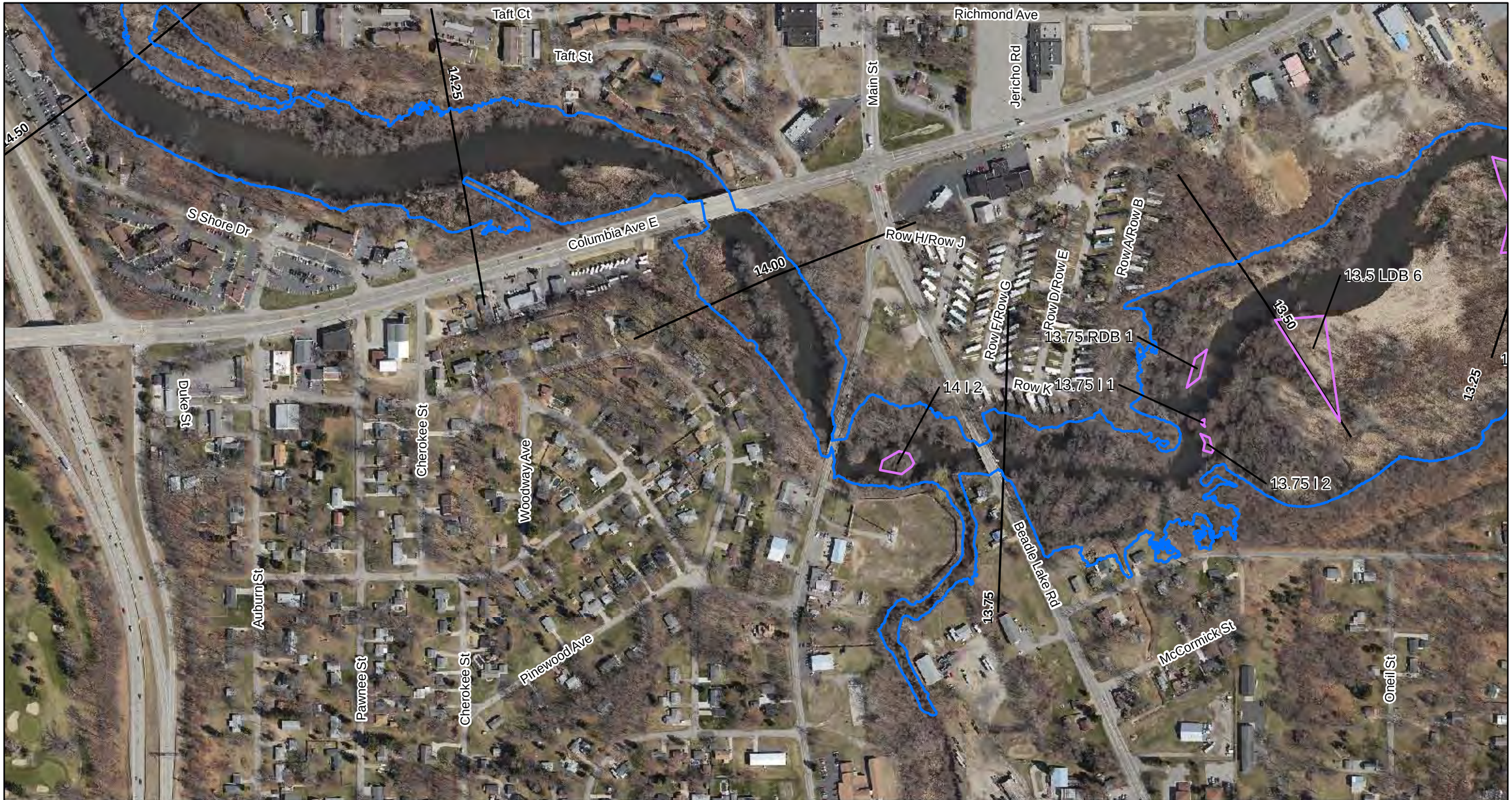

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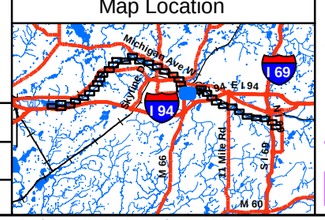
Map Location



Legend

Overbank Surface Locations

- Tar Patty Site (Point)
- Tar Patty Site (Line)
- Tar Patty Site (Polygon)
- Final Inundation Model
- Quarter Mile Grid Segment

N

0 175 350 700

Scale in Feet

FIGURE 1
OVERBANK SURFACE OIL
TARGET AREAS

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ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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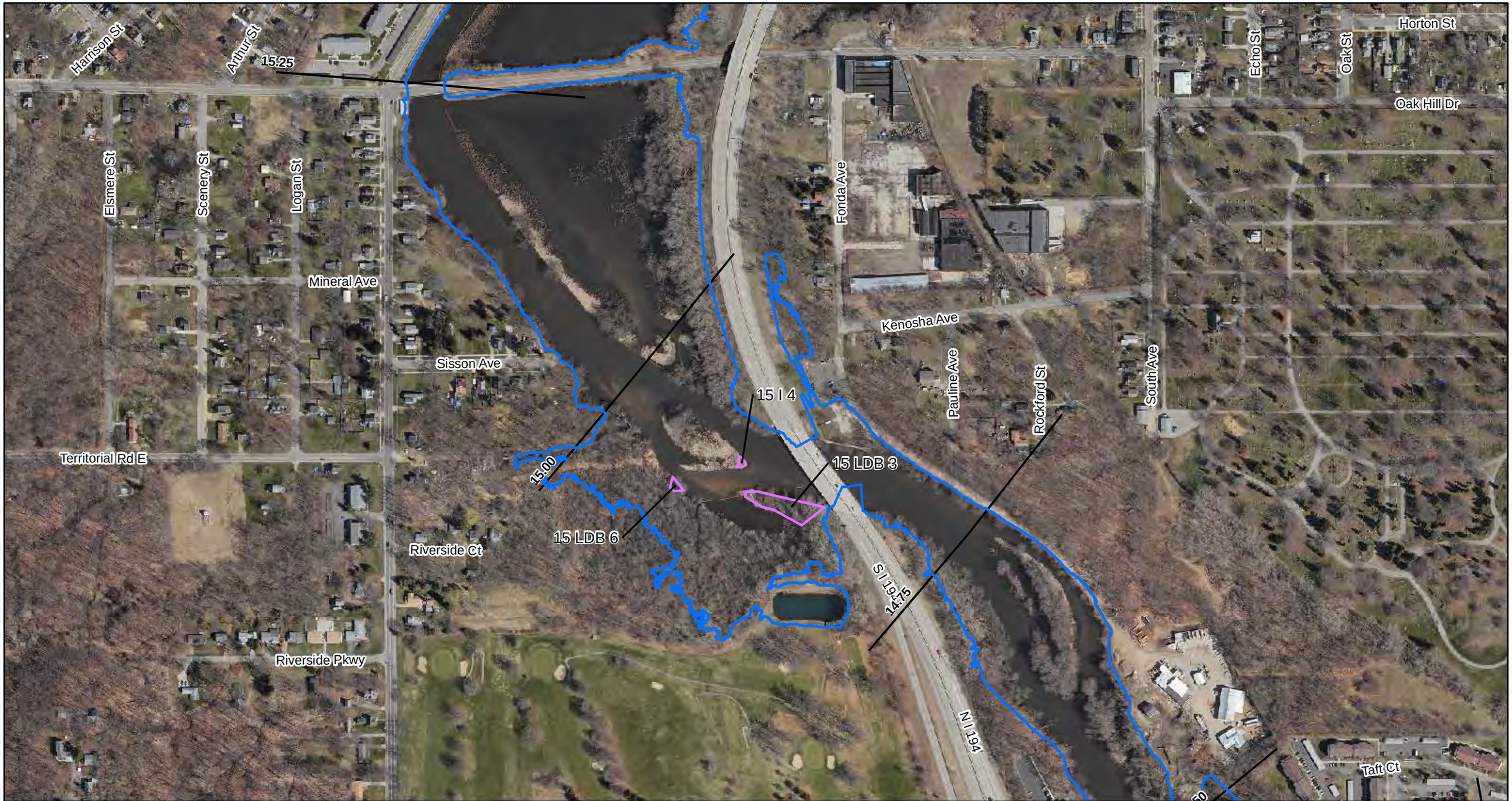

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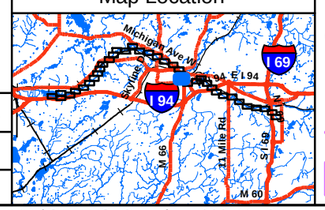

Legend

Overbank Surface Locations

- Tar Patty Site (Point)
- Tar Patty Site (Line)
- Tar Patty Site (Polygon)
- Final Inundation Model
- Quarter Mile Grid Segment

N

0 175 350 700

Scale in Feet

FIGURE 1
OVERBANK SURFACE OIL
TARGET AREAS

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ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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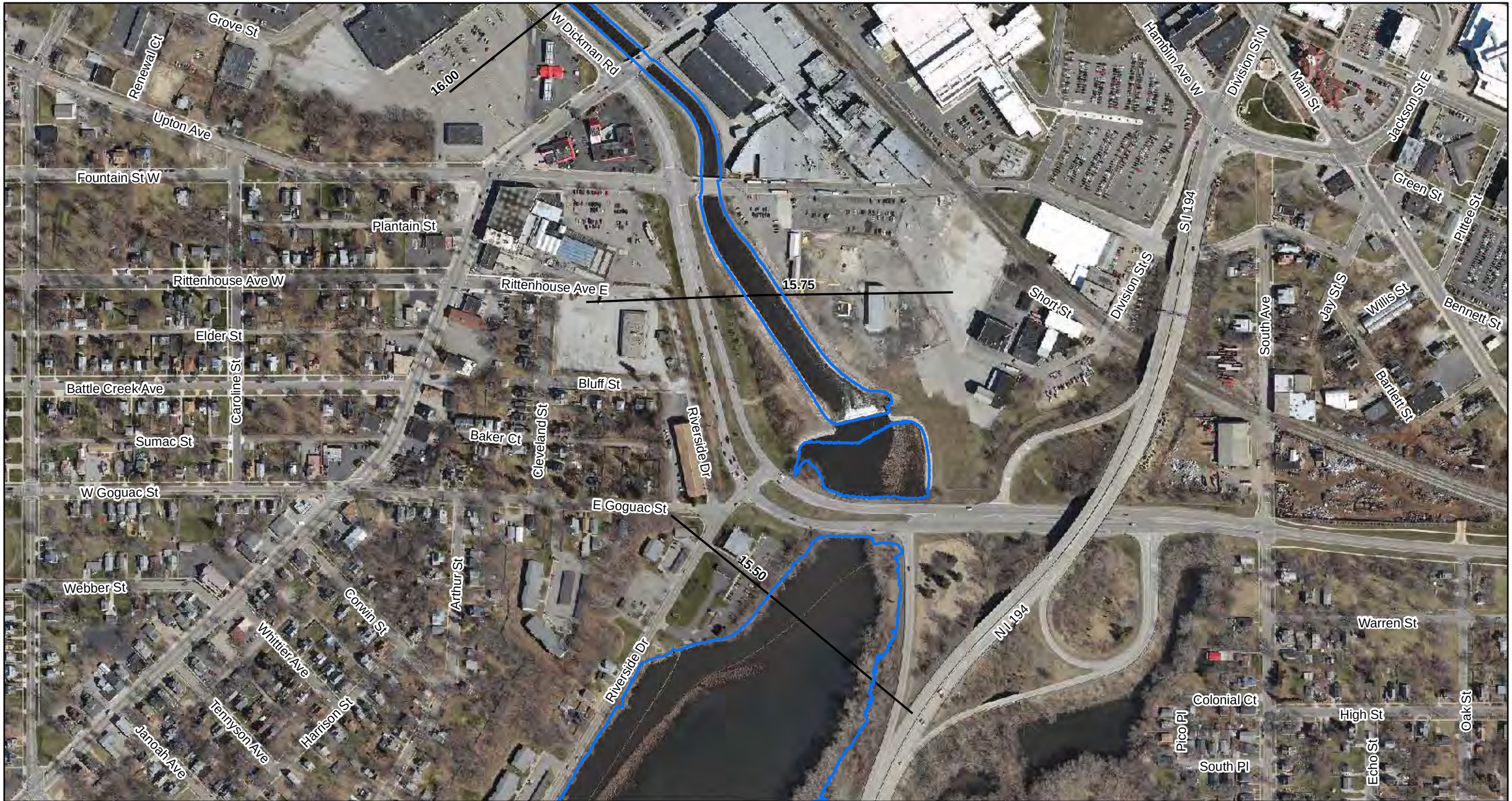

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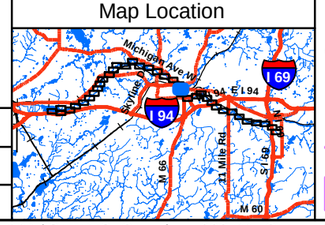

Legend

Overbank Surface Locations

- Tar Patty Site (Point)
- Tar Patty Site (Line)
- Tar Patty Site (Polygon)
- Final Inundation Model
- Quarter Mile Grid Segment

N

0 175 350 700

Scale in Feet

FIGURE 1
OVERBANK SURFACE OIL
TARGET AREAS

Sheet 16 of 38

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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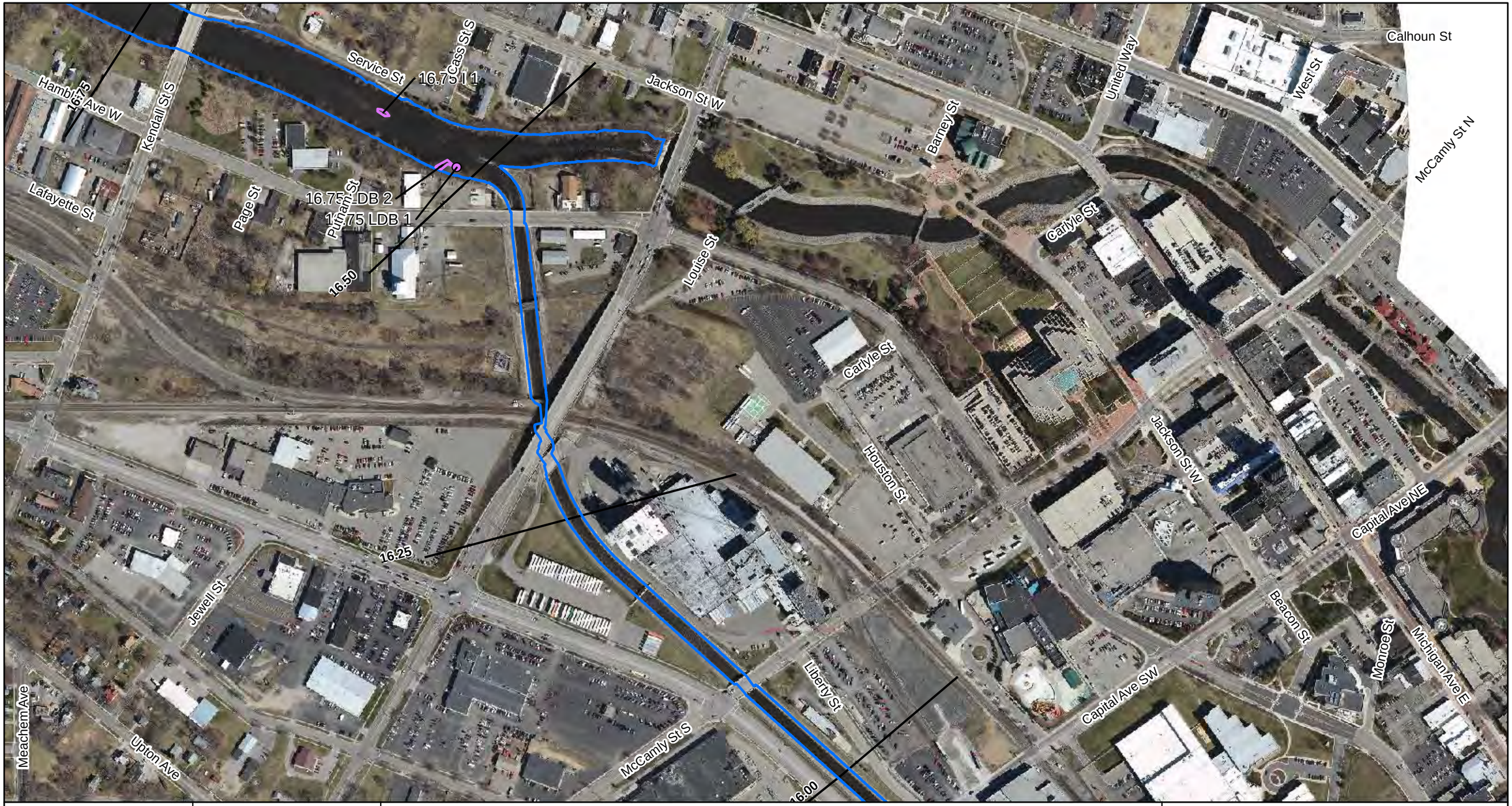

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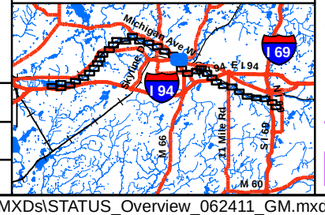

Legend

Overbank Surface Locations

- Tar Patty Site (Point)
- Tar Patty Site (Line)
- Tar Patty Site (Polygon)
- Final Inundation Model
- Quarter Mile Grid Segment

N

0 175 350 700

Scale in Feet

FIGURE 1
OVERBANK SURFACE OIL
TARGET AREAS

Sheet 17 of 38

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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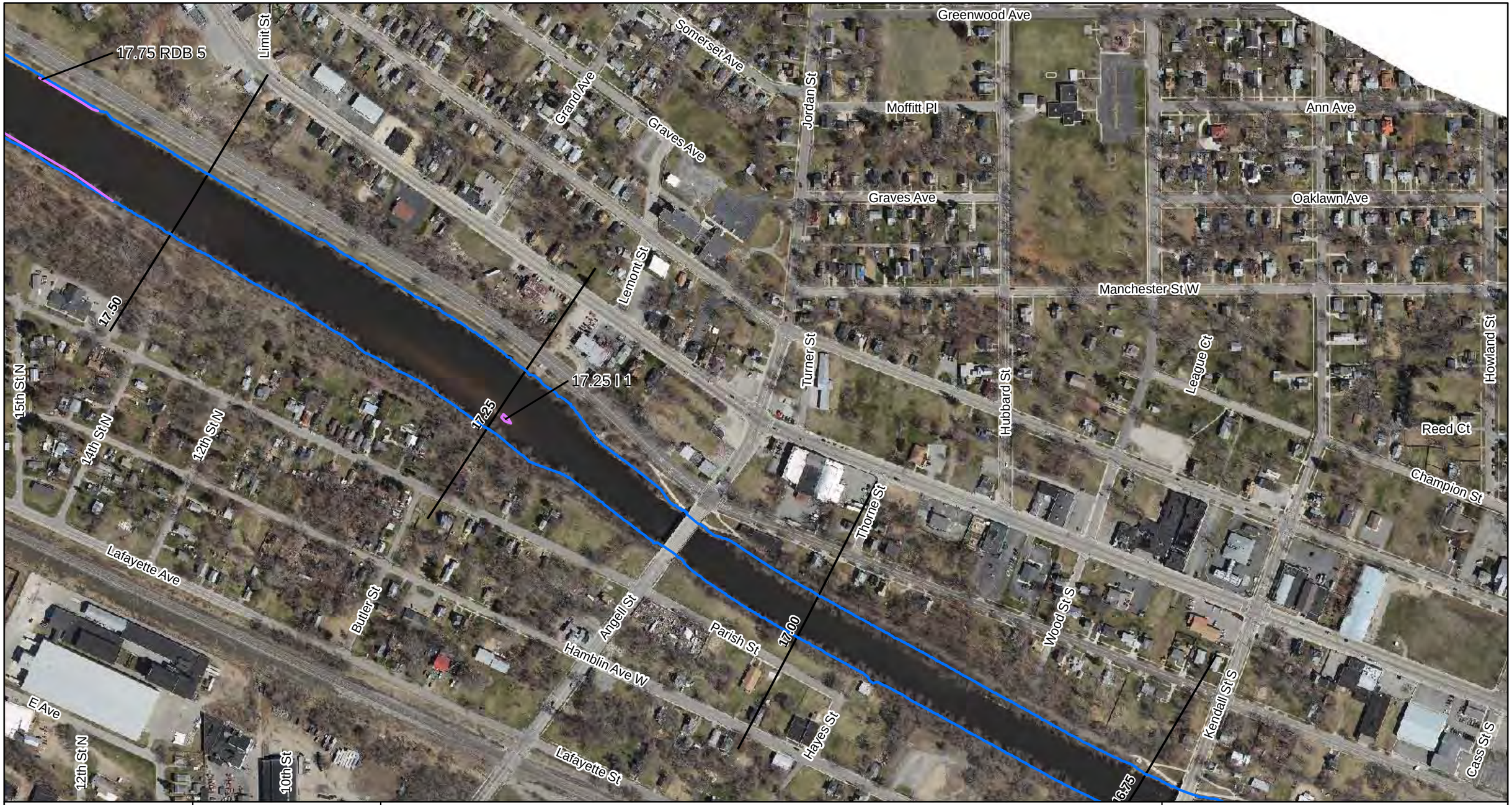

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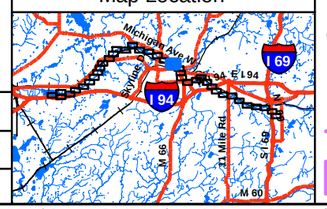

Legend

Overbank Surface Locations

- Tar Patty Site (Point)
- Tar Patty Site (Line)
- Tar Patty Site (Polygon)
- Final Inundation Model
- Quarter Mile Grid Segment

N

0 175 350 700

Scale in Feet

FIGURE 1
OVERBANK SURFACE OIL
TARGET AREAS

Sheet 18 of 38

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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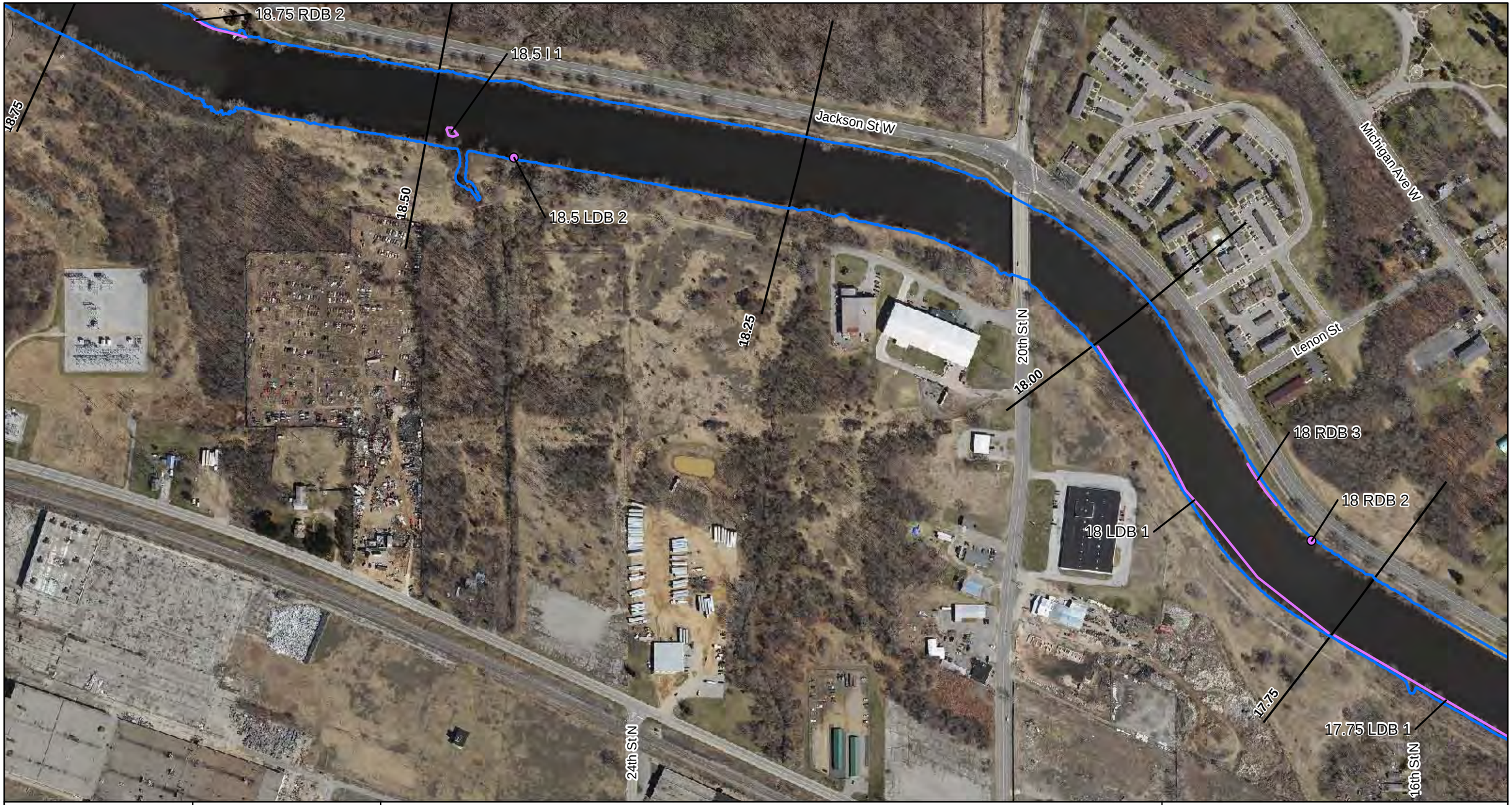

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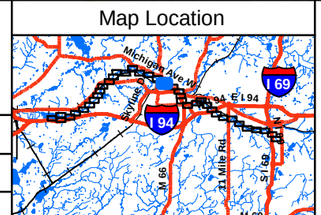

Legend

Overbank Surface Locations

- Tar Patty Site (Point)
- Tar Patty Site (Line)
- Tar Patty Site (Polygon)
- Final Inundation Model
- Quarter Mile Grid Segment

N

0 175 350 700

Scale in Feet

FIGURE 1
OVERBANK SURFACE OIL
TARGET AREAS

Sheet 19 of 38

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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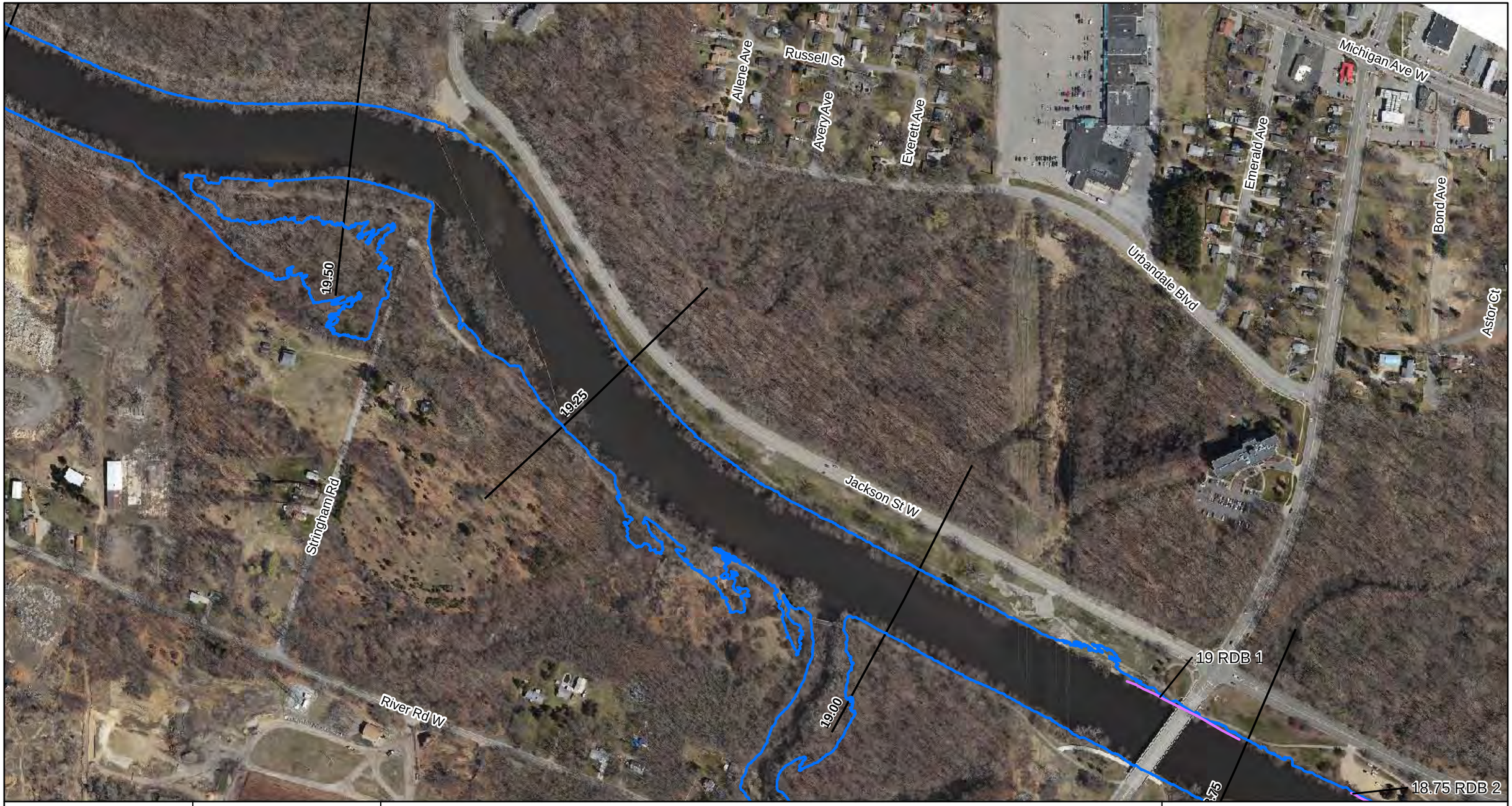

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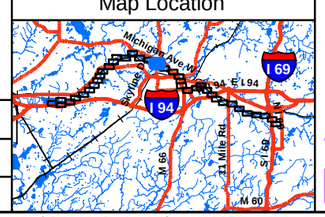

Legend

Overbank Surface Locations

- Tar Patty Site (Point)
- Tar Patty Site (Line)
- Tar Patty Site (Polygon)
- Final Inundation Model
- Quarter Mile Grid Segment

N

0 175 350 700

Scale in Feet

FIGURE 1
OVERBANK SURFACE OIL
TARGET AREAS

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ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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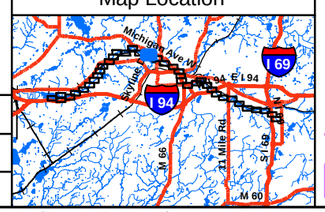
Map Location



Legend

Overbank Surface Locations

- Tar Patty Site (Point)
- Tar Patty Site (Line)
- Tar Patty Site (Polygon)
- Final Inundation Model
- Quarter Mile Grid Segment

N

0 175 350 700

Scale in Feet

FIGURE 1
OVERBANK SURFACE OIL
TARGET AREAS

Sheet 21 of 38

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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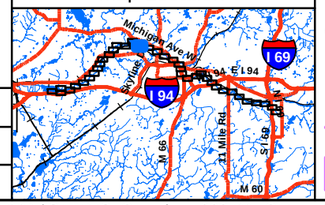
Map Location



Legend

Overbank Surface Locations

- Tar Patty Site (Point)
- Tar Patty Site (Line)
- Tar Patty Site (Polygon)
- Final Inundation Model
- Quarter Mile Grid Segment

N

0 175 350 700

Scale in Feet

FIGURE 1
OVERBANK SURFACE OIL
TARGET AREAS

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ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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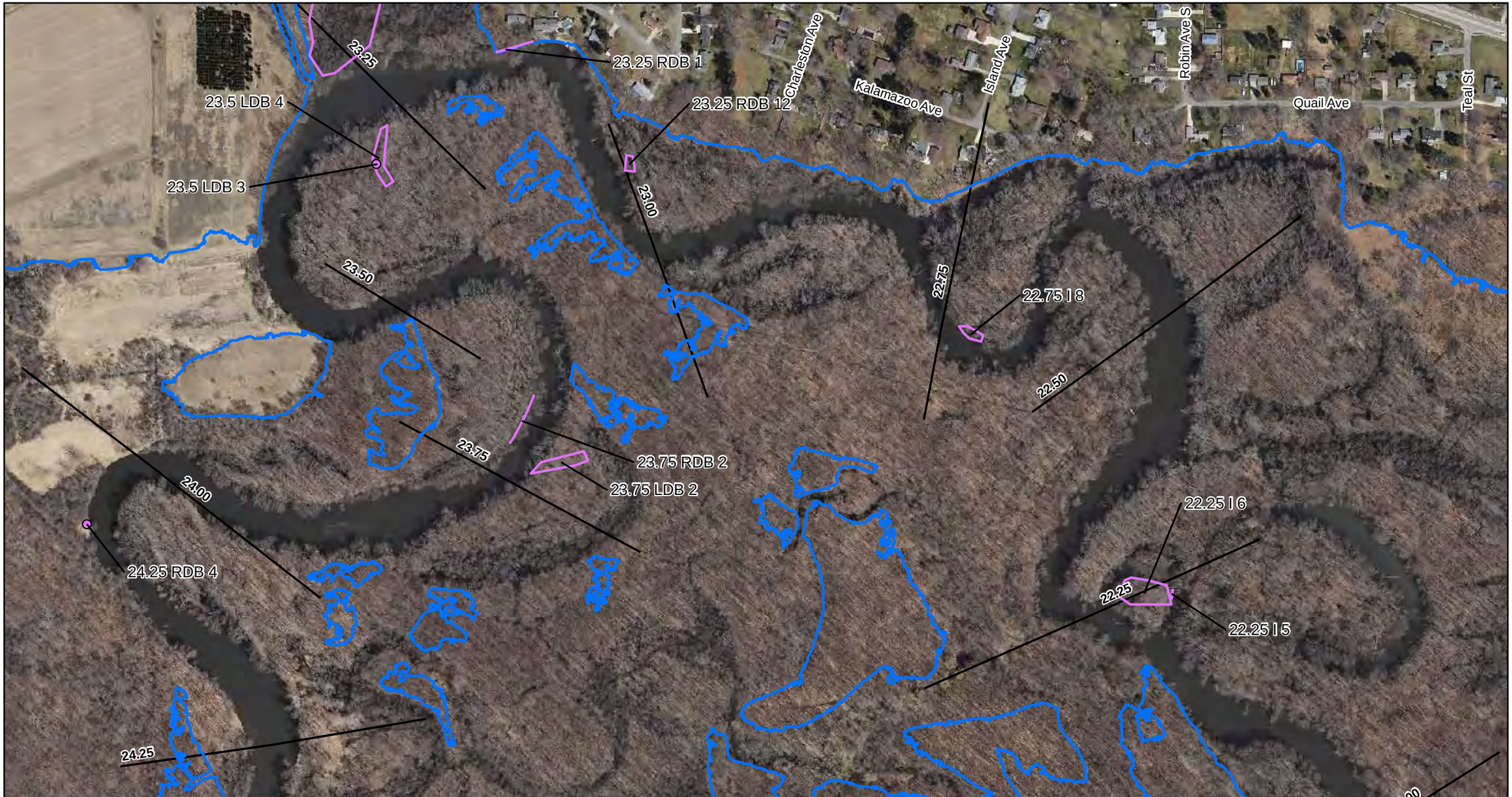

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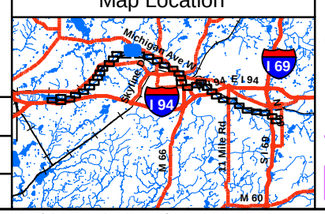

Legend

Overbank Surface Locations

- Tar Patty Site (Point)
- Tar Patty Site (Line)
- Tar Patty Site (Polygon)
- Final Inundation Model
- Quarter Mile Grid Segment

N

0 175 350 700

Scale in Feet

FIGURE 1
OVERBANK SURFACE OIL
TARGET AREAS

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ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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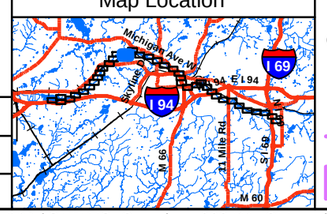

Legend

Overbank Surface Locations

- Tar Patty Site (Point)
- Tar Patty Site (Line)
- Tar Patty Site (Polygon)
- Final Inundation Model
- Quarter Mile Grid Segment

N

0 175 350 700

Scale in Feet

FIGURE 1
OVERBANK SURFACE OIL
TARGET AREAS

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ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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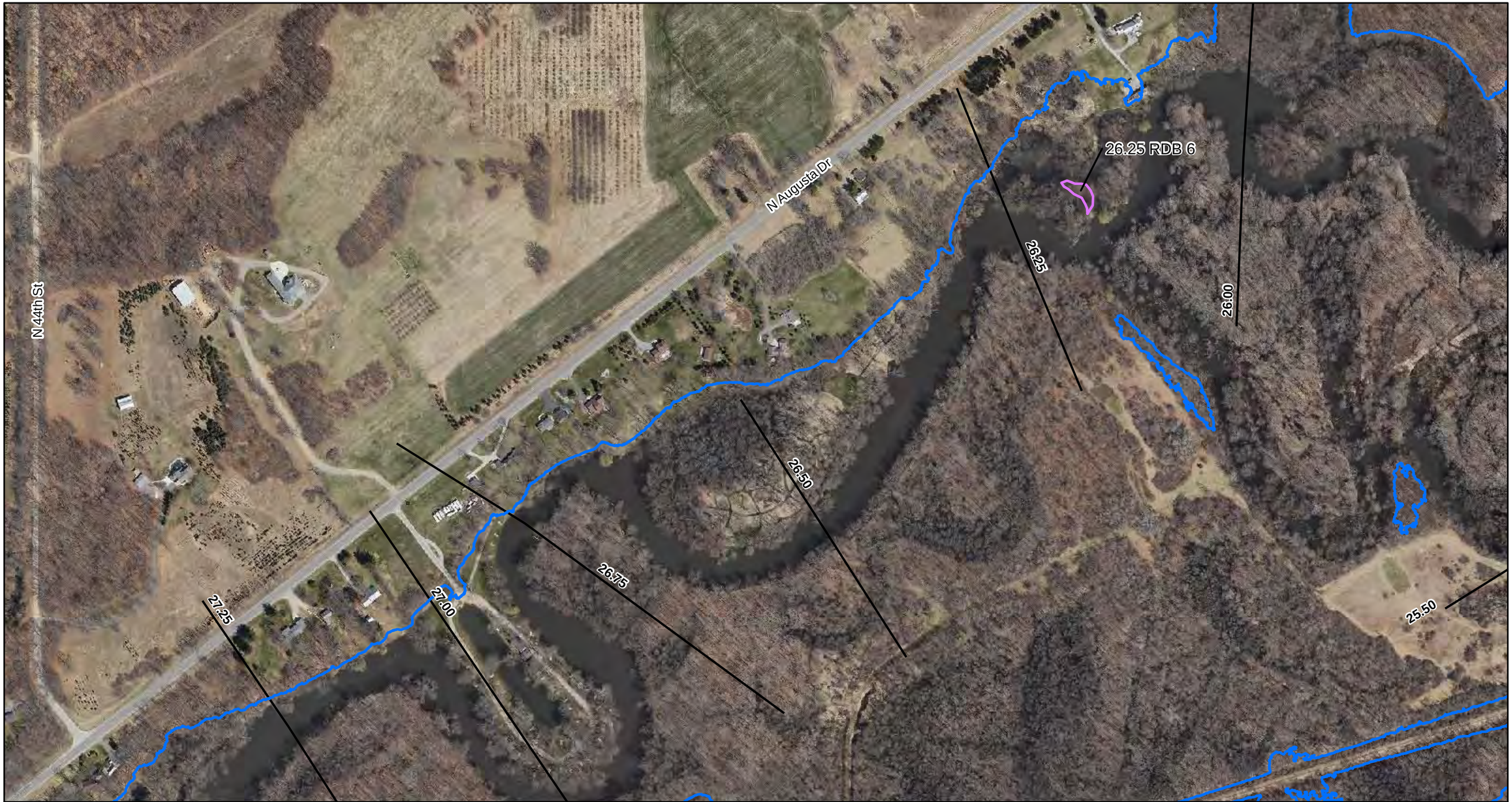

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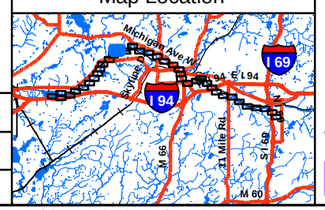

Legend

Overbank Surface Locations

- Tar Patty Site (Point)
- Tar Patty Site (Line)
- Tar Patty Site (Polygon)
- Final Inundation Model
- Quarter Mile Grid Segment

N

0 175 350 700

Scale in Feet

FIGURE 1
OVERBANK SURFACE OIL
TARGET AREAS

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ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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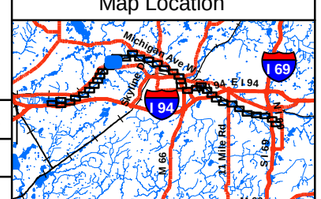
Drawn:	GM	6/28/2011
Approved:	DP	6/28/2011
Project #:	60162778	

Map Location



Legend

Overbank Surface Locations

- Tar Patty Site (Point)
- Tar Patty Site (Line)
- Tar Patty Site (Polygon)
- Final Inundation Model
- Quarter Mile Grid Segment

N

0 175 350 700

Scale in Feet

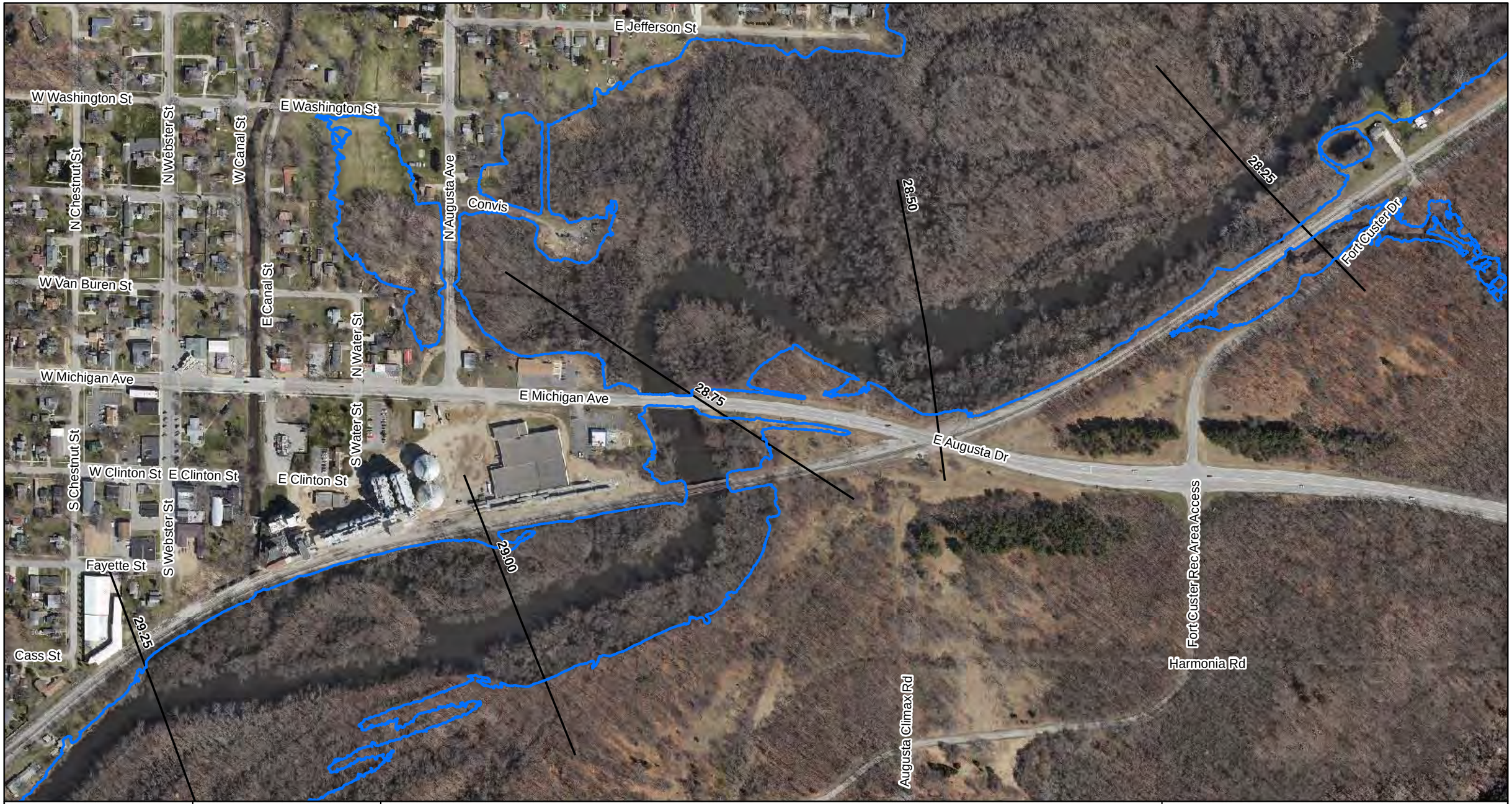
FIGURE 1
OVERBANK SURFACE OIL
TARGET AREAS

Sheet 26 of 38

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Strategic_Plan\Requests\MXDs\STATUS_Overview_062411_GM.mxd

Aerial Photography Date: April 2011



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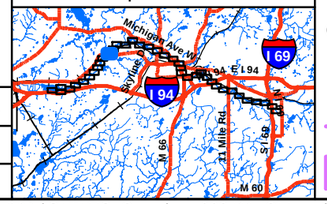

Legend

Overbank Surface Locations

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N

0 175 350 700

Scale in Feet

FIGURE 1
OVERBANK SURFACE OIL
TARGET AREAS

Sheet 27 of 38

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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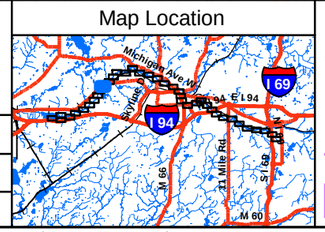
Map Location



Legend

Overbank Surface Locations

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- Tar Patty Site (Line)
- Tar Patty Site (Polygon)
- Final Inundation Model
- Quarter Mile Grid Segment

N

0 175 350 700

Scale in Feet

FIGURE 1
OVERBANK SURFACE OIL
TARGET AREAS

Sheet 28 of 38

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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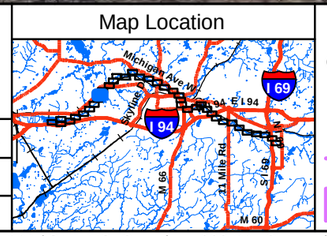

Legend

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- Tar Patty Site (Line)
- Tar Patty Site (Polygon)
- Final Inundation Model
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N

0 175 350 700

Scale in Feet

FIGURE 1
OVERBANK SURFACE OIL
TARGET AREAS

Sheet 29 of 38

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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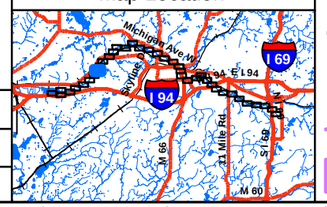

Legend

Overbank Surface Locations

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- Tar Patty Site (Line)
- Tar Patty Site (Polygon)
- Final Inundation Model
- Quarter Mile Grid Segment

N

0 175 350 700

Scale in Feet

FIGURE 1
OVERBANK SURFACE OIL
TARGET AREAS

Sheet 30 of 38

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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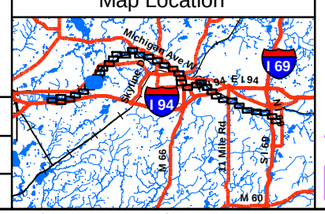
Map Location



Legend

Overbank Surface Locations

- Tar Patty Site (Point)
- Tar Patty Site (Line)
- Tar Patty Site (Polygon)
- Final Inundation Model
- Quarter Mile Grid Segment

N

0 175 350 700

Scale in Feet

FIGURE 1
OVERBANK SURFACE OIL
TARGET AREAS

Sheet 31 of 38

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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US EPA ARCHIVE DOCUMENT

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Approved:	DP	6/28/2011
Project #:	60162778	

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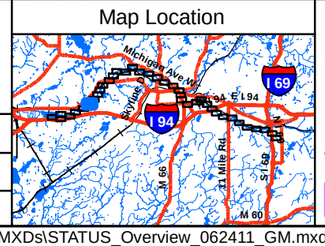

Legend

Overbank Surface Locations

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- Tar Patty Site (Line)
- Tar Patty Site (Polygon)
- Final Inundation Model
- Quarter Mile Grid Segment

N

0 175 350 700

Scale in Feet

FIGURE 1
OVERBANK SURFACE OIL
TARGET AREAS

Sheet 32 of 38

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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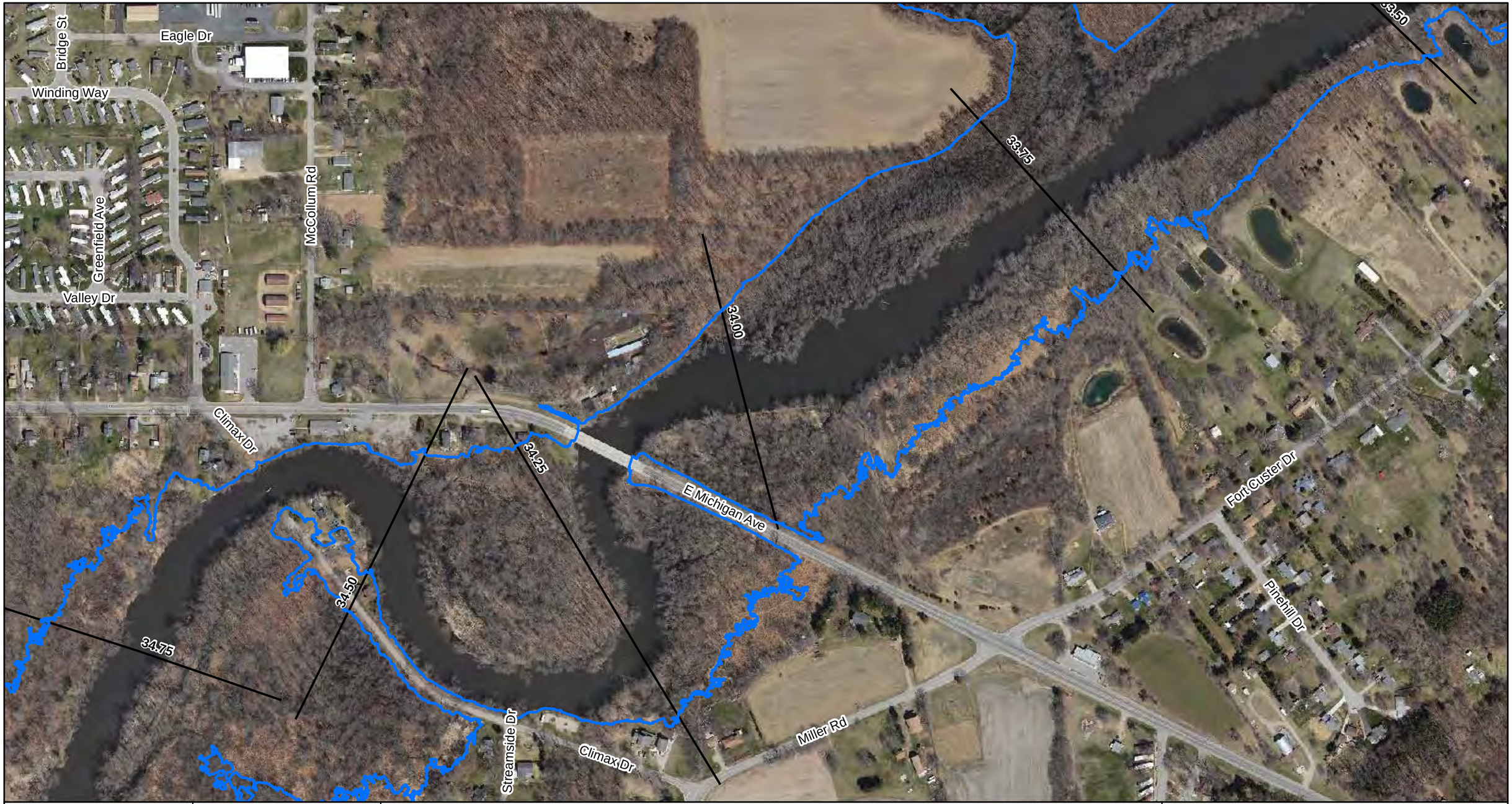
US EPA ARCHIVE DOCUMENT



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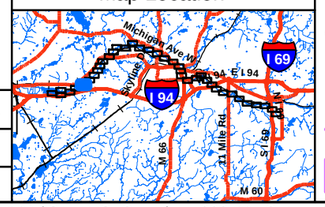
Approved:	DP	6/28/2011
Project #:	60162778	

Map Location



Legend

Overbank Surface Locations

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- Tar Patty Site (Line)
- Tar Patty Site (Polygon)
- Final Inundation Model
- Quarter Mile Grid Segment

N

0 175 350 700

Scale in Feet

FIGURE 1
OVERBANK SURFACE OIL
TARGET AREAS

Sheet 33 of 38

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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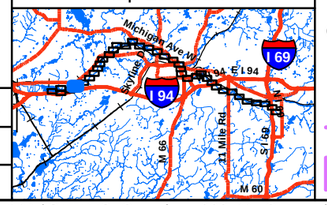

Legend

Overbank Surface Locations

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- Tar Patty Site (Line)
- Tar Patty Site (Polygon)
- Final Inundation Model
- Quarter Mile Grid Segment

N

0 175 350 700

Scale in Feet

FIGURE 1
OVERBANK SURFACE OIL
TARGET AREAS

Sheet 34 of 38

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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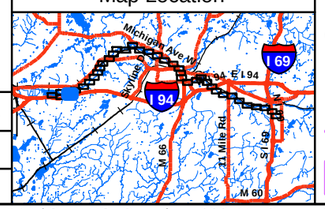

Legend

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- Tar Patty Site (Line)
- Tar Patty Site (Polygon)
- Final Inundation Model
- Quarter Mile Grid Segment

N

0 175 350 700

Scale in Feet

FIGURE 1
OVERBANK SURFACE OIL
TARGET AREAS

Sheet 35 of 38

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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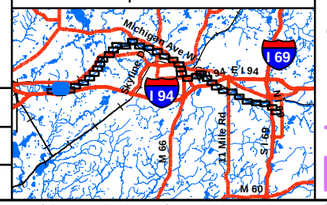
Map Location



Legend

Overbank Surface Locations

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- Final Inundation Model
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N

0 175 350 700

Scale in Feet

FIGURE 1
OVERBANK SURFACE OIL
TARGET AREAS

Sheet 36 of 38

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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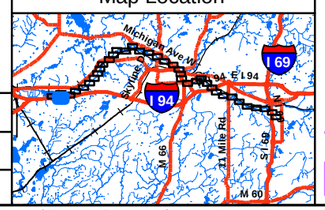
Map Location



Legend

Overbank Surface Locations

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- Tar Patty Site (Polygon)
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N

0 175 350 700

Scale in Feet

FIGURE 1
OVERBANK SURFACE OIL
TARGET AREAS

Sheet 37 of 38

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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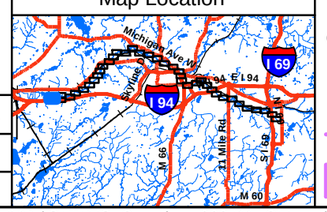

Legend

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- Tar Patty Site (Polygon)
- Final Inundation Model
- Quarter Mile Grid Segment

N

0 175 350 700

Scale in Feet

FIGURE 1
OVERBANK SURFACE OIL
TARGET AREAS

Sheet 38 of 38

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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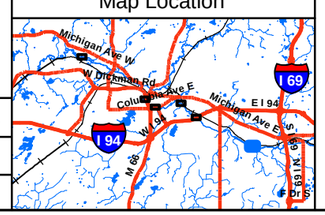

Legend

- Overbank Excavations
- Final Inundation Model
- Quarter Mile Grid Segments

N

0 125 250 500

Scale in Feet

FIGURE 2
OVERBANK EXCAVATION OIL RECOVERY TARGET AREAS

SHEET 1 of 6

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Strategic_Plan\Requests\MXDs\SOverbank_Excavation_Oil_Recovery.mxd

Aerial Photography Date: April 2011

US EPA ARCHIVE DOCUMENT

ENBRIDGE

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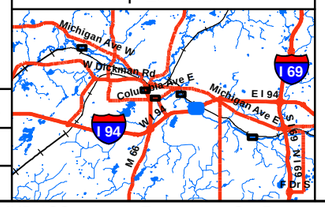

Legend

- Overbank Excavations
- Final Inundation Model
- Quarter Mile Grid Segments

N

0 125 250 500

Scale in Feet

FIGURE 2
OVERBANK EXCAVATION OIL RECOVERY
TARGET AREAS

SHEET 2 of 6

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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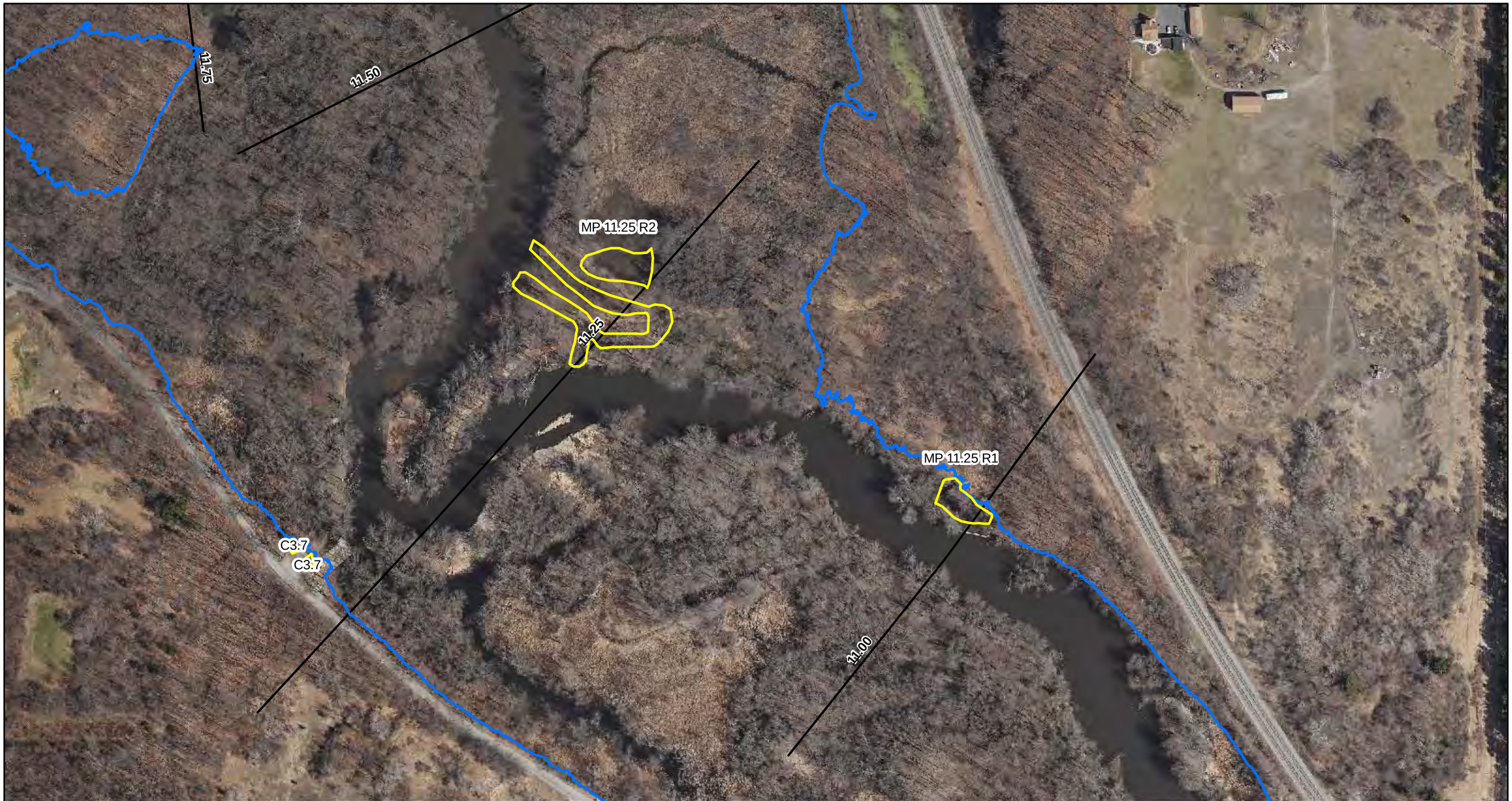

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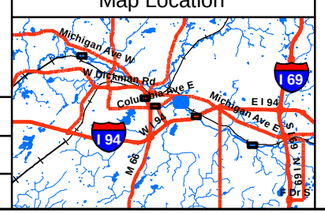

Legend

- Overbank Excavations
- Final Inundation Model
- Quarter Mile Grid Segments

N

0 125 250 500

Scale in Feet

FIGURE 2
OVERBANK EXCAVATION OIL RECOVERY TARGET AREAS

SHEET 3 of 6

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Strategic_Plan\Requests\MXDs\SOverbank_Excavation_Oil_Recovery.mxd

Aerial Photography Date: April 2011

US EPA ARCHIVE DOCUMENT

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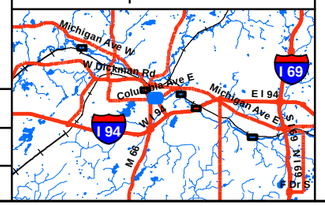
Map Location



Legend

- Overbank Excavations
- Final Inundation Model
- Quarter Mile Grid Segments

N

0 125 250 500

Scale in Feet

FIGURE 2
OVERBANK EXCAVATION OIL RECOVERY TARGET AREAS

SHEET 4 of 6

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Strategic_Plan\Requests\MXDs\SOverbank_Excavation_Oil_Recovery.mxd

Aerial Photography Date: April 2011

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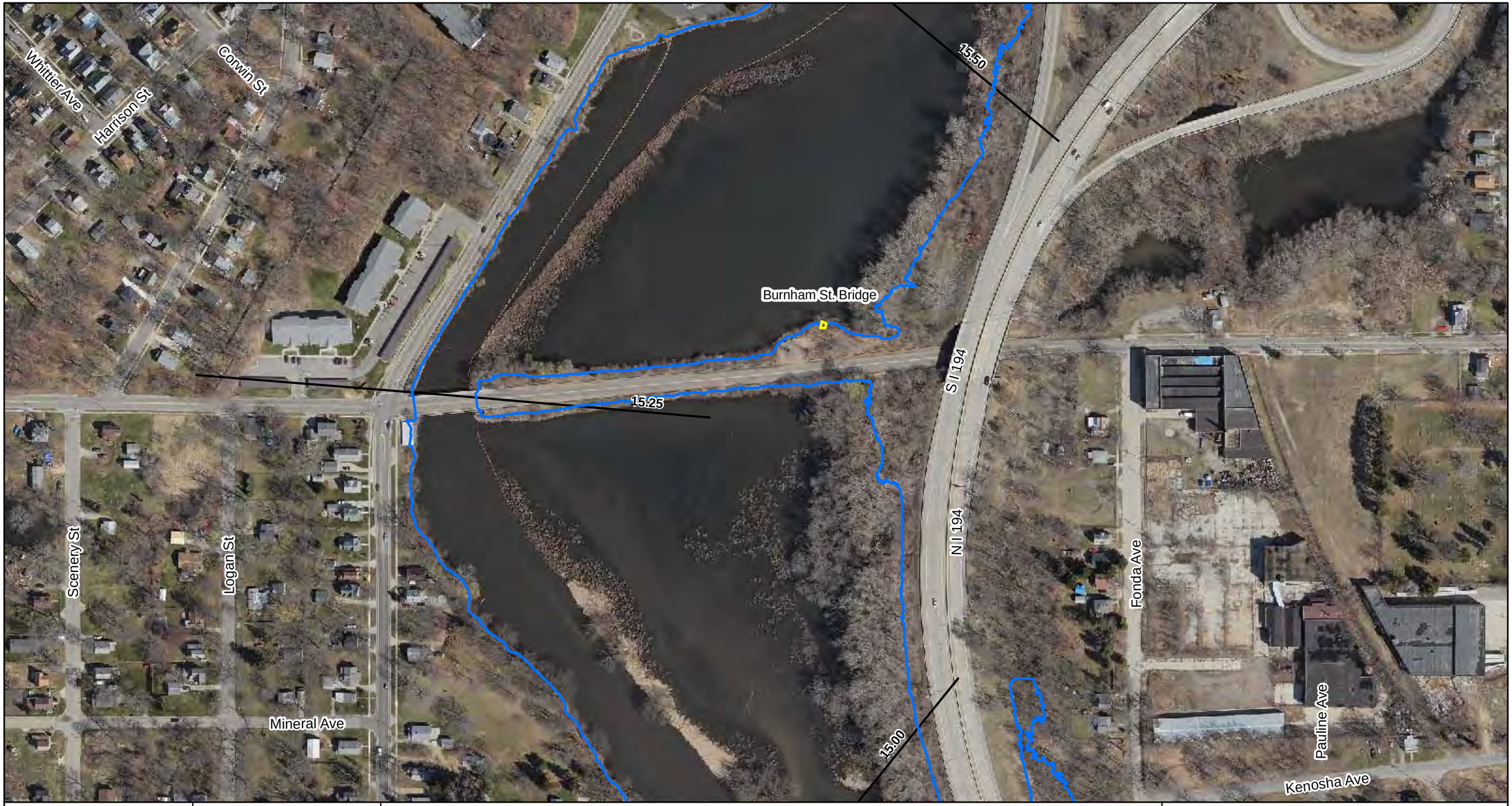

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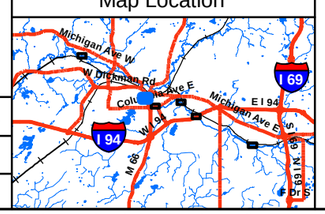

Legend

- Overbank Excavations
- Final Inundation Model
- Quarter Mile Grid Segments

N

0 125 250 500

Scale in Feet

FIGURE 2
OVERBANK EXCAVATION OIL RECOVERY TARGET AREAS

SHEET 5 of 6

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Strategic_Plan\Requests\MXDs\SOverbank_Excavation_Oil_Recovery.mxd

Aerial Photography Date: April 2011

US EPA ARCHIVE DOCUMENT

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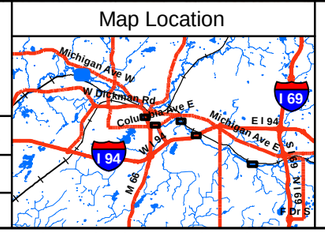

Legend

- Overbank Excavations
- Final Inundation Model
- Quarter Mile Grid Segments

N

0 125 250 500

Scale in Feet

FIGURE 2
OVERBANK EXCAVATION OIL RECOVERY TARGET AREAS

SHEET 6 of 6

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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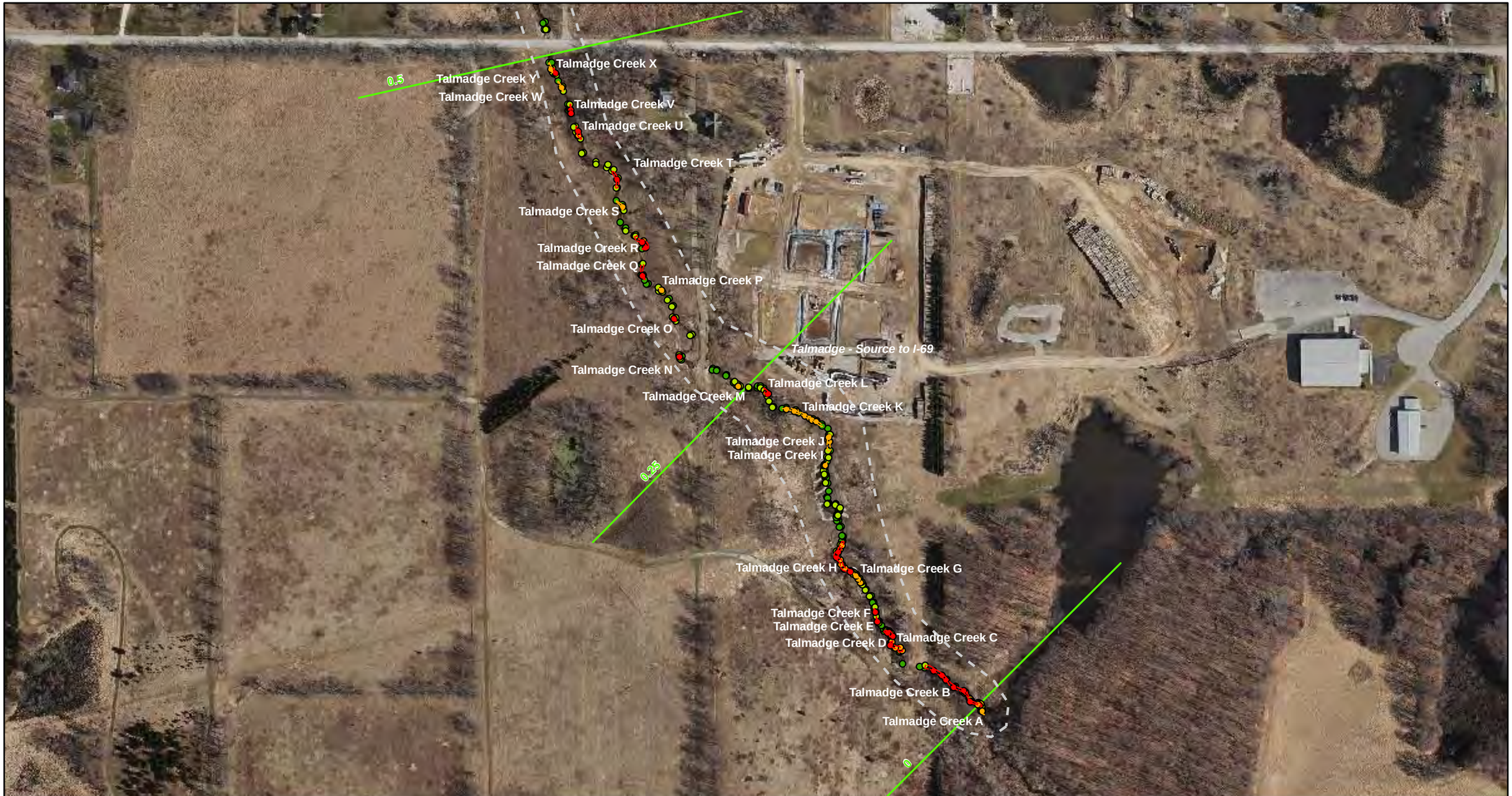
Aerial Photography Date: April 2011

US EPA ARCHIVE DOCUMENT



ENBRIDGE

Drawn:	BRS 06/18/2011
Approved:	CG 06/18/2011
Project #:	106-4186

Map Location

Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

Poling Focus Areas

Transect

Park/Launch Access Poling Areas

Bridge Access Poling Areas

Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

POLING ASSESSMENT RESULTS

MP 00.00 - MP 00.50

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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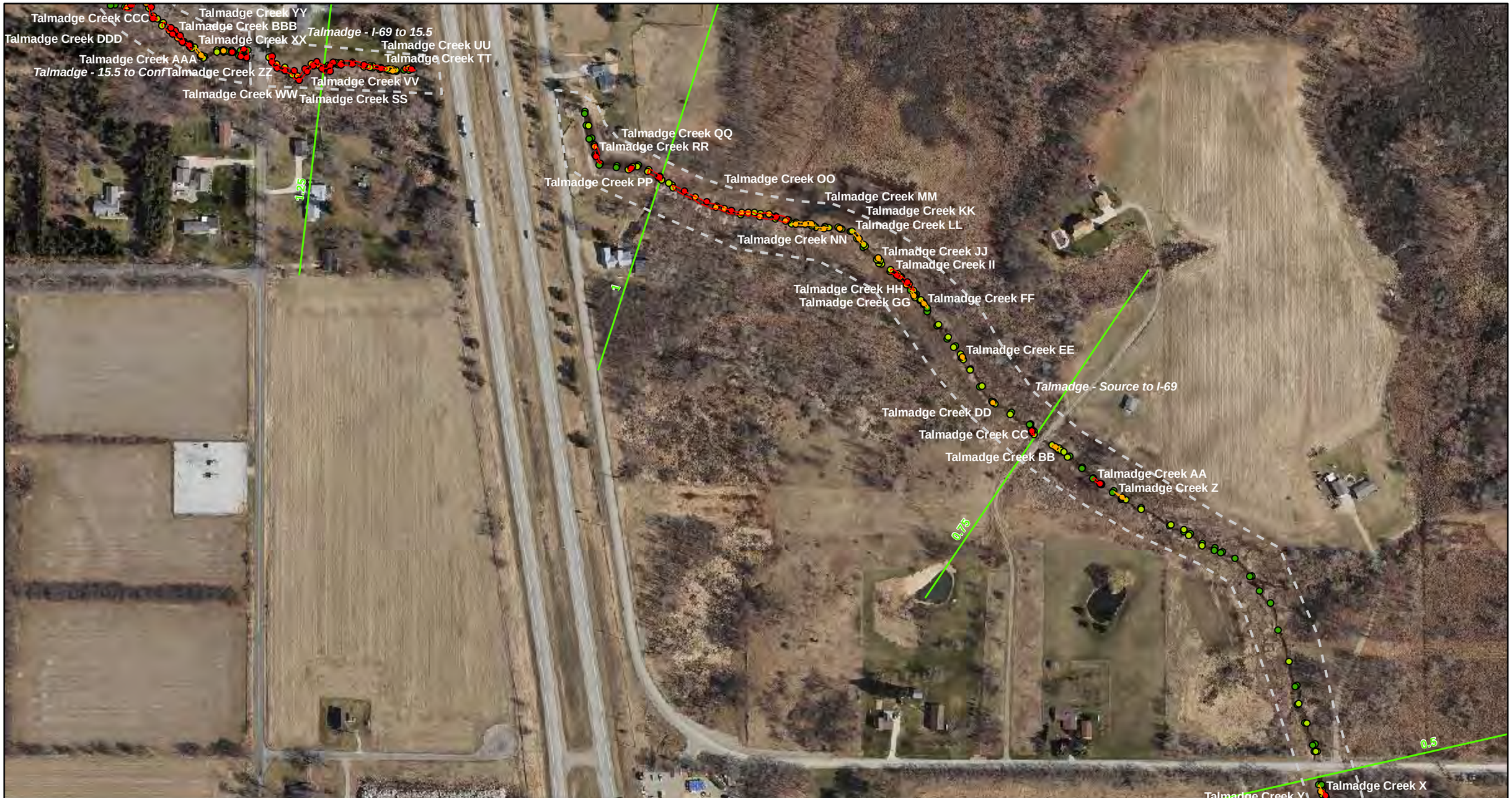
Aerial Photography Date: April 2011

US EPA ARCHIVE DOCUMENT



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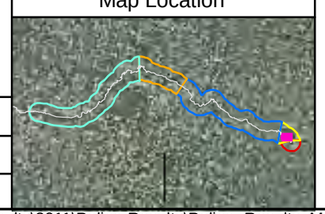
Project #:	106-4186

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

- *Poling Focus Areas*
- Transect
- Park/Launch Access Poling Areas
- Bridge Access Poling Areas
- Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

POLING ASSESSMENT RESULTS

MP 00.50 - MP 01.35

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

H:\ArcMap Project Files\Qualitative Results\2011\Poling Results\Poling_Results_Mapset_All.mxd

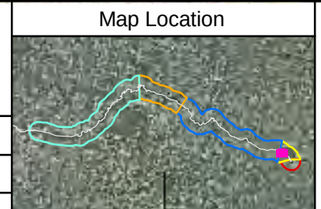
Aerial Photography Date: April 2011

US EPA ARCHIVE DOCUMENT

ENBRIDGE

Drawn:	BRS	06/18/2011
Approved:	CG	06/18/2011
Project #:	106-4186	

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

- *Poling Focus Areas*
- Transect
- Park/Launch Access Poling Areas
- Bridge Access Poling Areas
- Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

POLING ASSESSMENT RESULTS

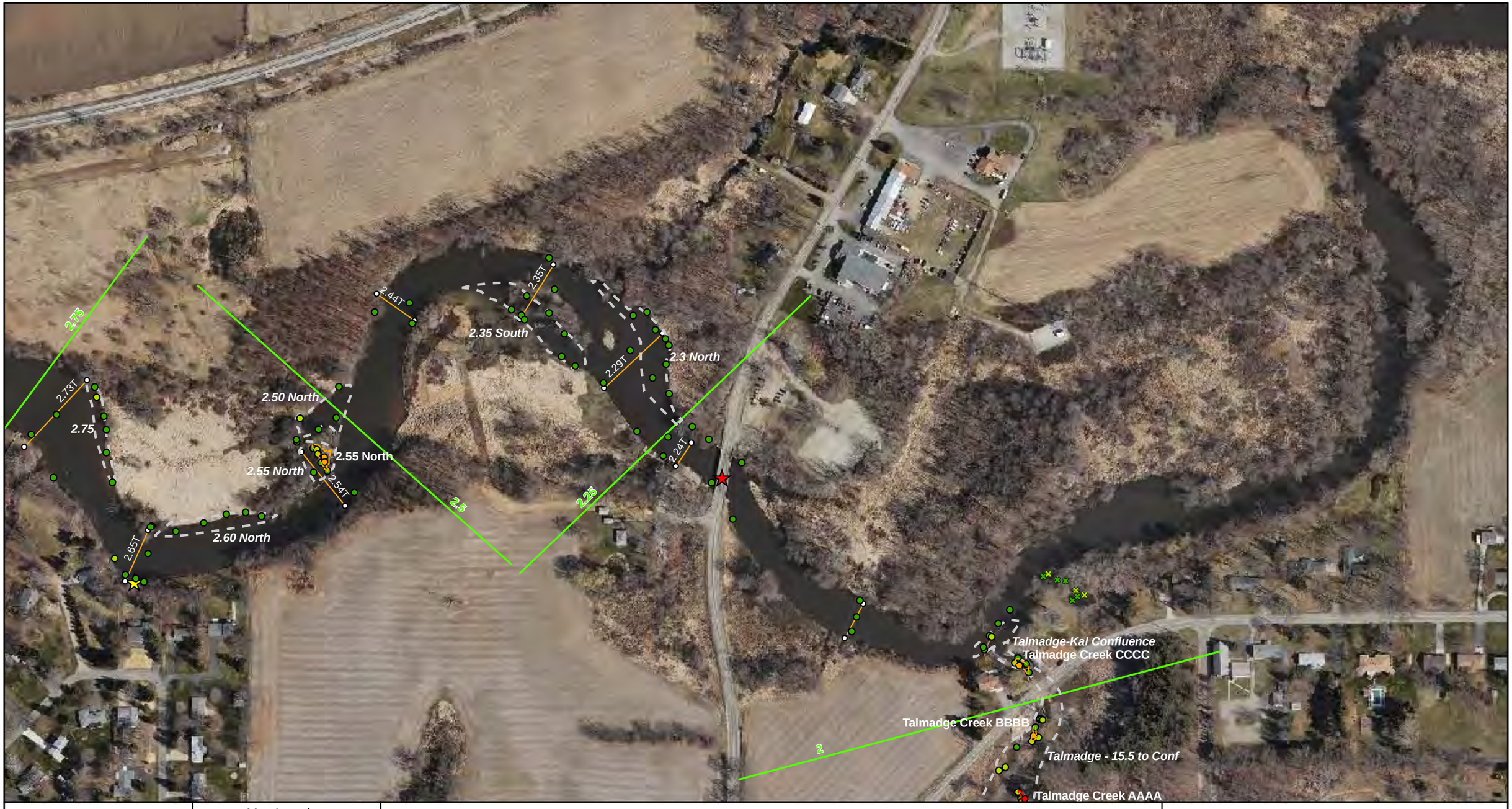
MP 01.15 - MP 02.05

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

H:\ArcMap Project Files\Qualitative Results\2011\Poling Results\Poling_Results_Mapset_All.mxd

Aerial Photography Date: April 2011

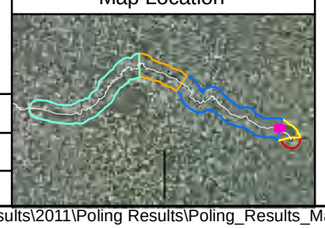
US EPA ARCHIVE DOCUMENT



ENBRIDGE

Drawn:	BRS 06/18/2011
Approved:	CG 06/18/2011
Project #:	106-4186

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

- *Poling Focus Areas*
- Transect
- Park/Launch Access Poling Areas
- Bridge Access Poling Areas
- Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

POLING ASSESSMENT RESULTS

MP 01.95 - MP 02.75

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

H:\ArcMap Project Files\Qualitative Results\2011\Poling Results\Poling_Results_Mapset_All.mxd

Aerial Photography Date: April 2011

US EPA ARCHIVE DOCUMENT

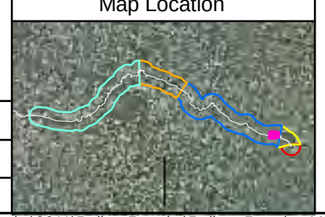
ENBRIDGE

Drawn: BRS 06/18/2011

Approved: CG 06/18/2011

Project #: 106-4186

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

Poling Focus Areas

Transect

Park/Launch Access Poling Areas

Bridge Access Poling Areas

Quarter Mile Grid Segment

N

0 150 300 600

Scale in Feet

POLING ASSESSMENT RESULTS

MP 02.60 - MP 03.40

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

H:\ArcMap Project Files\Qualitative Results\2011\Poling Results\Poling_Results_Mapset_All.mxd

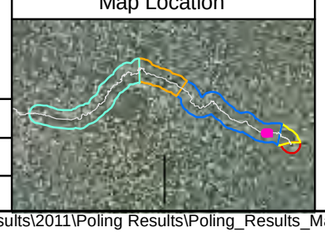
Aerial Photography Date: April 2011

US EPA ARCHIVE DOCUMENT

ENBRIDGE

Drawn:	BRS 06/18/2011
Approved:	CG 06/18/2011
Project #:	106-4186

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

Poling Focus Areas

Transect

Park/Launch Access Poling Areas

Bridge Access Poling Areas

Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

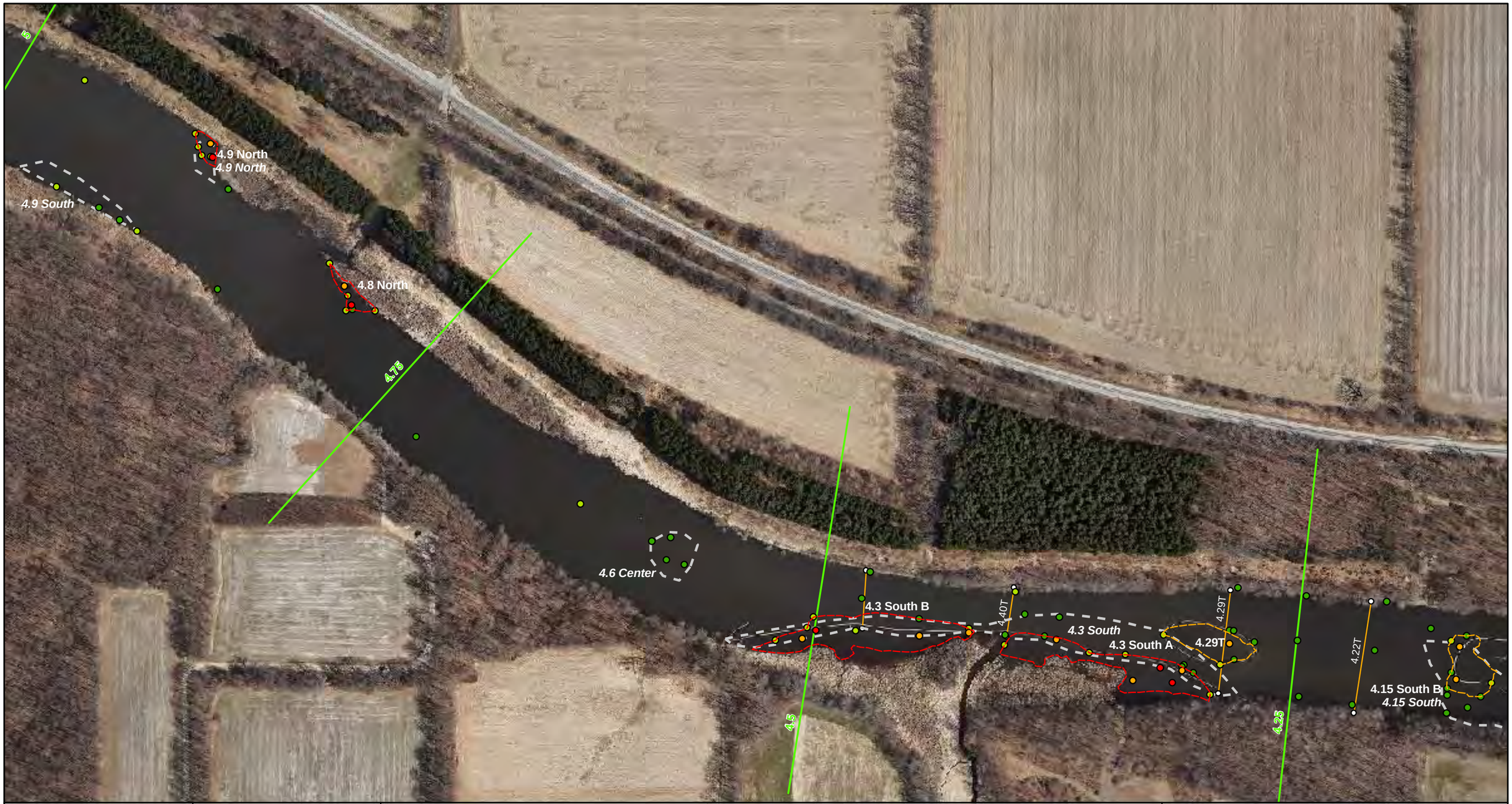
POLING ASSESSMENT RESULTS

MP 03.40 - MP 04.20

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

H:\ArcMap Project Files\Qualitative Results\2011\Poling Results\Poling_Results_Mapset_All.mxd

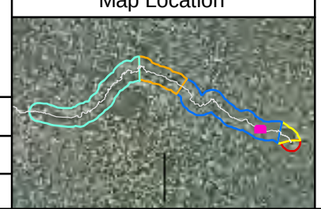
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS	06/18/2011
Approved:	CG	06/18/2011
Project #:	106-4186	

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

- *Poling Focus Areas*
- Transect
- Park/Launch Access Poling Areas
- Bridge Access Poling Areas
- Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

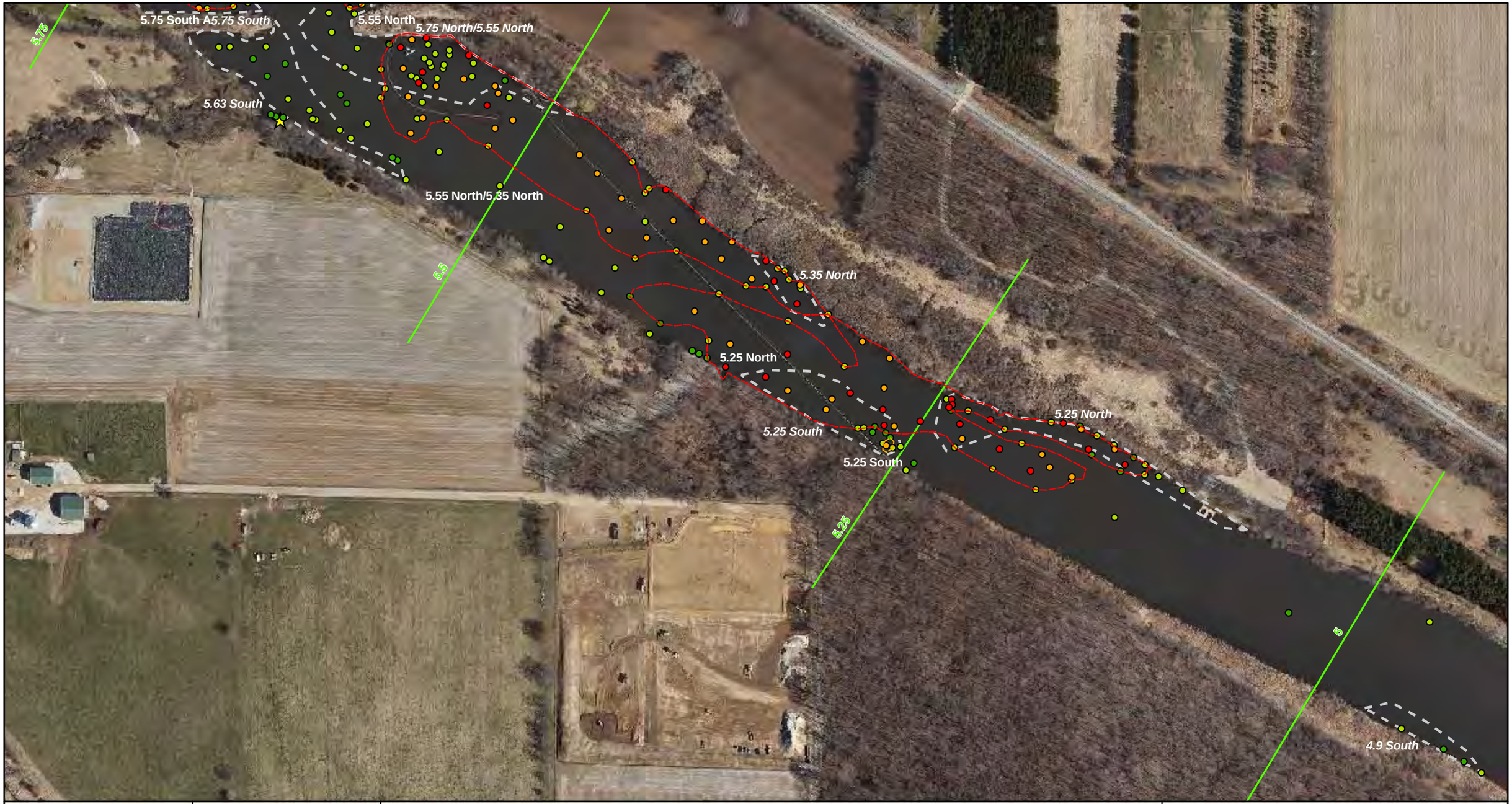
POLING ASSESSMENT RESULTS

MP 04.15 - MP 05.00

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

H:\ArcMap Project Files\Qualitative Results\2011\Poling Results\Poling_Results_Mapset_All.mxd

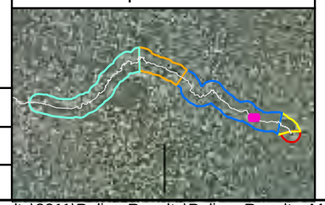
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 06/18/2011
Approved:	CG 06/18/2011
Project #:	106-4186

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

- *Poling Focus Areas*
- Transect
- Park/Launch Access Poling Areas
- Bridge Access Poling Areas
- Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

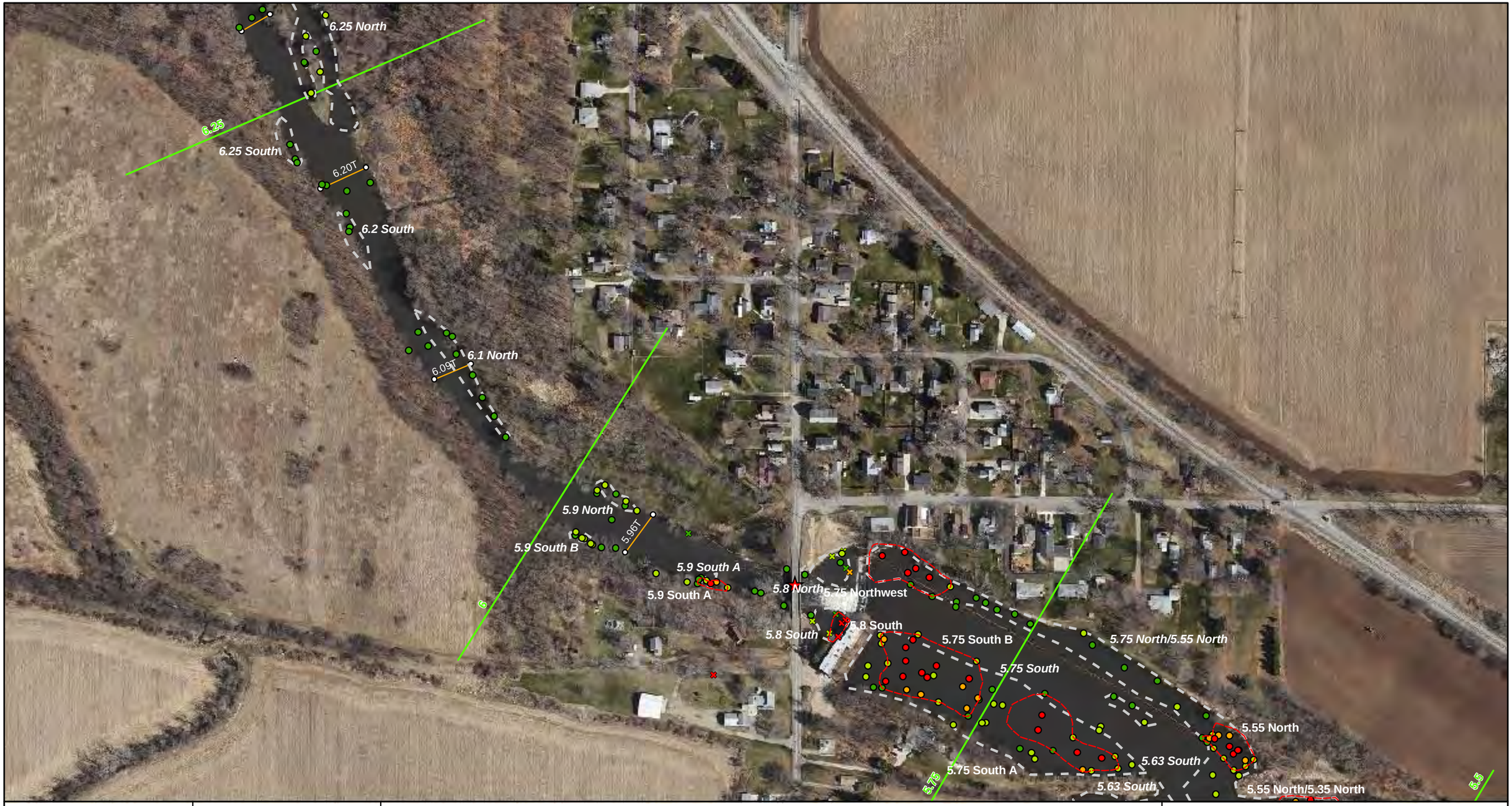
POLING ASSESSMENT RESULTS

MP 04.90 - MP 05.65

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

H:\ArcMap Project Files\Qualitative Results\2011\Poling Results\Poling_Results_Mapset_All.mxd

Aerial Photography Date: April 2011



ENBRIDGE

Drawn: BRS 06/18/2011

Approved: CG 06/18/2011

Project #: 106-4186

Map Location

Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

Poling Focus Areas

Transect

Park/Launch Access Poling Areas

Bridge Access Poling Areas

Quarter Mile Grid Segment

N

0 150 300 600

Scale in Feet

POLING ASSESSMENT RESULTS

MP 05.65 - MP 06.30

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

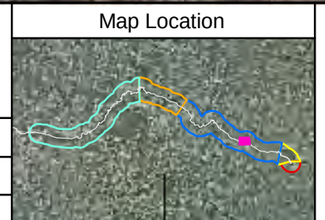
H:\ArcMap Project Files\Qualitative Results\2011\Poling Results\Poling_Results_Mapset_All.mxd

Aerial Photography Date: April 2011

ENBRIDGE

Drawn:	BRS	06/18/2011
Approved:	CG	06/18/2011
Project #:	106-4186	

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

- *Poling Focus Areas*
- Transect
- Park/Launch Access Poling Areas
- Bridge Access Poling Areas
- Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

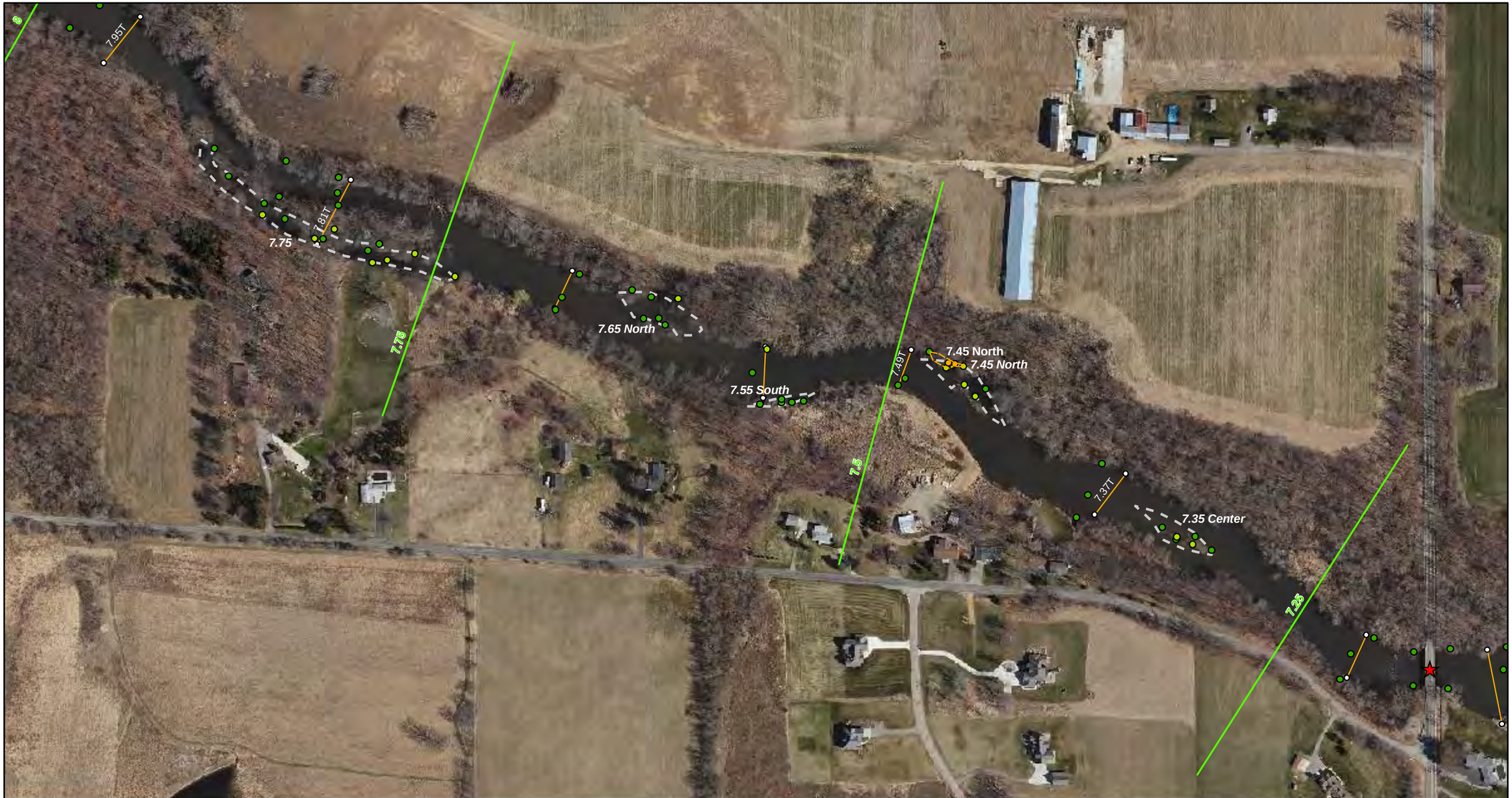
POLING ASSESSMENT RESULTS

MP 06.20 - MP 07.15

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

H:\ArcMap Project Files\Qualitative Results\2011\Poling Results\Poling_Results_Mapset_All.mxd

Aerial Photography Date: April 2011



ENBRIDGE

Drawn: BRS 06/18/2011

Approved: CG 06/18/2011

Project #: 106-4186

Map Location

Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

Poling Focus Areas

Transect

Park/Launch Access Poling Areas

Bridge Access Poling Areas

Quarter Mile Grid Segment

N

0 150 300 600

Scale in Feet

POLING ASSESSMENT RESULTS

MP 07.15 - MP 07.95

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

H:\ArcMap Project Files\Qualitative Results\2011\Poling Results\Poling_Results_Mapset_All.mxd

Aerial Photography Date: April 2011

US EPA ARCHIVE DOCUMENT

8.75
8.75 North
8.75 North A
8.68T
8.6 North
8.6 North
8.58T
8.5
8.43T
8.5L1/L2
8.29RDB
8.25 Islands
8.25 Islands
8.5 L1/L2
8.21T
8.25
8.05 Center
8
7.95T

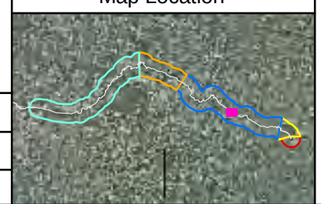
ENBRIDGE

Drawn: BRS 06/18/2011

Approved: CG 06/18/2011

Project #: 106-4186

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

Poling Focus Areas

Transect

Park/Launch Access Poling Areas

Bridge Access Poling Areas

Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

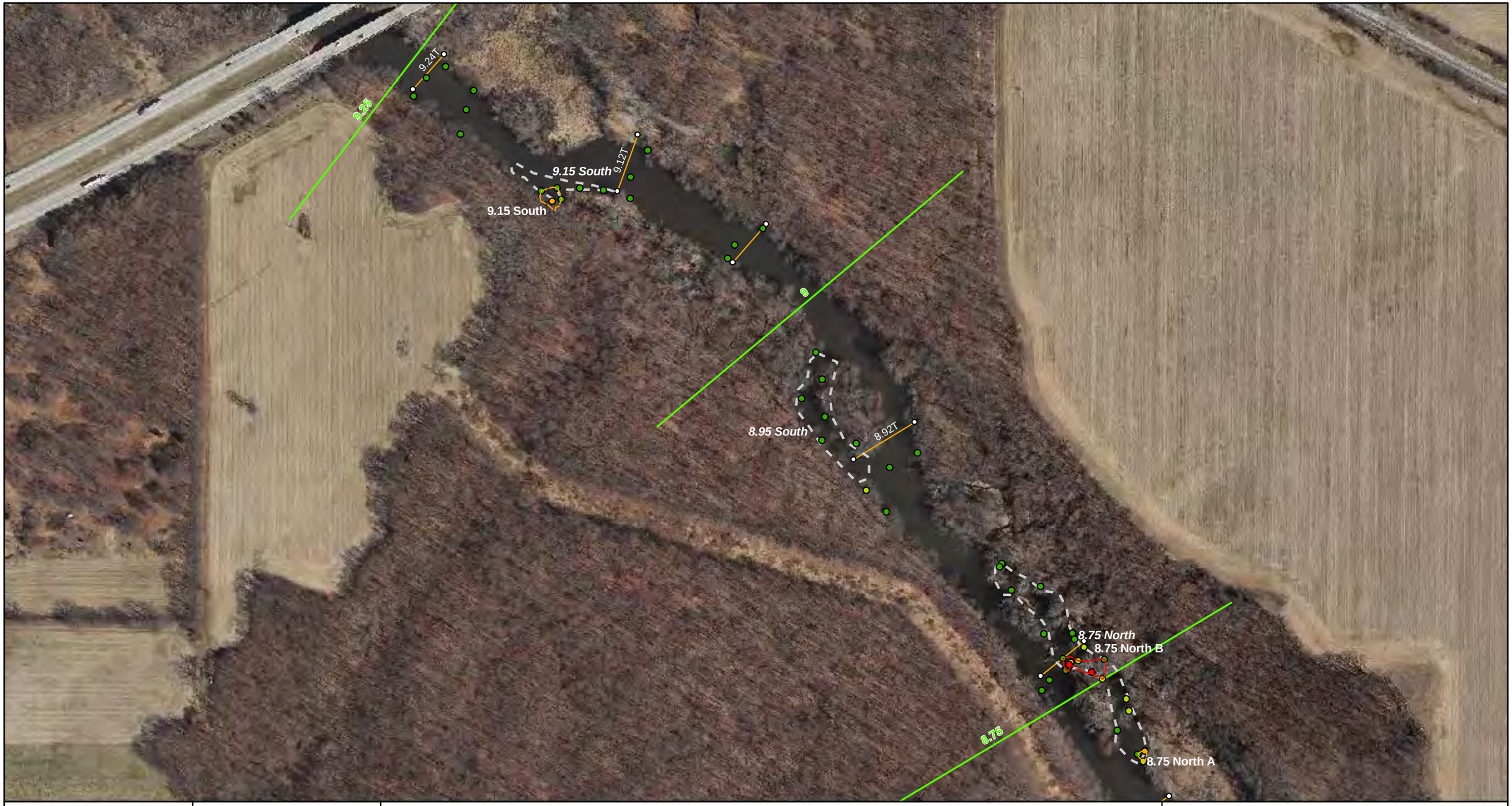
POLING ASSESSMENT RESULTS

MP 07.90 - MP 08.75

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

H:\ArcMap Project Files\Qualitative Results\2011\Poling Results\Poling_Results_Mapset_All.mxd

Aerial Photography Date: April 2011



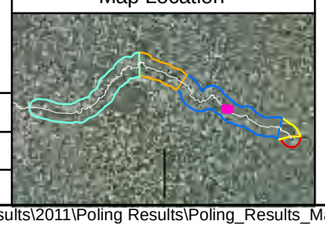
ENBRIDGE

Drawn: BRS 06/18/2011

Approved: CG 06/18/2011

Project #: 106-4186

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

Poling Focus Areas

Transect

Park/Launch Access Poling Areas

Bridge Access Poling Areas

Quarter Mile Grid Segment

N

0 150 300 600

Scale in Feet

POLING ASSESSMENT RESULTS

MP 08.70 - MP 09.30

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

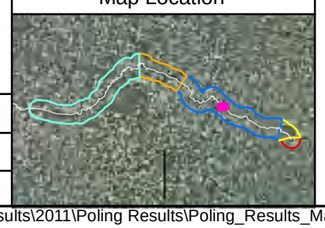
H:\ArcMap Project Files\Qualitative Results\2011\Poling Results\Poling_Results_Mapset_All.mxd

Aerial Photography Date: April 2011

ENBRIDGE

Drawn:	BRS 06/18/2011
Approved:	CG 06/18/2011
Project #:	106-4186

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

- *Poling Focus Areas*
- Transect
- Park/Launch Access Poling Areas
- Bridge Access Poling Areas
- Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

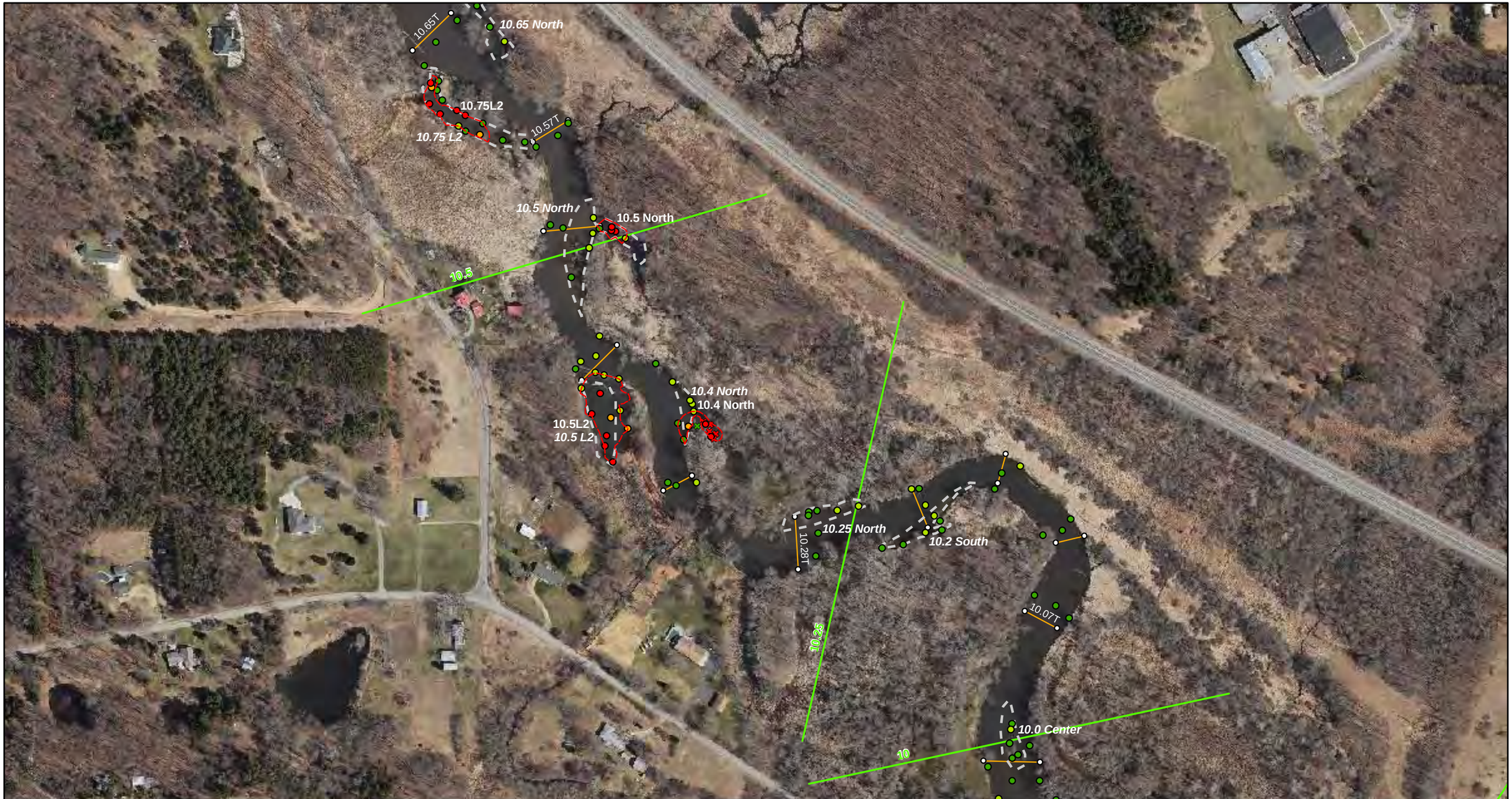
POLING ASSESSMENT RESULTS

MP 09.25 - MP 10.05

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

H:\ArcMap Project Files\Qualitative Results\2011\Poling Results\Poling_Results_Mapset_All.mxd

Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 06/18/2011
Approved:	CG 06/18/2011
Project #:	106-4186

Map Location

Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

- *Poling Focus Areas*
- Transect
- Park/Launch Access Poling Areas
- Bridge Access Poling Areas
- Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

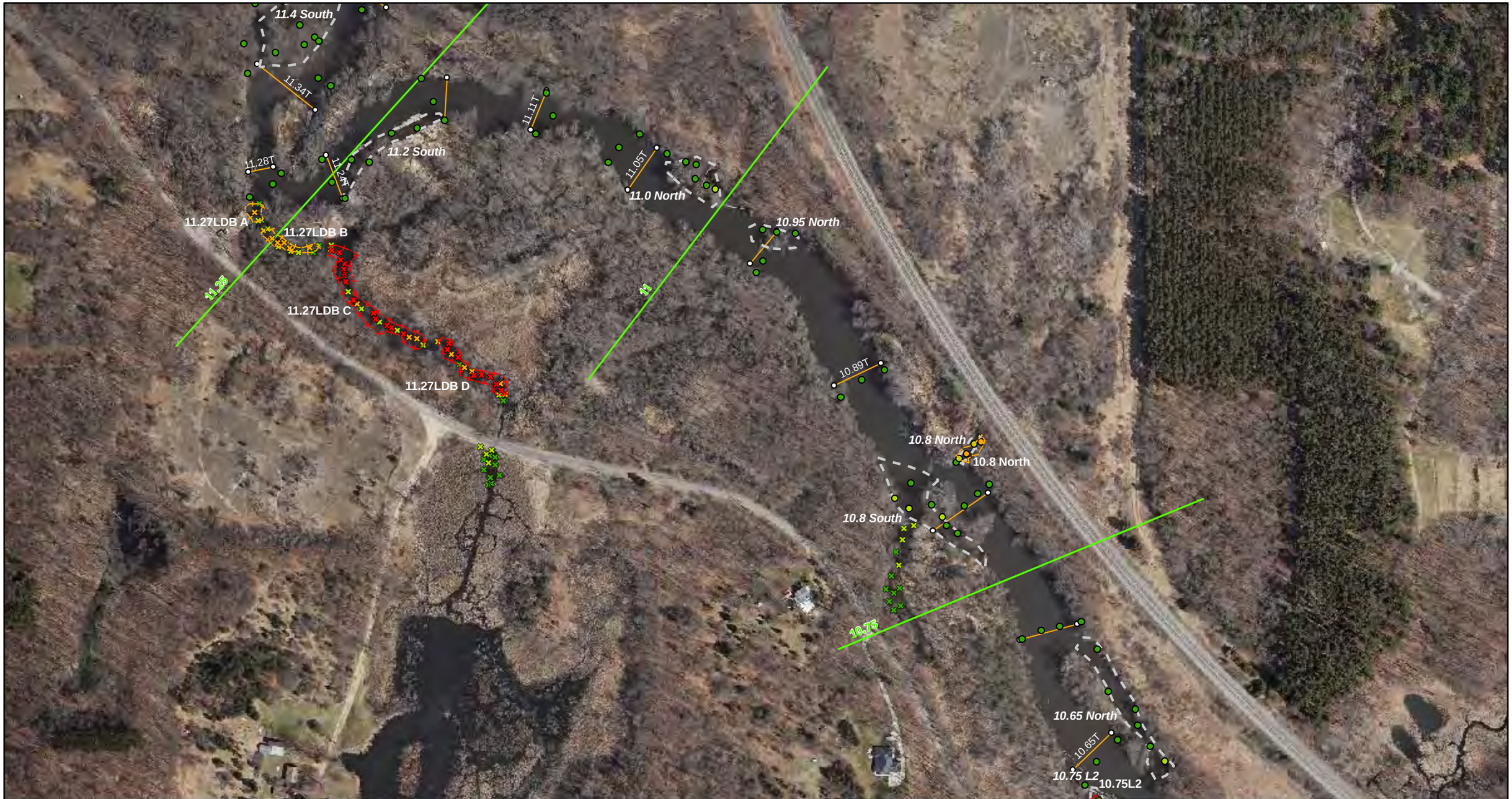
POLING ASSESSMENT RESULTS

MP 10.00 - MP 10.65

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

H:\ArcMap Project Files\Qualitative Results\2011\Poling Results\Poling_Results_Mapset_All.mxd

Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 06/18/2011
Approved:	CG 06/18/2011
Project #:	106-4186

Map Location

Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

- *Poling Focus Areas*
- Transect
- Park/Launch Access Poling Areas
- Bridge Access Poling Areas
- Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

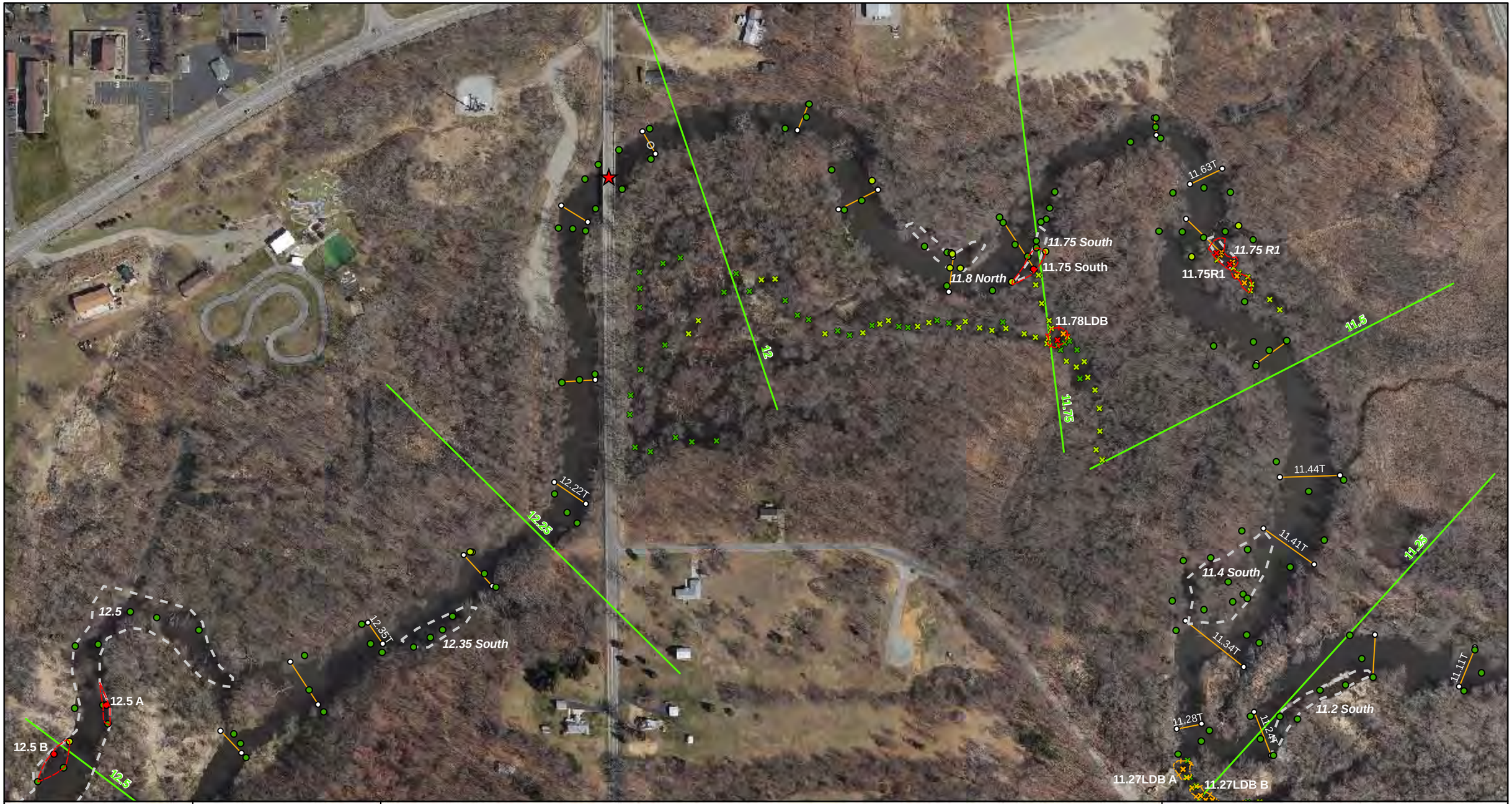
POLING ASSESSMENT RESULTS

MP 10.60 - MP 11.40

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

H:\ArcMap Project Files\Qualitative Results\2011\Poling Results\Poling_Results_Mapset_All.mxd

Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 06/18/2011
Approved:	CG 06/18/2011
Project #:	106-4186

Map Location

Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

- *Poling Focus Areas*
- Transect
- Park/Launch Access Poling Areas
- Bridge Access Poling Areas
- Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

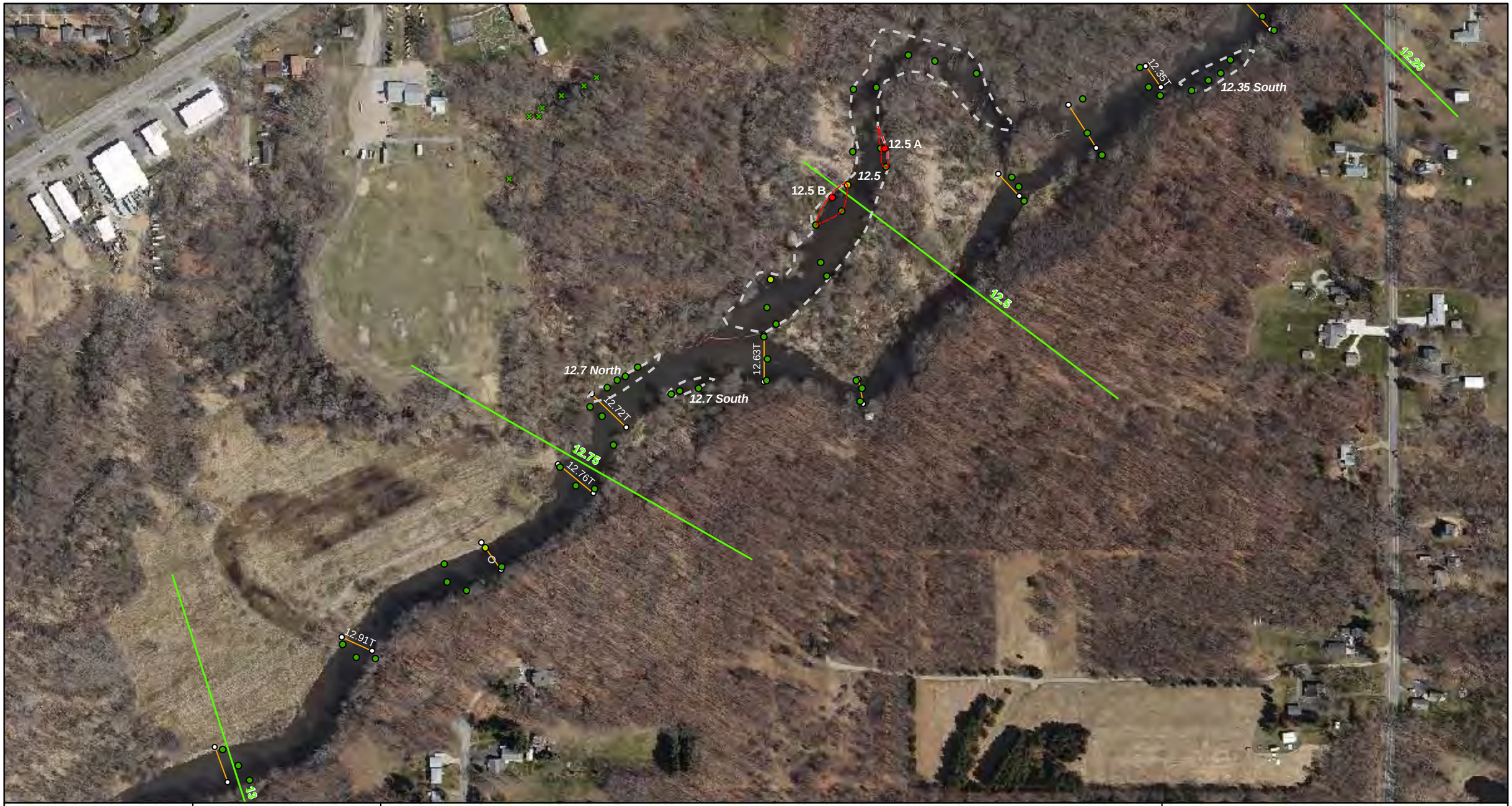
POLING ASSESSMENT RESULTS

MP 11.10 - MP 12.45

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

H:\ArcMap Project Files\Qualitative Results\2011\Poling Results\Poling_Results_Mapset_All.mxd

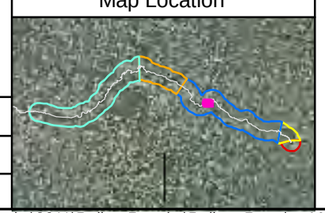
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS	06/18/2011
Approved:	CG	06/18/2011
Project #:	106-4186	

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

- *Poling Focus Areas*
- Transect
- Park/Launch Access Poling Areas
- Bridge Access Poling Areas
- Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

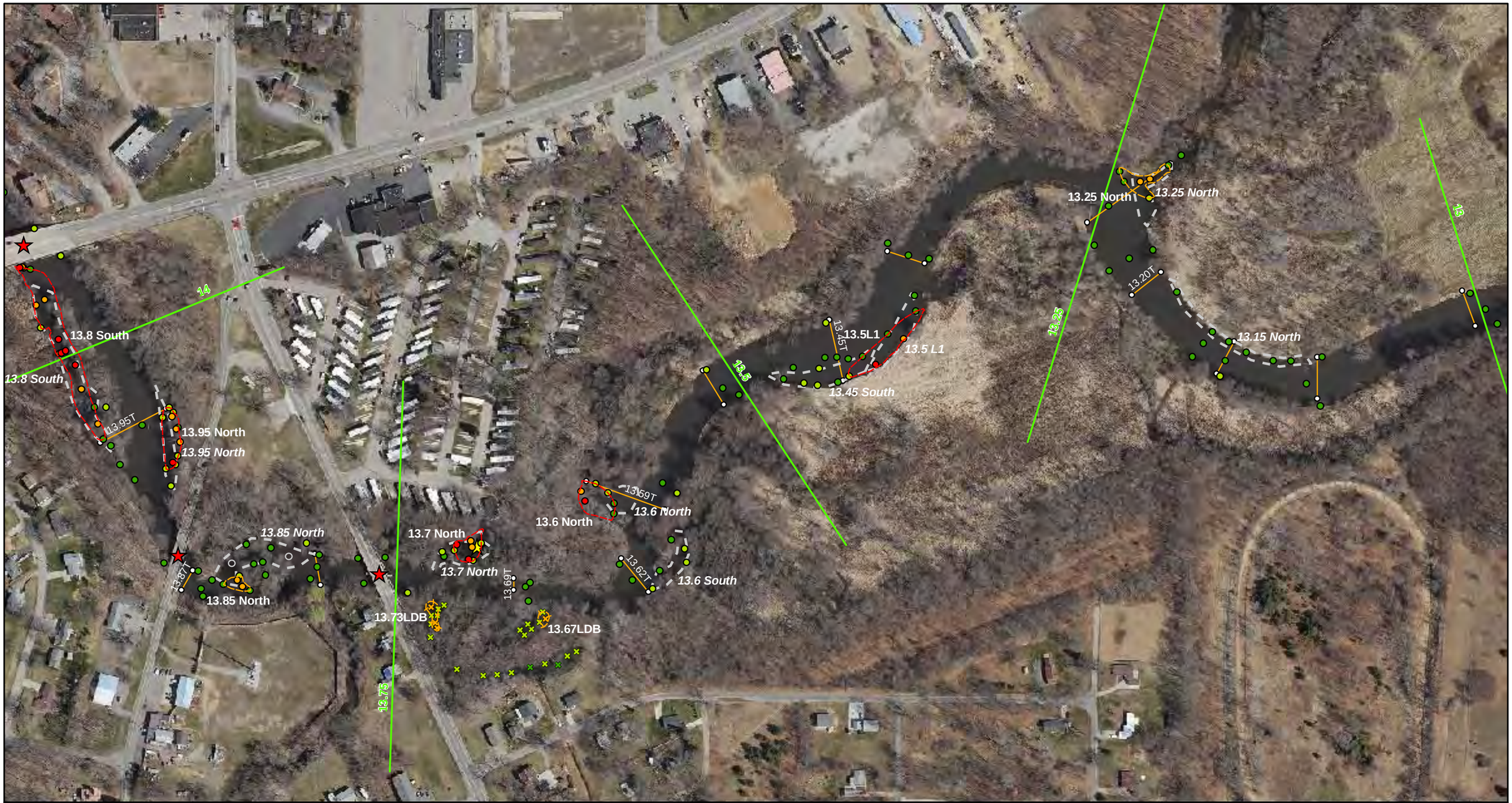
POLING ASSESSMENT RESULTS

MP 12.30 - MP 13.05

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

H:\ArcMap Project Files\Qualitative Results\2011\Poling Results\Poling_Results_Mapset_All.mxd

Aerial Photography Date: April 2011



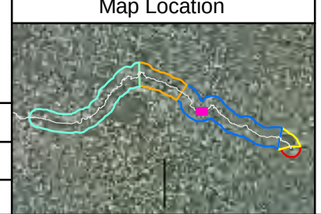
ENBRIDGE

Drawn: BRS 06/18/2011

Approved: CG 06/18/2011

Project #: 106-4186

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

- *Poling Focus Areas*
- Transect
- Park/Launch Access Poling Areas
- Bridge Access Poling Areas
- Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

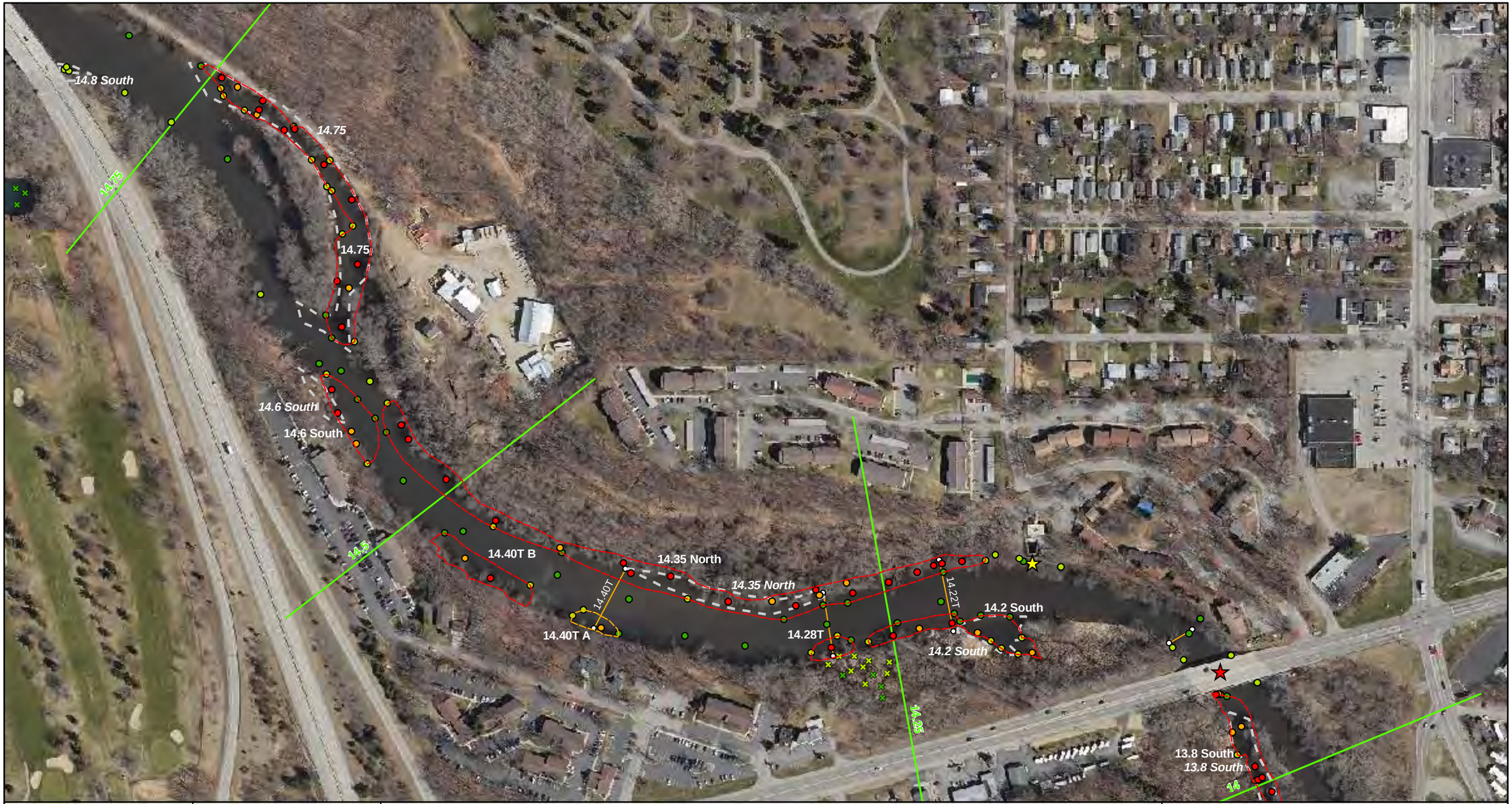
POLING ASSESSMENT RESULTS

MP 13.00 - MP 14.10

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

H:\ArcMap Project Files\Qualitative Results\2011\Poling Results\Poling_Results_Mapset_All.mxd

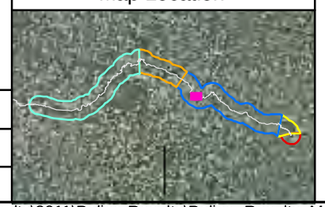
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 06/18/2011
Approved:	CG 06/18/2011
Project #:	106-4186

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

- *Poling Focus Areas*
- Transect
- Park/Launch Access Poling Areas
- Bridge Access Poling Areas
- Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

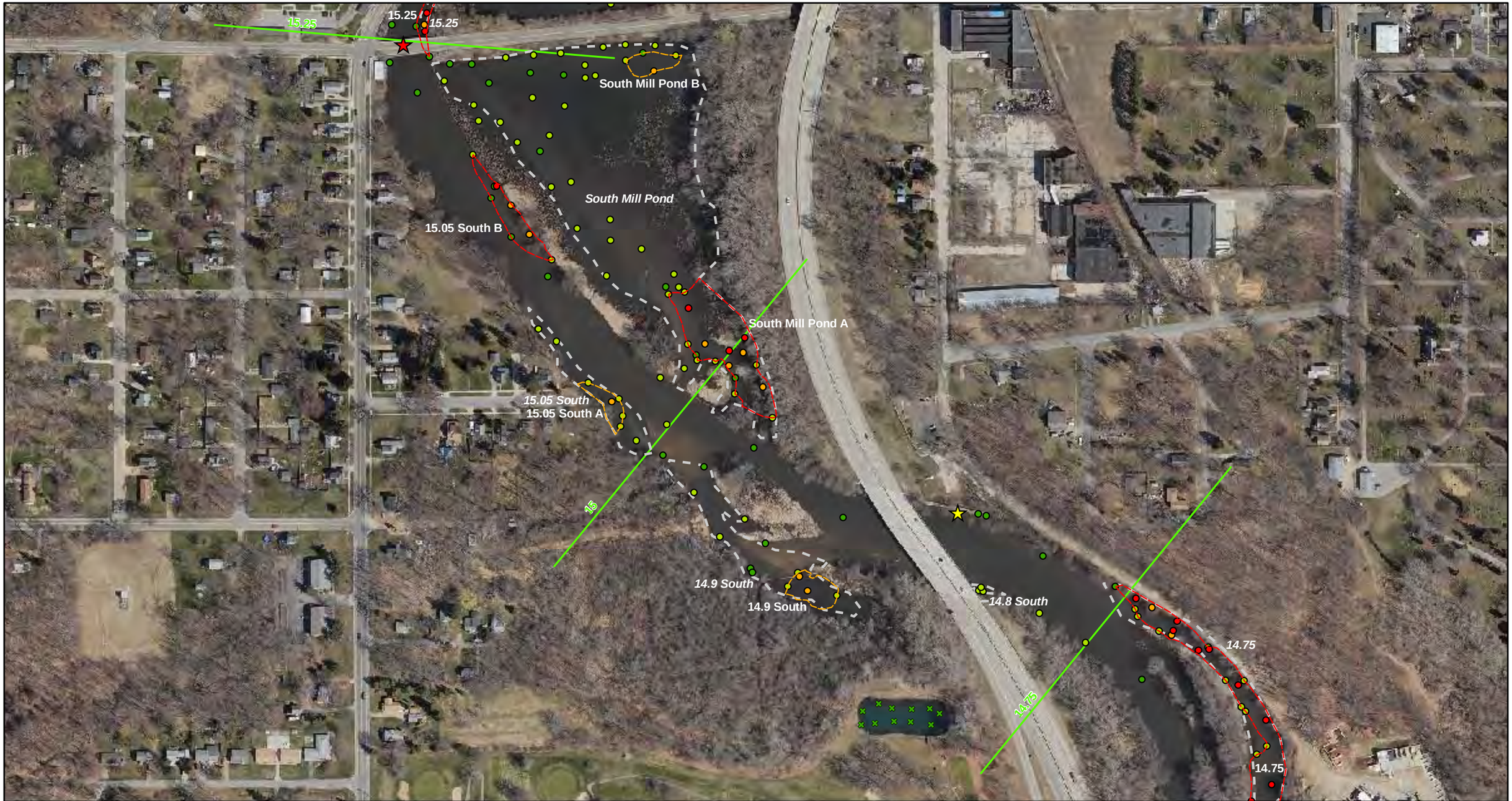
POLING ASSESSMENT RESULTS

MP 14.00 - MP 14.85

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

H:\ArcMap Project Files\Qualitative Results\2011\Poling Results\Poling_Results_Mapset_All.mxd

Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 06/18/2011
Approved:	CG 06/18/2011
Project #:	106-4186

Map Location

Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

- *Poling Focus Areas*
- Transect
- Park/Launch Access Poling Areas
- Bridge Access Poling Areas
- Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

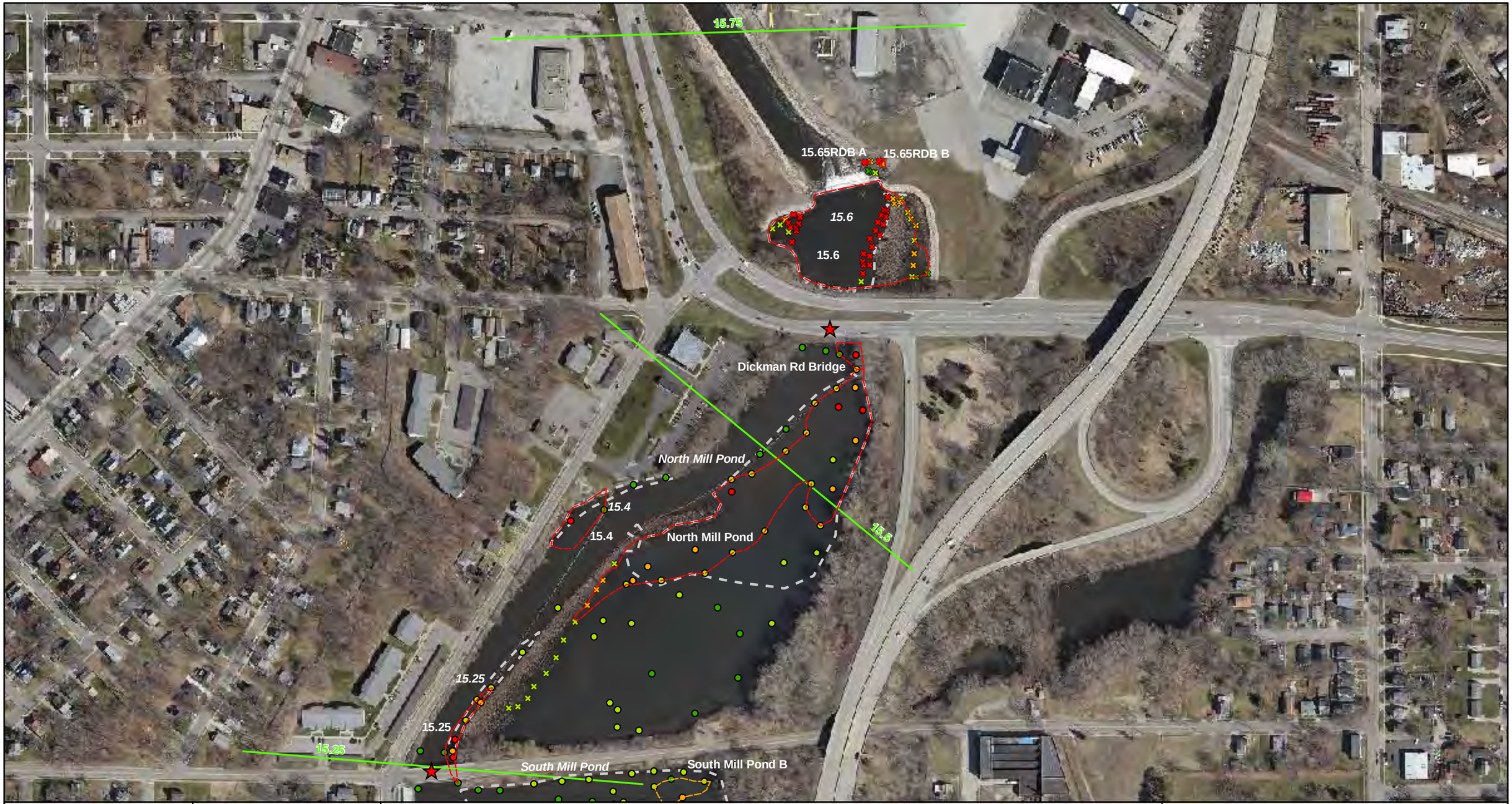
POLING ASSESSMENT RESULTS

MP 14.65 - MP 15.25

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

H:\ArcMap Project Files\Qualitative Results\2011\Poling Results\Poling_Results_Mapset_All.mxd

Aerial Photography Date: April 2011



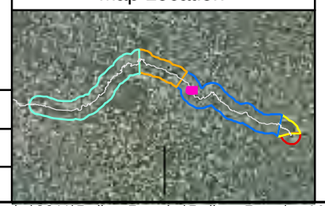
ENBRIDGE

Drawn: BRS 06/18/2011

Approved: CG 06/18/2011

Project #: 106-4186

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

- *Poling Focus Areas*
- Transect
- Park/Launch Access Poling Areas
- Bridge Access Poling Areas
- Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

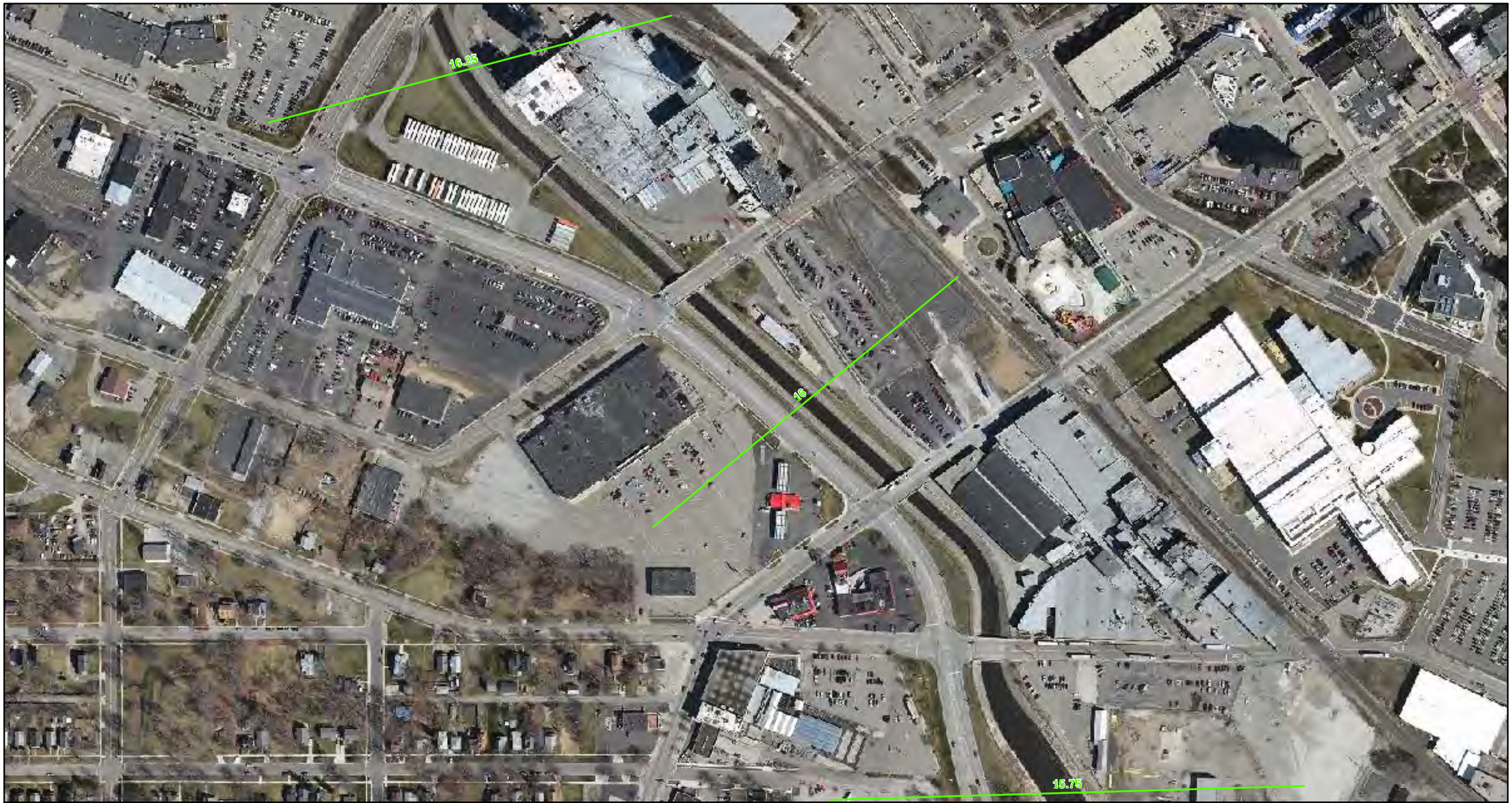
POLING ASSESSMENT RESULTS

MP 15.25 - MP 15.75

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

H:\ArcMap Project Files\Qualitative Results\2011\Poling Results\Poling_Results_Mapset_All.mxd

Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 06/18/2011
Approved:	CG 06/18/2011
Project #:	106-4186

Map Location

Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

- *Poling Focus Areas*
- Transect
- Park/Launch Access Poling Areas
- Bridge Access Poling Areas
- Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

POLING ASSESSMENT RESULTS

MP 15.75 - MP 16.30

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

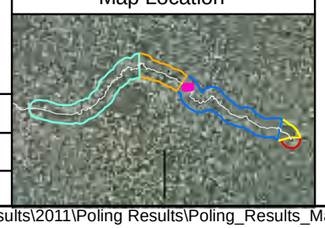
H:\ArcMap Project Files\Qualitative Results\2011\Poling Results\Poling_Results_Mapset_All.mxd

Aerial Photography Date: April 2011

ENBRIDGE

Drawn:	BRS 06/18/2011
Approved:	CG 06/18/2011
Project #:	106-4186

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

Poling Focus Areas

Transect

Park/Launch Access Poling Areas

Bridge Access Poling Areas

Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

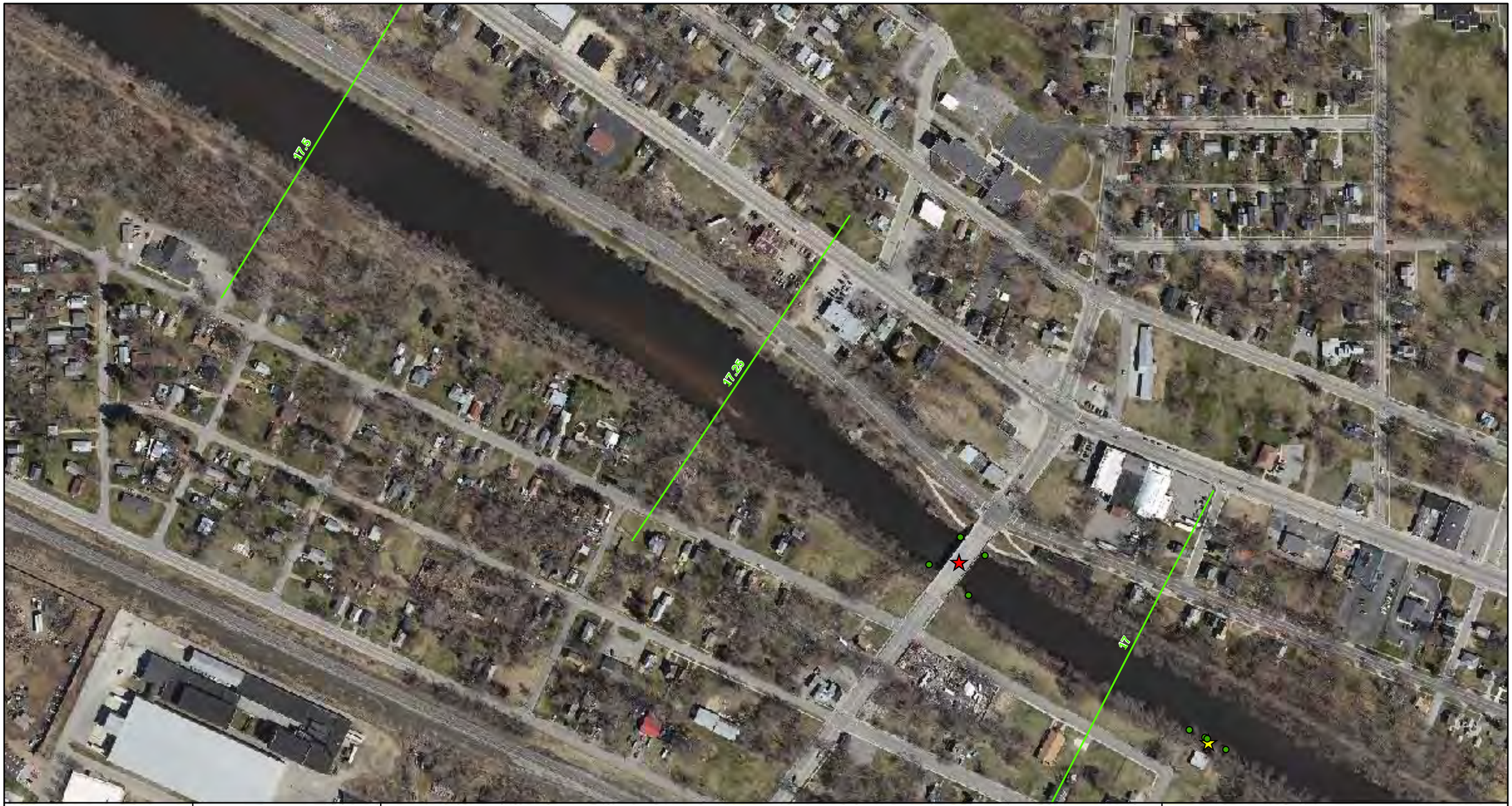
POLING ASSESSMENT RESULTS

MP 16.30 - MP 16.95

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

H:\ArcMap Project Files\Qualitative Results\2011\Poling Results\Poling_Results_Mapset_All.mxd

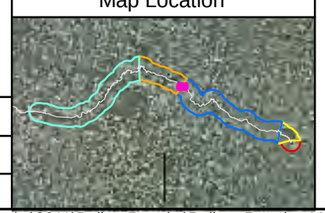
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 06/18/2011
Approved:	CG 06/18/2011
Project #:	106-4186

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

Poling Focus Areas

Transect

Park/Launch Access Poling Areas

Bridge Access Poling Areas

Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

POLING ASSESSMENT RESULTS

MP 16.85 - MP 17.60

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

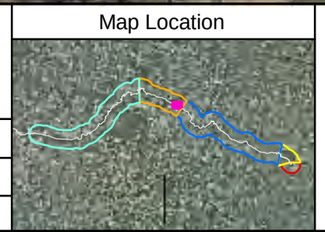
H:\ArcMap Project Files\Qualitative Results\2011\Poling Results\Poling_Results_Mapset_All.mxd

Aerial Photography Date: April 2011

ENBRIDGE

Drawn:	BRS 06/18/2011
Approved:	CG 06/18/2011
Project #:	106-4186

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

- *Poling Focus Areas*
- Transect
- Park/Launch Access Poling Areas
- Bridge Access Poling Areas
- Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

POLING ASSESSMENT RESULTS

MP 17.60 - MP 18.40

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

H:\ArcMap Project Files\Qualitative Results\2011\Poling Results\Poling_Results_Mapset_All.mxd

Aerial Photography Date: April 2011

ENBRIDGE

Drawn:	BRS	06/18/2011
Approved:	CG	06/18/2011
Project #:	106-4186	

Map Location

Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

- *Poling Focus Areas*
- Transect
- Park/Launch Access Poling Areas
- Bridge Access Poling Areas
- Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

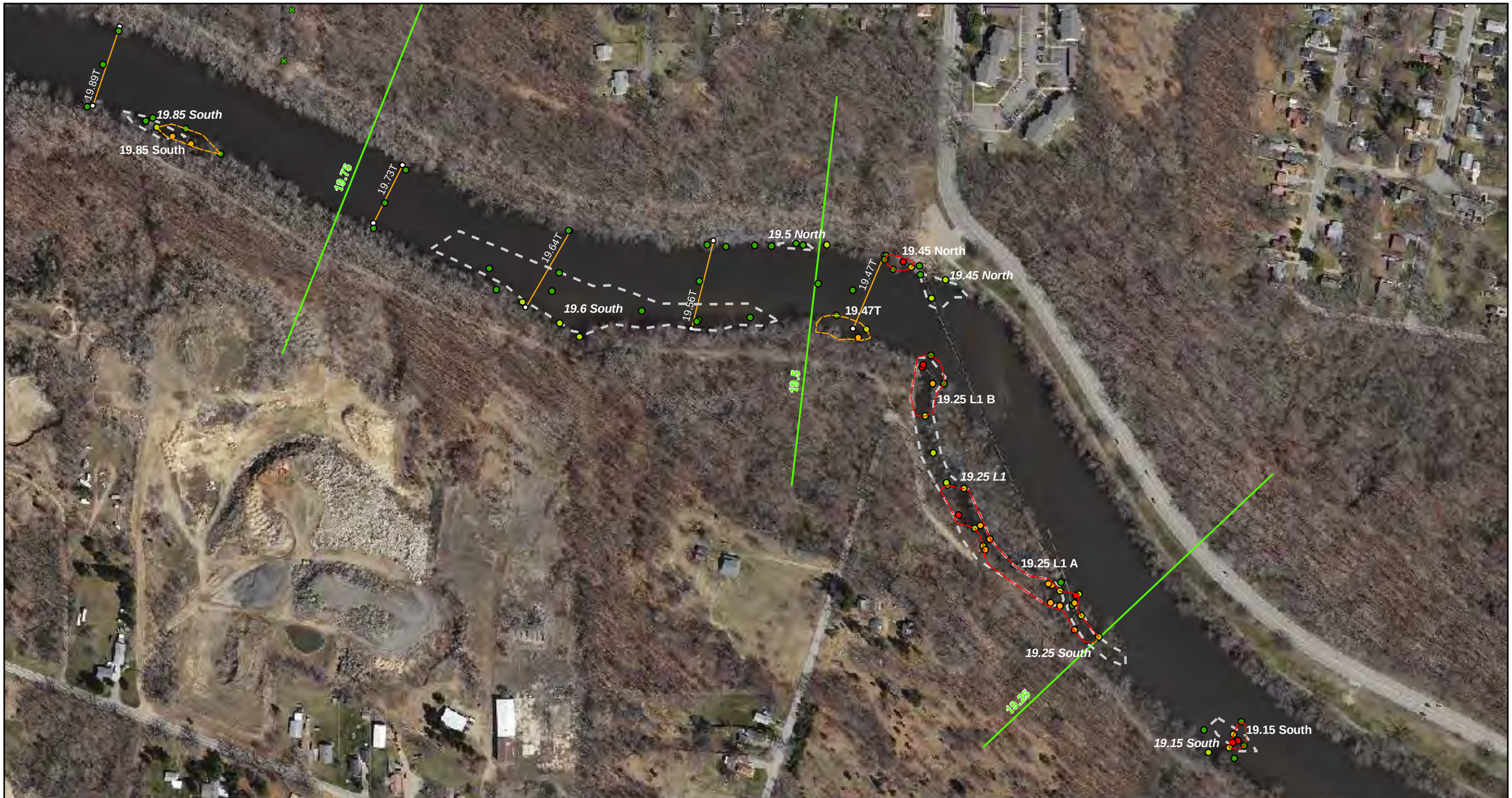
POLING ASSESSMENT RESULTS

MP 18.30 - MP 19.15

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

H:\ArcMap Project Files\Qualitative Results\2011\Poling Results\Poling_Results_Mapset_All.mxd

Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS	06/18/2011
Approved:	CG	06/18/2011
Project #:	106-4186	

Map Location

Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

- *Poling Focus Areas*
- Transect
- Park/Launch Access Poling Areas
- Bridge Access Poling Areas
- Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

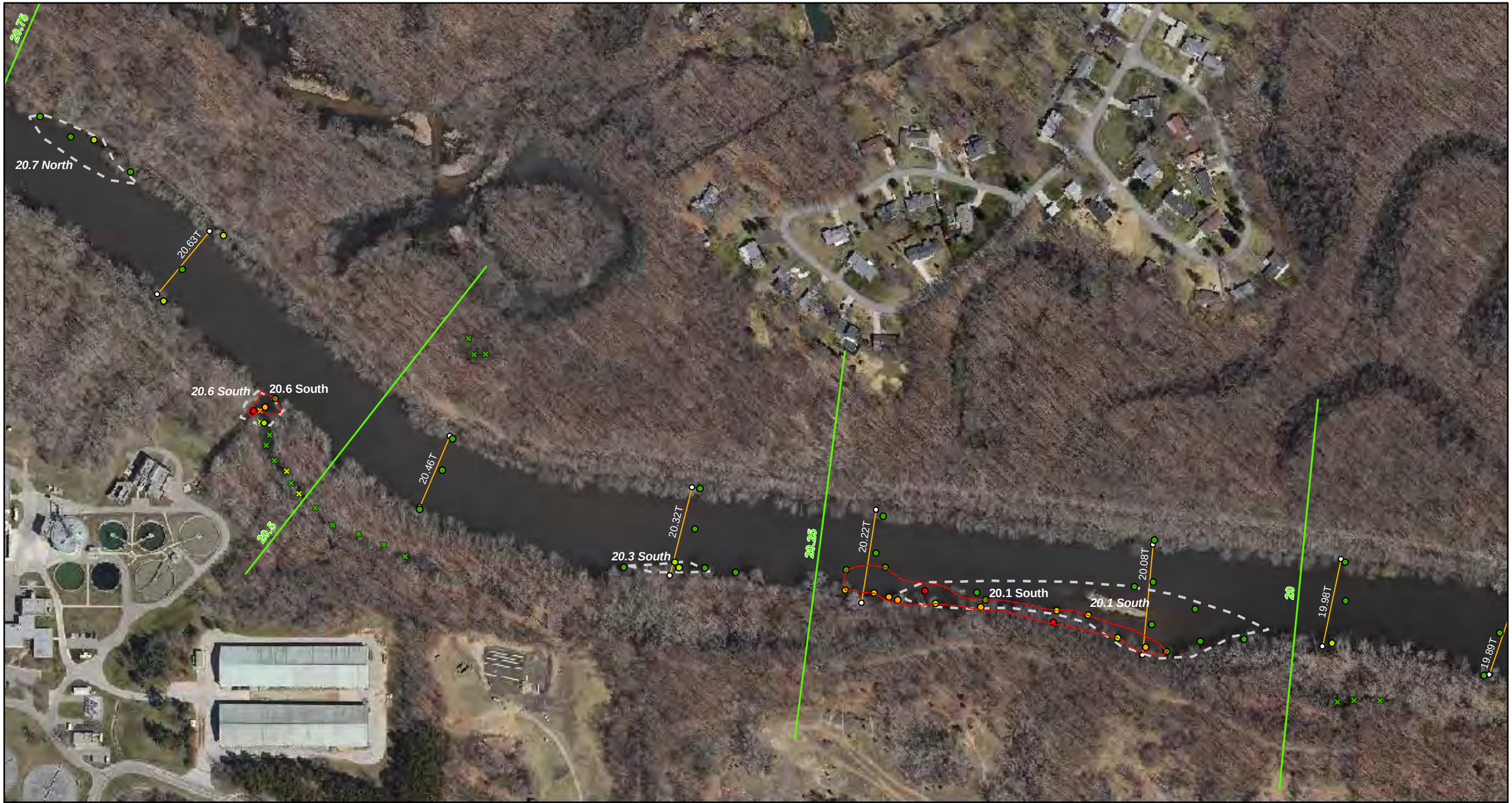
POLING ASSESSMENT RESULTS

MP 19.10 - MP 19.95

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

H:\ArcMap Project Files\Qualitative Results\2011\Poling Results\Poling_Results_Mapset_All.mxd

Aerial Photography Date: April 2011



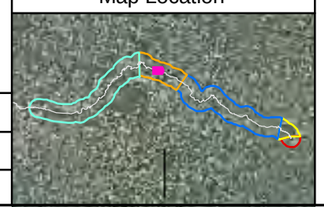
ENBRIDGE

Drawn: BRS 06/18/2011

Approved: CG 06/18/2011

Project #: 106-4186

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

Poling Focus Areas

Transect

Park/Launch Access Poling Areas

Bridge Access Poling Areas

Quarter Mile Grid Segment

N

0 150 300 600

Scale in Feet

POLING ASSESSMENT RESULTS

MP 19.90 - MP 20.75

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

H:\ArcMap Project Files\Qualitative Results\2011\Poling Results\Poling_Results_Mapset_All.mxd

Aerial Photography Date: April 2011

21.5R1
21.5 R1
21.4
21.44T
21.33T
21.4
Custer Dr Bridge SW
21.55 South
21.25
21.24T
21.25 North
21.11T
21
20.95T
20.9 South
20.81T
20.75
20.7 North

ENBRIDGE

Drawn:	BRS 06/18/2011
Approved:	CG 06/18/2011
Project #:	106-4186

Map Location

Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

- Poling Focus Areas
- Transect
- Park/Launch Access Poling Areas
- Bridge Access Poling Areas
- Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

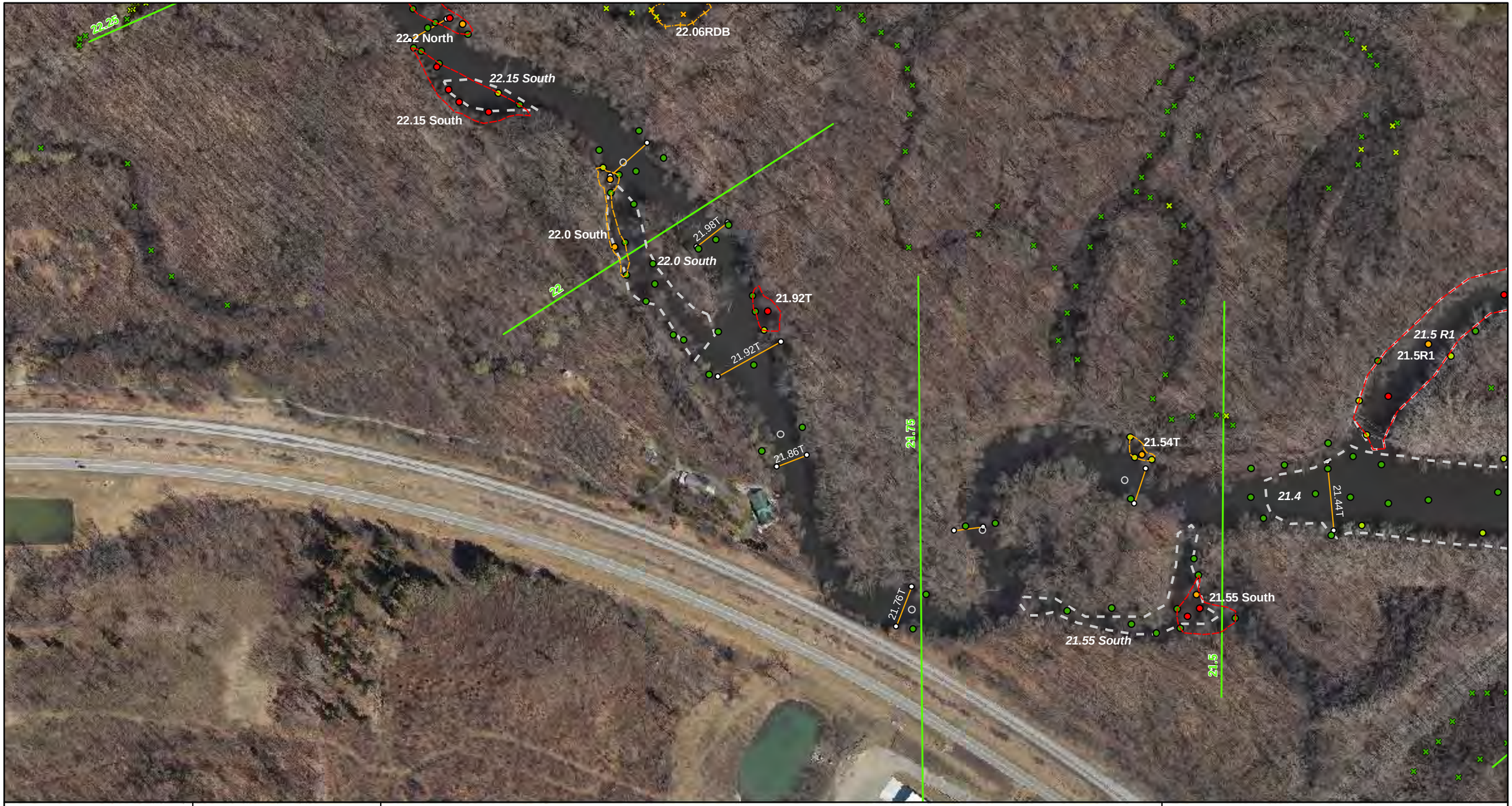
POLING ASSESSMENT RESULTS

MP 20.70 - MP 21.50

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

H:\ArcMap Project Files\Qualitative Results\2011\Poling Results\Poling_Results_Mapset_All.mxd

Aerial Photography Date: April 2011



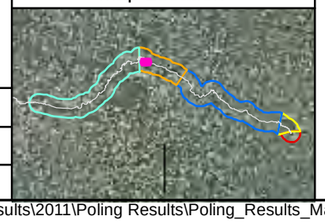
ENBRIDGE

Drawn: BRS 06/18/2011

Approved: CG 06/18/2011

Project #: 106-4186

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

- *Poling Focus Areas*
- Transect
- Park/Launch Access Poling Areas
- Bridge Access Poling Areas
- Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

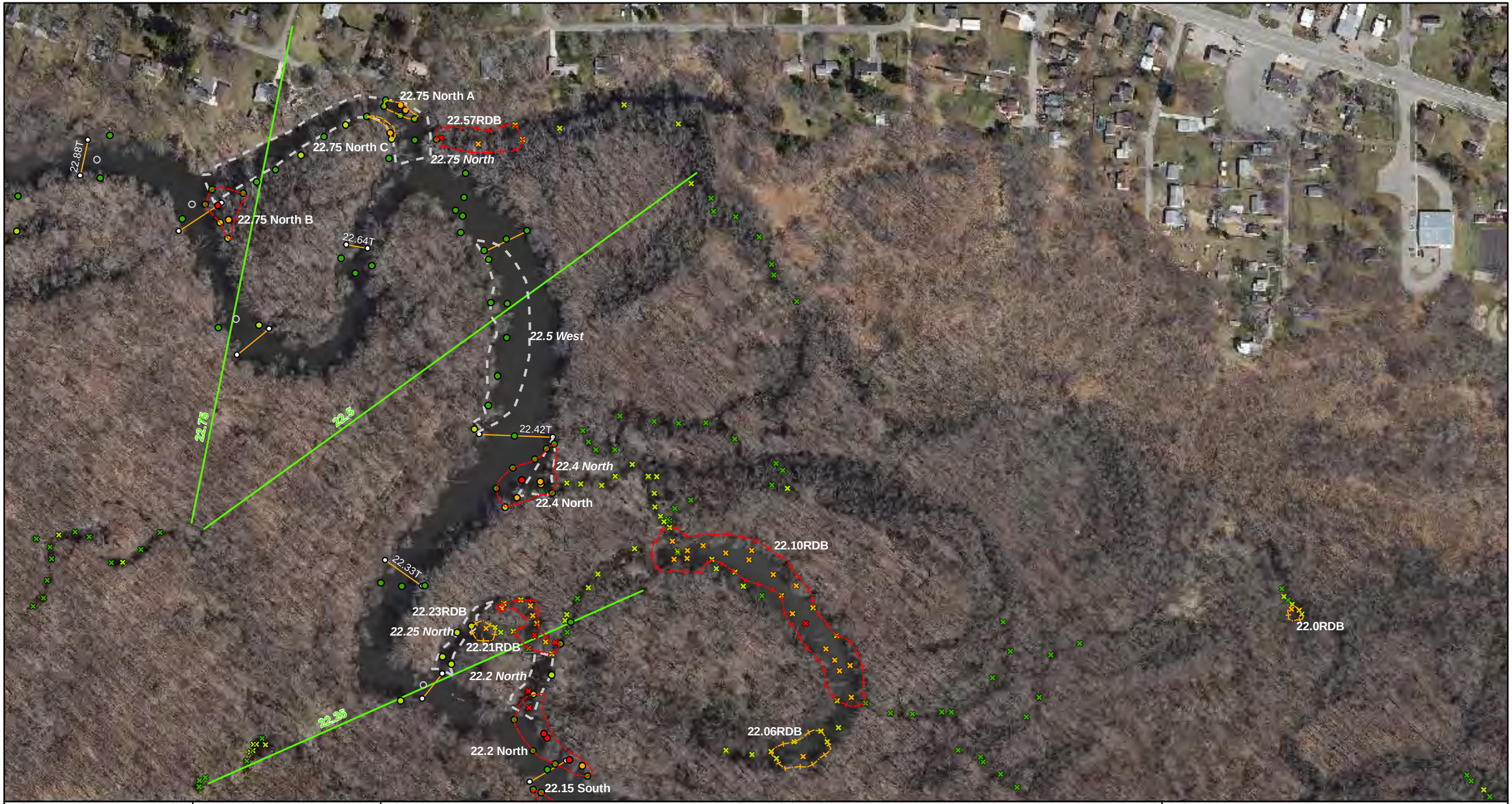
POLING ASSESSMENT RESULTS

MP 21.35 - MP 22.15

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

H:\ArcMap Project Files\Qualitative Results\2011\Poling Results\Poling_Results_Mapset_All.mxd

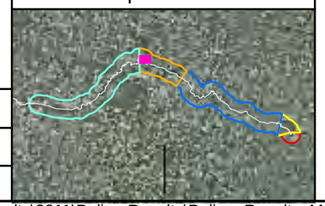
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 06/18/2011
Approved:	CG 06/18/2011
Project #:	106-4186

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

- *Poling Focus Areas*
- Transect
- Park/Launch Access Poling Areas
- Bridge Access Poling Areas
- Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

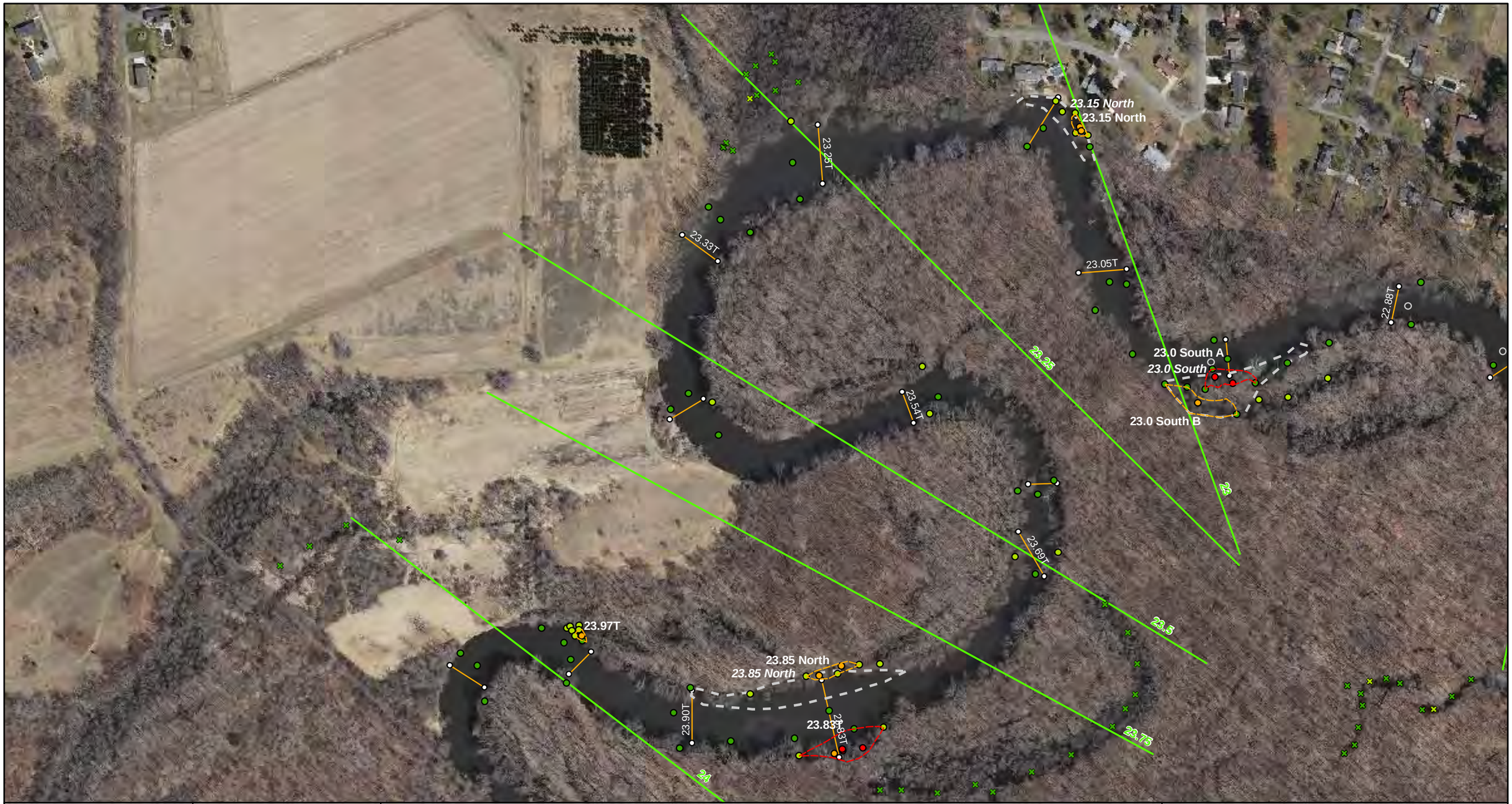
POLING ASSESSMENT RESULTS

MP 22.15 - MP 22.90

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

H:\ArcMap Project Files\Qualitative Results\2011\Poling Results\Poling_Results_Mapset_All.mxd

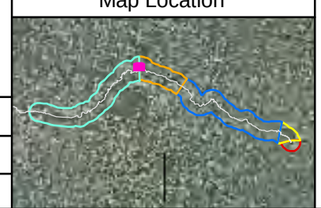
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS	06/18/2011
Approved:	CG	06/18/2011
Project #:	106-4186	

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

- *Poling Focus Areas*
- Transect
- Park/Launch Access Poling Areas
- Bridge Access Poling Areas
- Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

POLING ASSESSMENT RESULTS

MP 22.80 - MP 24.10

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

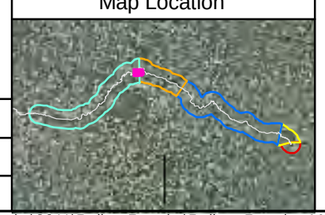
H:\ArcMap Project Files\Qualitative Results\2011\Poling Results\Poling_Results_Mapset_All.mxd

Aerial Photography Date: April 2011

ENBRIDGE

Drawn:	BRS	06/18/2011
Approved:	CG	06/18/2011
Project #:	106-4186	

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

Poling Focus Areas

Transect

Park/Launch Access Poling Areas

Bridge Access Poling Areas

Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

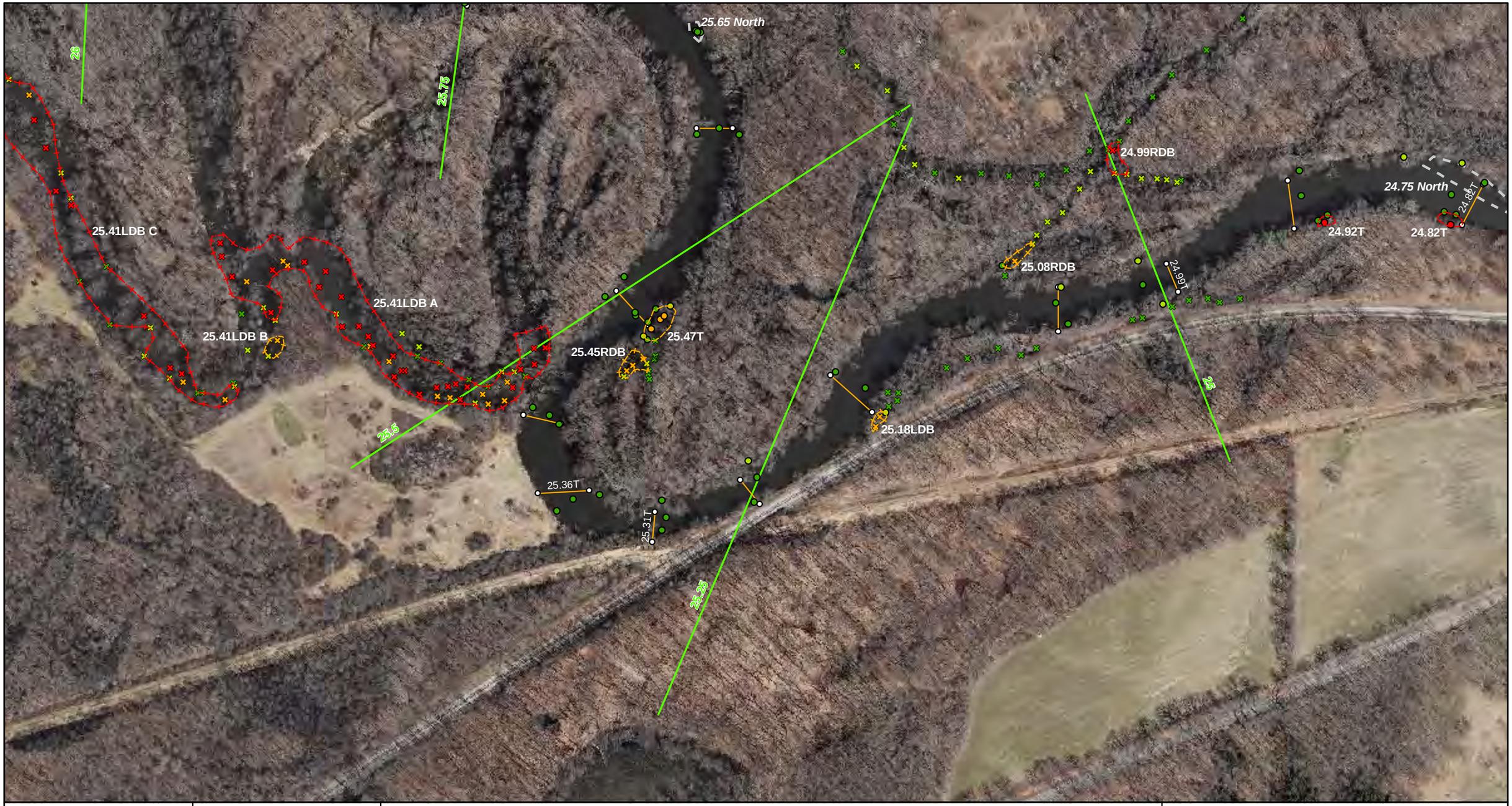
POLING ASSESSMENT RESULTS

MP 24.10 - MP 24.85

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

H:\ArcMap Project Files\Qualitative Results\2011\Poling Results\Poling_Results_Mapset_All.mxd

Aerial Photography Date: April 2011



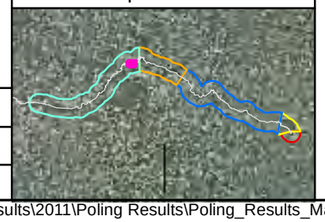
ENBRIDGE

Drawn: BRS 06/18/2011

Approved: CG 06/18/2011

Project #: 106-4186

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

Poling Focus Areas

Transect

Park/Launch Access Poling Areas

Bridge Access Poling Areas

Quarter Mile Grid Segment

N

0 150 300 600

Scale in Feet

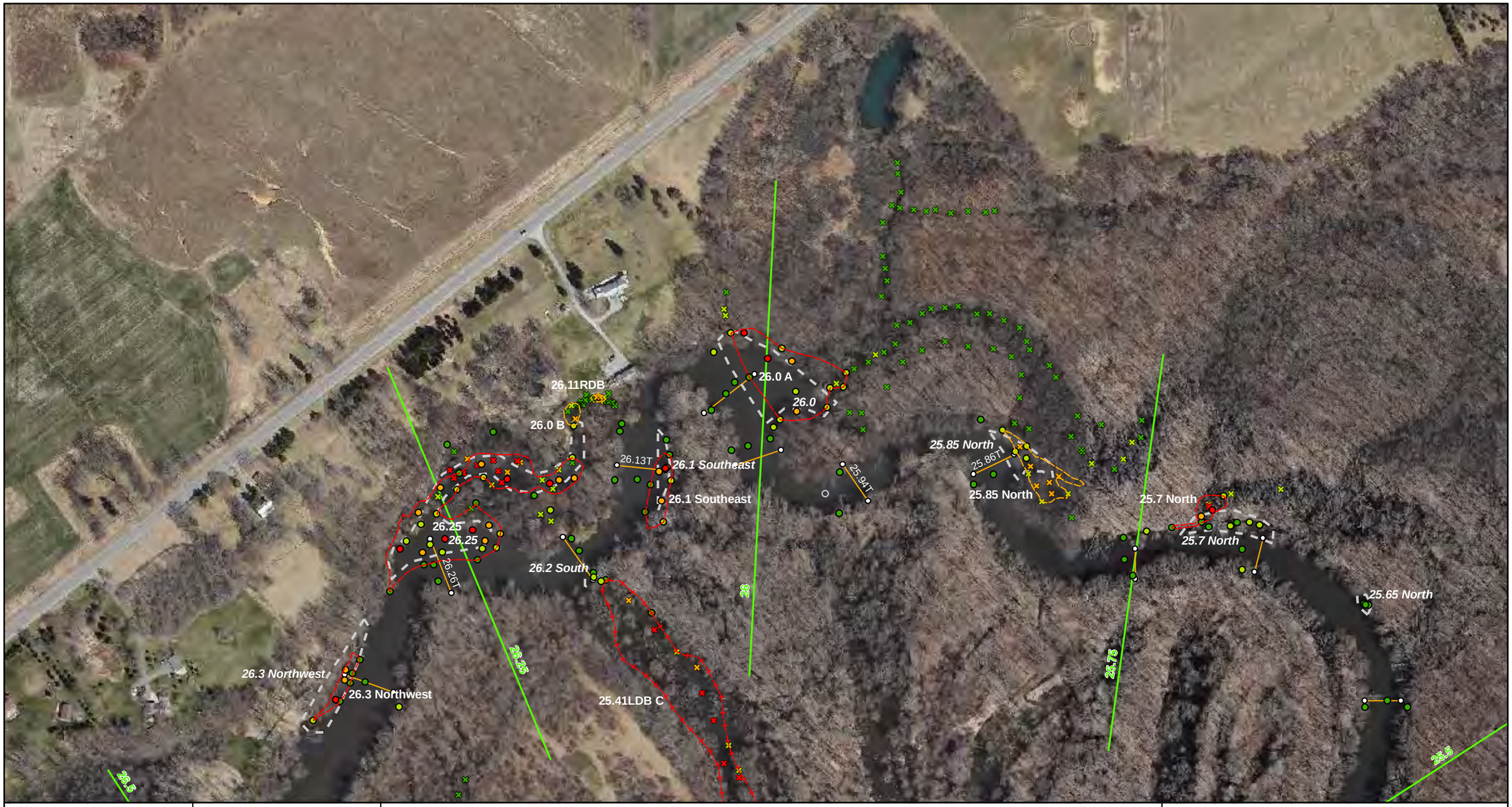
POLING ASSESSMENT RESULTS

MP 24.80 - MP 25.65

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

H:\ArcMap Project Files\Qualitative Results\2011\Poling Results\Poling_Results_Mapset_All.mxd

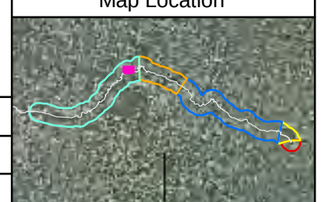
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS	06/18/2011
Approved:	CG	06/18/2011
Project #:	106-4186	

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

- *Poling Focus Areas*
- Transect
- Park/Launch Access Poling Areas
- Bridge Access Poling Areas
- Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

POLING ASSESSMENT RESULTS

MP 25.55 - MP 26.40

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

H:\ArcMap Project Files\Qualitative Results\2011\Poling Results\Poling_Results_Mapset_All.mxd

Aerial Photography Date: April 2011

26.4 Center
26.65
26.65 B
26.65 A
26.76T
26.62T
26.5
26.80T
26.80T
26.81RDB
26.85T
26.8 Southeast
26.8 Southeast
26.85RDB
26.75
27.15 South
27.25
27.28T
27.1 North
27.1 South
27.1 South
26.95T
27.02T
27
27.3 North
27.3 North
27.3 South
27.5 Southeast A
27.43T
27.5 Southeast A
27.5 Northwest

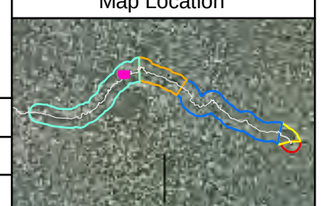
ENBRIDGE

Drawn: BRS 06/18/2011

Approved: CG 06/18/2011

Project #: 106-4186

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

- Poling Focus Areas
- Transect
- Park/Launch Access Poling Areas
- Bridge Access Poling Areas
- Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

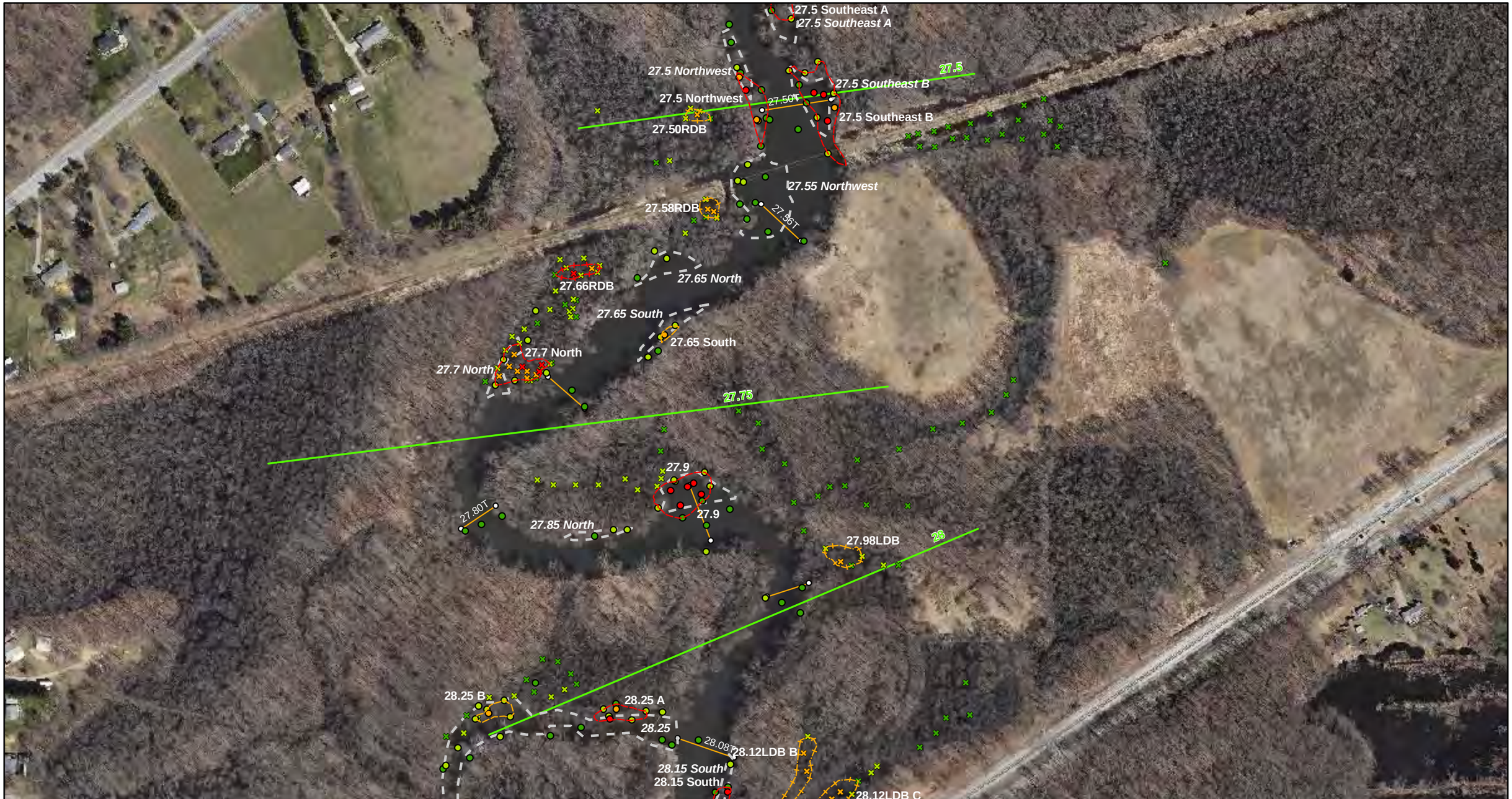
POLING ASSESSMENT RESULTS

MP 26.40 - MP 27.45

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

H:\ArcMap Project Files\Qualitative Results\2011\Poling Results\Poling_Results_Mapset_All.mxd

Aerial Photography Date: April 2011



ENBRIDGE

Drawn: BRS 06/18/2011

Approved: CG 06/18/2011

Project #: 106-4186

Map Location

Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

Poling Focus Areas

Transect

Park/Launch Access Poling Areas

Bridge Access Poling Areas

Quarter Mile Grid Segment

N

0 150 300 600

Scale in Feet

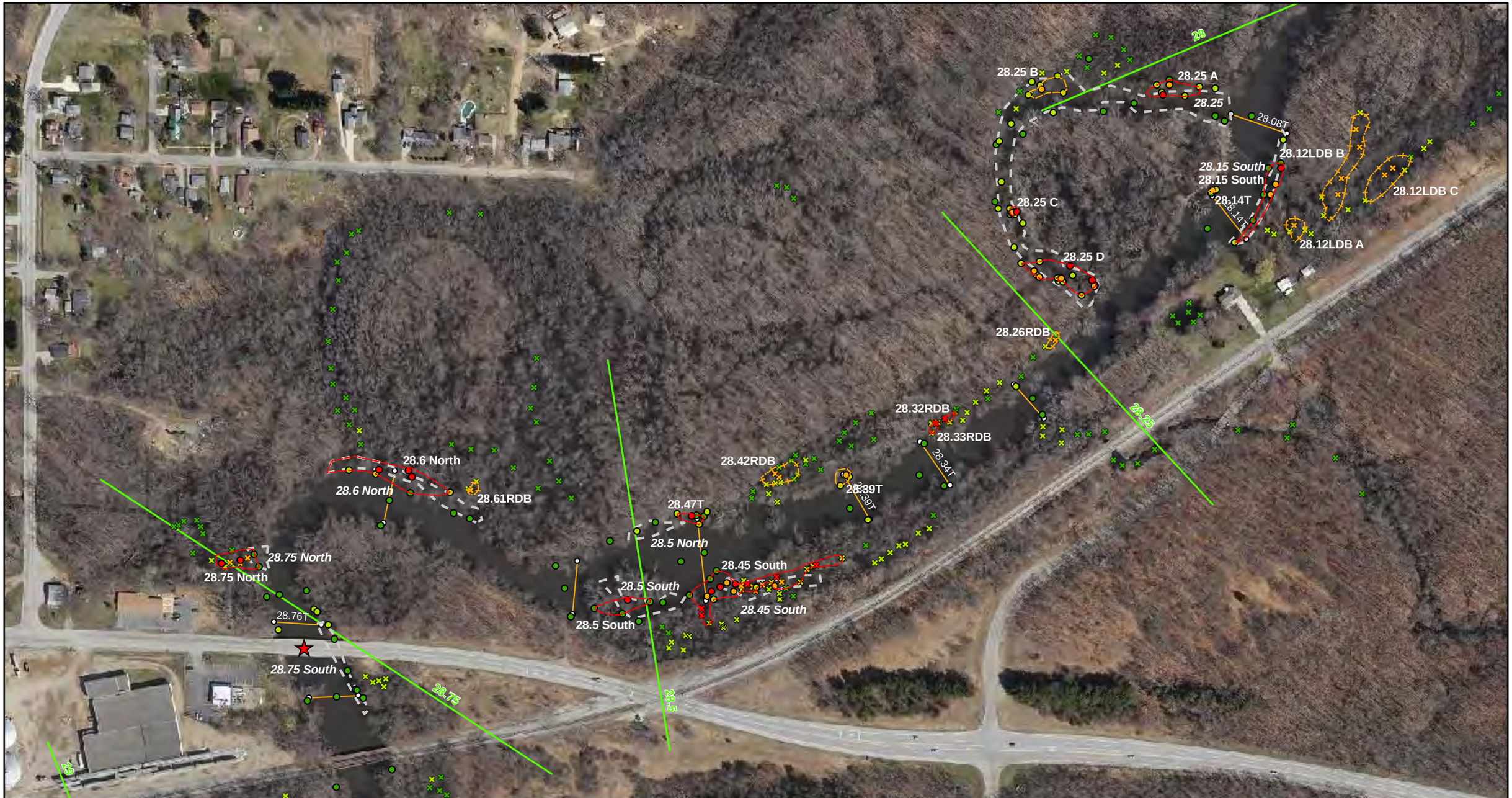
POLING ASSESSMENT RESULTS

MP 27.45 - MP 28.10

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

H:\ArcMap Project Files\Qualitative Results\2011\Poling Results\Poling_Results_Mapset_All.mxd

Aerial Photography Date: April 2011



ENBRIDGE

Drawn: BRS 06/18/2011

Approved: CG 06/18/2011

Project #: 106-4186

Map Location

Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

- *Poling Focus Areas*
- Transect
- Park/Launch Access Poling Areas
- Bridge Access Poling Areas
- Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

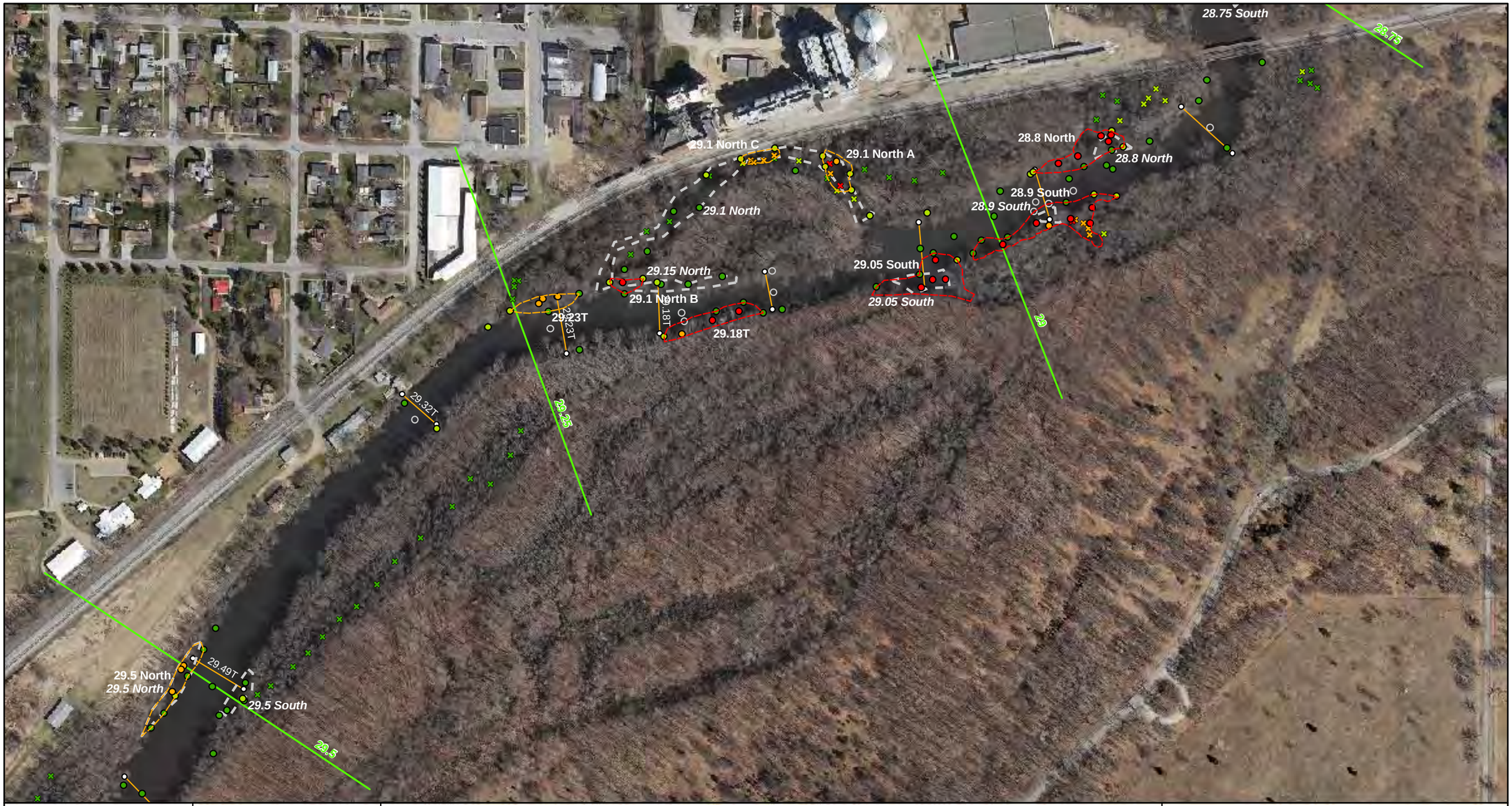
POLING ASSESSMENT RESULTS

MP 28.05 - MP 28.85

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

H:\ArcMap Project Files\Qualitative Results\2011\Poling Results\Poling_Results_Mapset_All.mxd

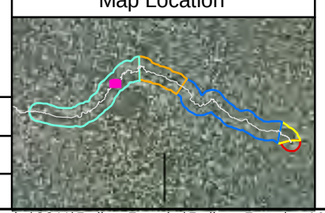
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS	06/18/2011
Approved:	CG	06/18/2011
Project #:	106-4186	

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

- *Poling Focus Areas*
- Transect
- Park/Launch Access Poling Areas
- Bridge Access Poling Areas
- Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

POLING ASSESSMENT RESULTS

MP 28.85 - MP29.55

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

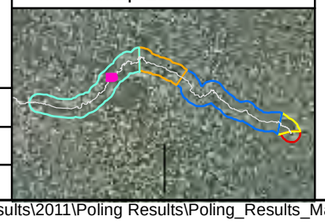
H:\ArcMap Project Files\Qualitative Results\2011\Poling Results\Poling_Results_Mapset_All.mxd

Aerial Photography Date: April 2011

ENBRIDGE

Drawn:	BRS 06/18/2011
Approved:	CG 06/18/2011
Project #:	106-4186

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

Poling Focus Areas

Transect

Park/Launch Access Poling Areas

Bridge Access Poling Areas

Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

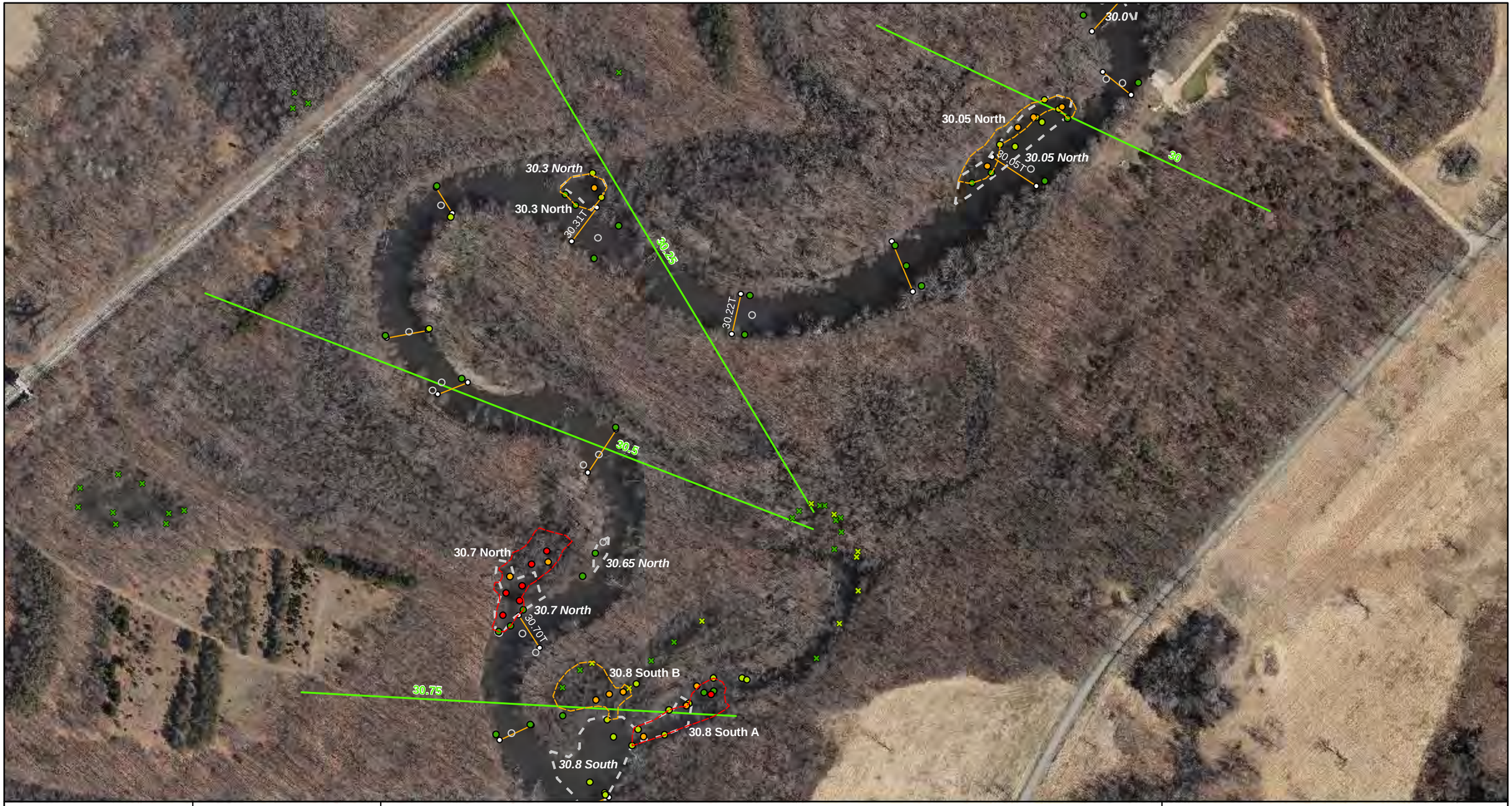
POLING ASSESSMENT RESULTS

MP 29.50 - MP29.95

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

H:\ArcMap Project Files\Qualitative Results\2011\Poling Results\Poling_Results_Mapset_All.mxd

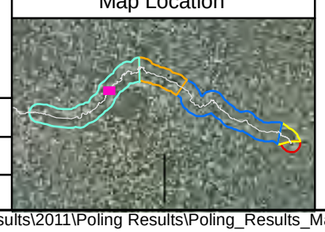
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 06/18/2011
Approved:	CG 06/18/2011
Project #:	106-4186

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

Poling Focus Areas

Transect

Park/Launch Access Poling Areas

Bridge Access Poling Areas

Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

POLING ASSESSMENT RESULTS

MP 29.95 - MP 30.80

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

H:\ArcMap Project Files\Qualitative Results\2011\Poling Results\Poling_Results_Mapset_All.mxd

Aerial Photography Date: April 2011

US EPA ARCHIVE DOCUMENT

30.75
30.8 South B
30.8 South A
30.8 South
30.82T
30.89T A
30.89T B
30.98T
31.0
31.0
31
31.08T
31.25 North
31.26RDB
31.25 North
31.25RDB
31.25

ENBRIDGE

Drawn: BRS 06/18/2011

Approved: CG 06/18/2011

Project #: 106-4186

Map Location

Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

Poling Focus Areas

Transect

Park/Launch Access Poling Areas

Bridge Access Poling Areas

Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

POLING ASSESSMENT RESULTS

MP 30.75 - MP 31.25

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

H:\ArcMap Project Files\Qualitative Results\2011\Poling Results\Poling_Results_Mapset_All.mxd

Aerial Photography Date: April 2011

ENBRIDGE

Drawn:	BRS 06/18/2011
Approved:	CG 06/18/2011
Project #:	106-4186

Map Location

Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

- *Poling Focus Areas*
- Transect
- Park/Launch Access Poling Areas
- Bridge Access Poling Areas
- Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

POLING ASSESSMENT RESULTS

MP 31.25 - MP 31.70

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

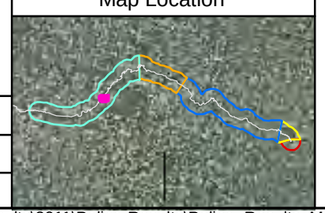
H:\ArcMap Project Files\Qualitative Results\2011\Poling Results\Poling_Results_Mapset_All.mxd

Aerial Photography Date: April 2011

31.6 Southeast
31.75
31.85T
31.90T
31.8 South A
31.98T
31.99LDB
32.04T
31.8 South
32.15RDB
32
32.25
31.8 South B
31.8 South C

ENBRIDGE

Map Location



Drawn:	BRS 06/18/2011
Approved:	CG 06/18/2011
Project #:	106-4186

Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

- *Poling Focus Areas*
- Transect
- Park/Launch Access Poling Areas
- Bridge Access Poling Areas
- Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

POLING ASSESSMENT RESULTS

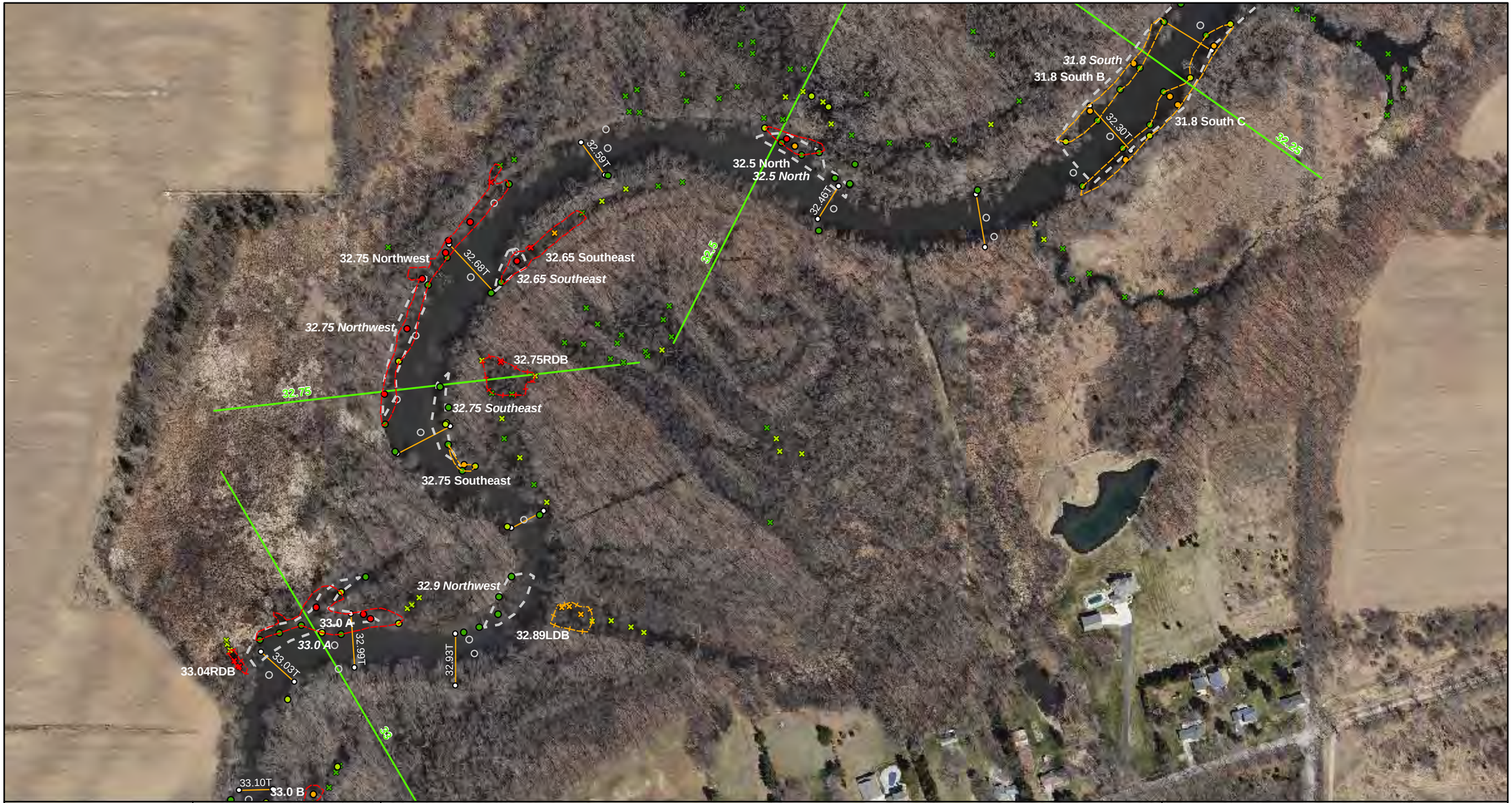
MP 31.65 - MP 32.25

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

H:\ArcMap Project Files\Qualitative Results\2011\Poling Results\Poling_Results_Mapset_All.mxd

Aerial Photography Date: April 2011

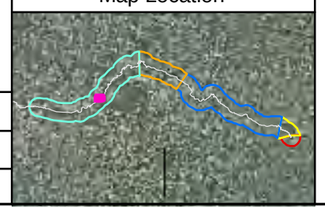
US EPA ARCHIVE DOCUMENT



ENBRIDGE

Drawn:	BRS 06/18/2011
Approved:	CG 06/18/2011
Project #:	106-4186

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

- *Poling Focus Areas*
- Transect
- Park/Launch Access Poling Areas
- Bridge Access Poling Areas
- Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

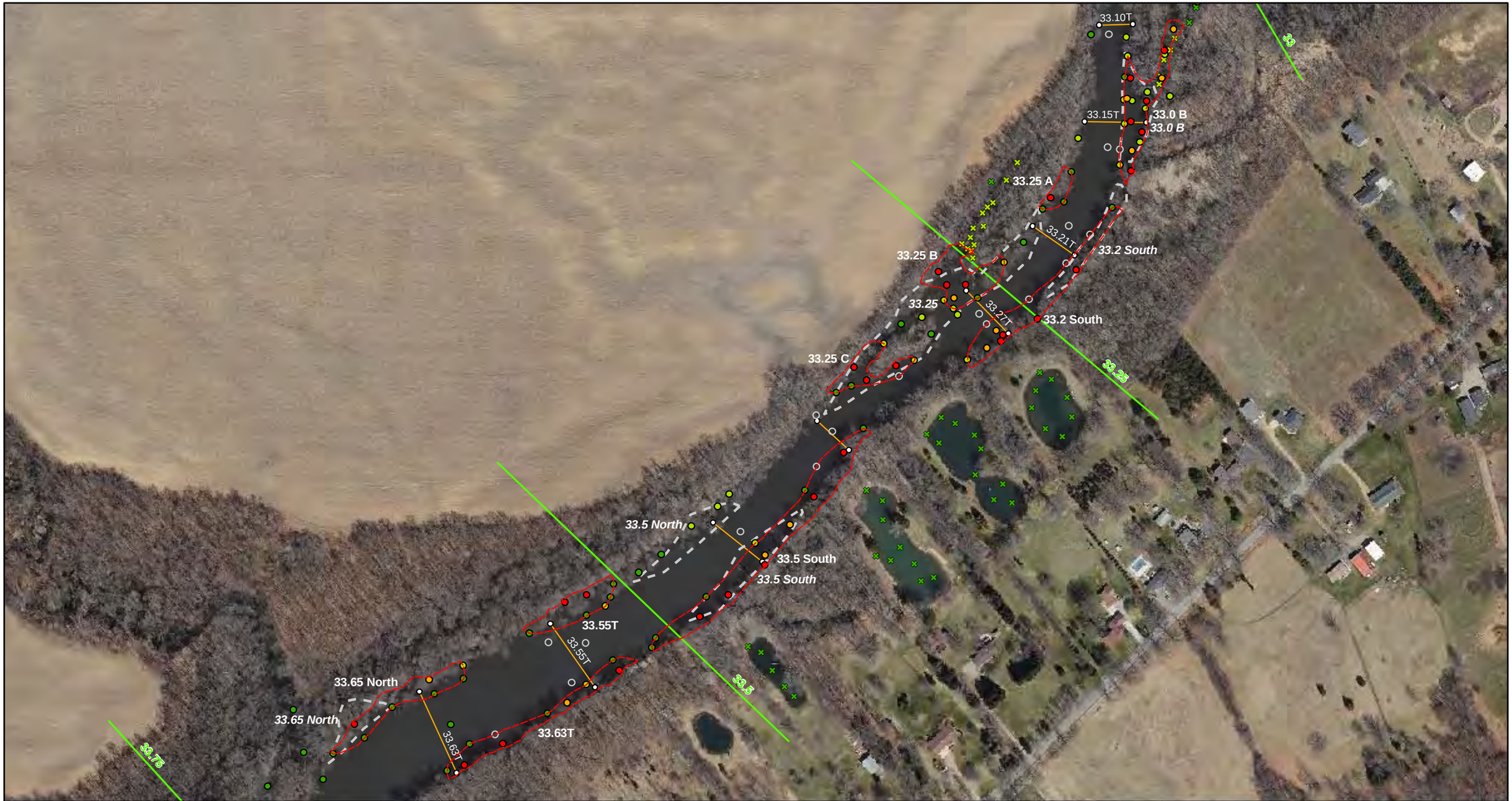
POLING ASSESSMENT RESULTS

MP 32.25 - MP 33.10

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

H:\ArcMap Project Files\Qualitative Results\2011\Poling Results\Poling_Results_Mapset_All.mxd

Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 06/18/2011
Approved:	CG 06/18/2011
Project #:	106-4186

Map Location

Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

Poling Focus Areas

Transect

Park/Launch Access Poling Areas

Bridge Access Poling Areas

Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

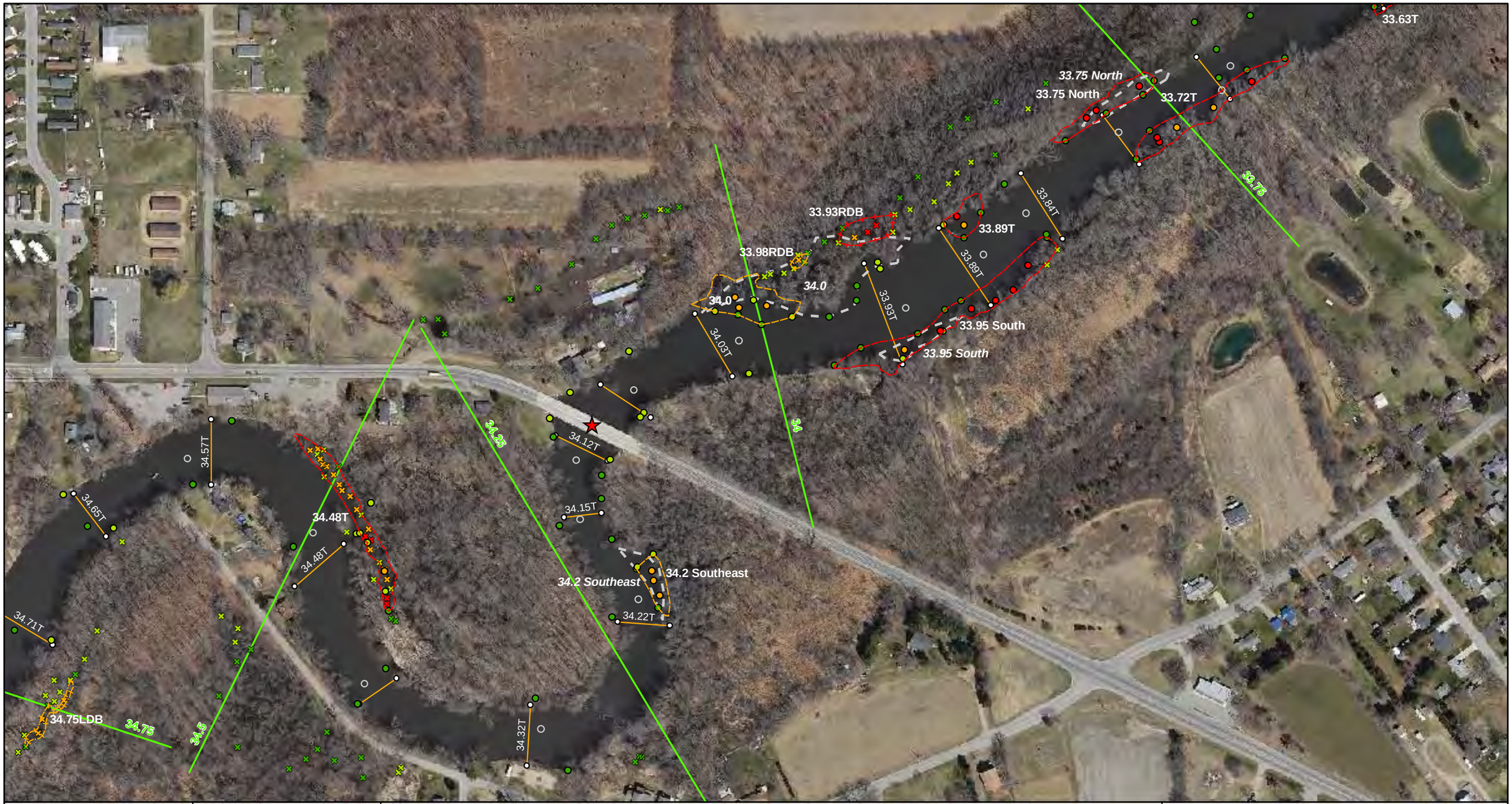
POLING ASSESSMENT RESULTS

MP 33.10 - MP 33.70

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

H:\ArcMap Project Files\Qualitative Results\2011\Poling Results\Poling_Results_Mapset_All.mxd

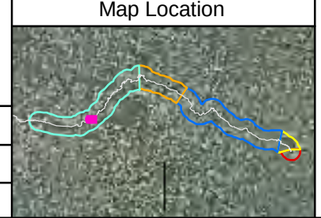
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 06/18/2011
Approved:	CG 06/18/2011
Project #:	106-4186

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

- *Poling Focus Areas*
- Transect
- Park/Launch Access Poling Areas
- Bridge Access Poling Areas
- Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

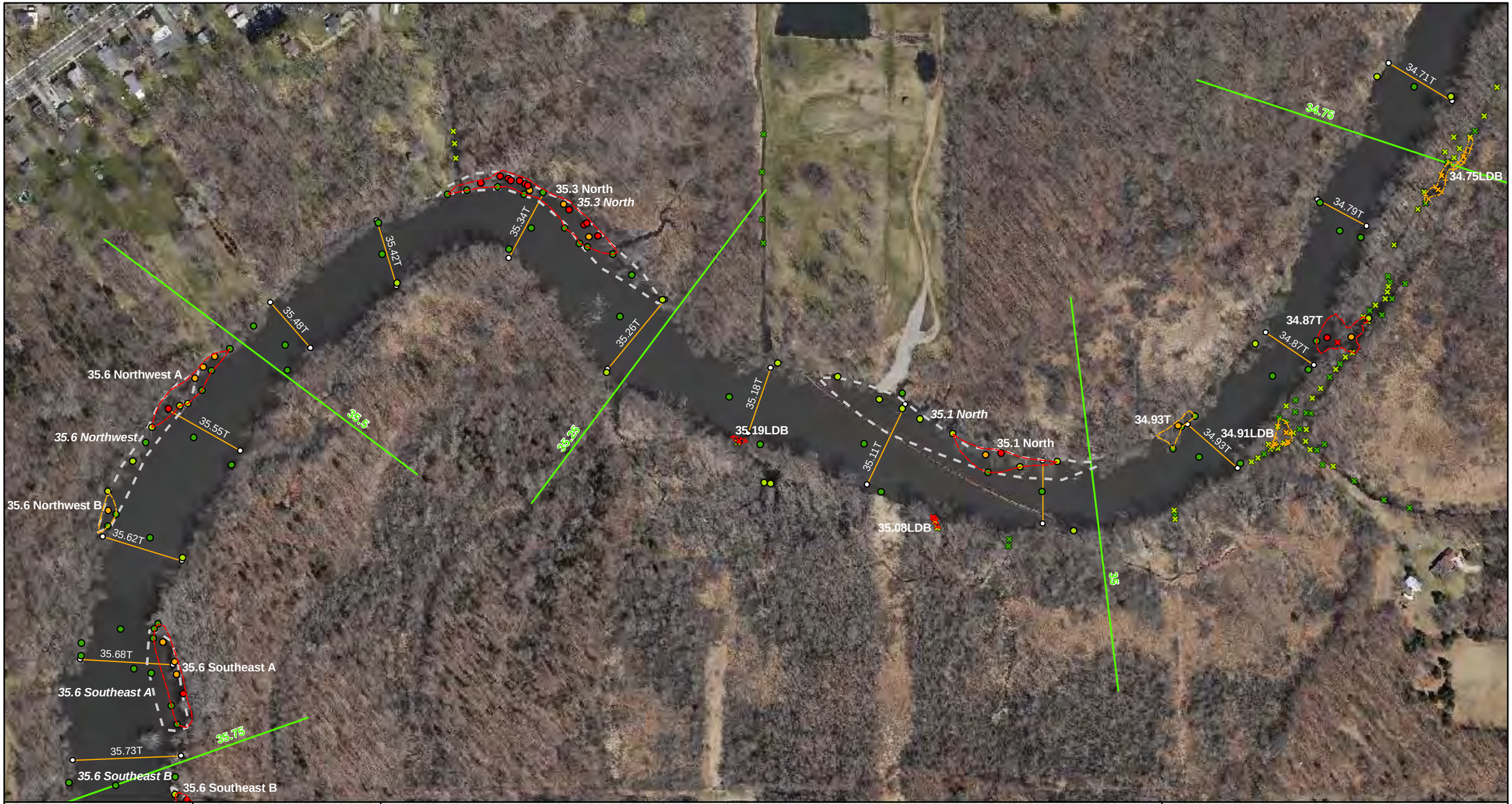
POLING ASSESSMENT RESULTS

MP 33.70 - MP 34.70

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

H:\ArcMap Project Files\Qualitative Results\2011\Poling Results\Poling_Results_Mapset_All.mxd

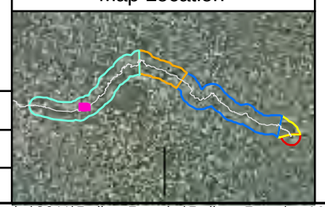
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 06/18/2011
Approved:	CG 06/18/2011
Project #:	106-4186

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

- *Poling Focus Areas*
- Transect
- Park/Launch Access Poling Areas
- Bridge Access Poling Areas
- Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

POLING ASSESSMENT RESULTS

MP 34.70 - MP 35.75

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

H:\ArcMap Project Files\Qualitative Results\2011\Poling Results\Poling_Results_Mapset_All.mxd

Aerial Photography Date: April 2011

35.73T
35.75
35.77T
35.6 Southeast B
35.6 Southeast B
35.8 Northwest
35.8 Northwest
35.84T
35.84T
36.5
36.50T
35th St Bridge SE
36.45 North
36.6 South B
36.6 South
36.6 South A
36.44T
36.45 North B
36.5
36.45 North A
36.31T
36.1 Northwest A
36.1 Northwest
36.23RDB
Morrow Lake Delta East
36.75
36.1 Northwest B
36.15 North
36.09RDB
Delta A
36.24T
36.15 North
Delta B
36.25
36.25 C
36.25 A
36.25 B
36.25
36

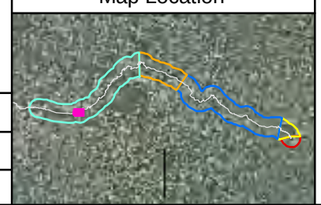
ENBRIDGE

Drawn: BRS 06/18/2011

Approved: CG 06/18/2011

Project #: 106-4186

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

- *Poling Focus Areas*
- Transect
- Park/Launch Access Poling Areas
- Bridge Access Poling Areas
- Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

POLING ASSESSMENT RESULTS

MP 35.75 - MP 36.80

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

H:\ArcMap Project Files\Qualitative Results\2011\Poling Results\Poling_Results_Mapset_All.mxd

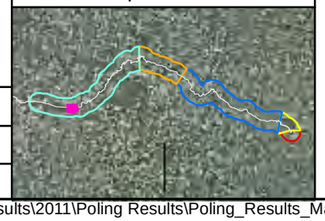
Aerial Photography Date: April 2011

37.75 North
36.8 North
37.5
37.25
37
Delta A
Delta B
Delta C
Delta D
Delta E
Delta F
Delta G
Delta H
Delta I
Delta J
Delta K
Delta L
Delta M
Delta N
Delta O
Delta P
Delta Q
Delta R
Delta S
Delta T
Delta U
Delta V
Delta W
Delta X
Delta Y
Delta Z
Delta AA
Delta BB
Delta CC
Delta DD
Delta EE
Morrow Lake Delta West
Morrow Lake Delta East
Morrow Lake Delta South

ENBRIDGE

Drawn: BRS 06/18/2011
Approved: CG 06/18/2011
Project #: 106-4186

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

Poling Focus Areas
Transect
Park/Launch Access Poling Areas
Bridge Access Poling Areas
Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

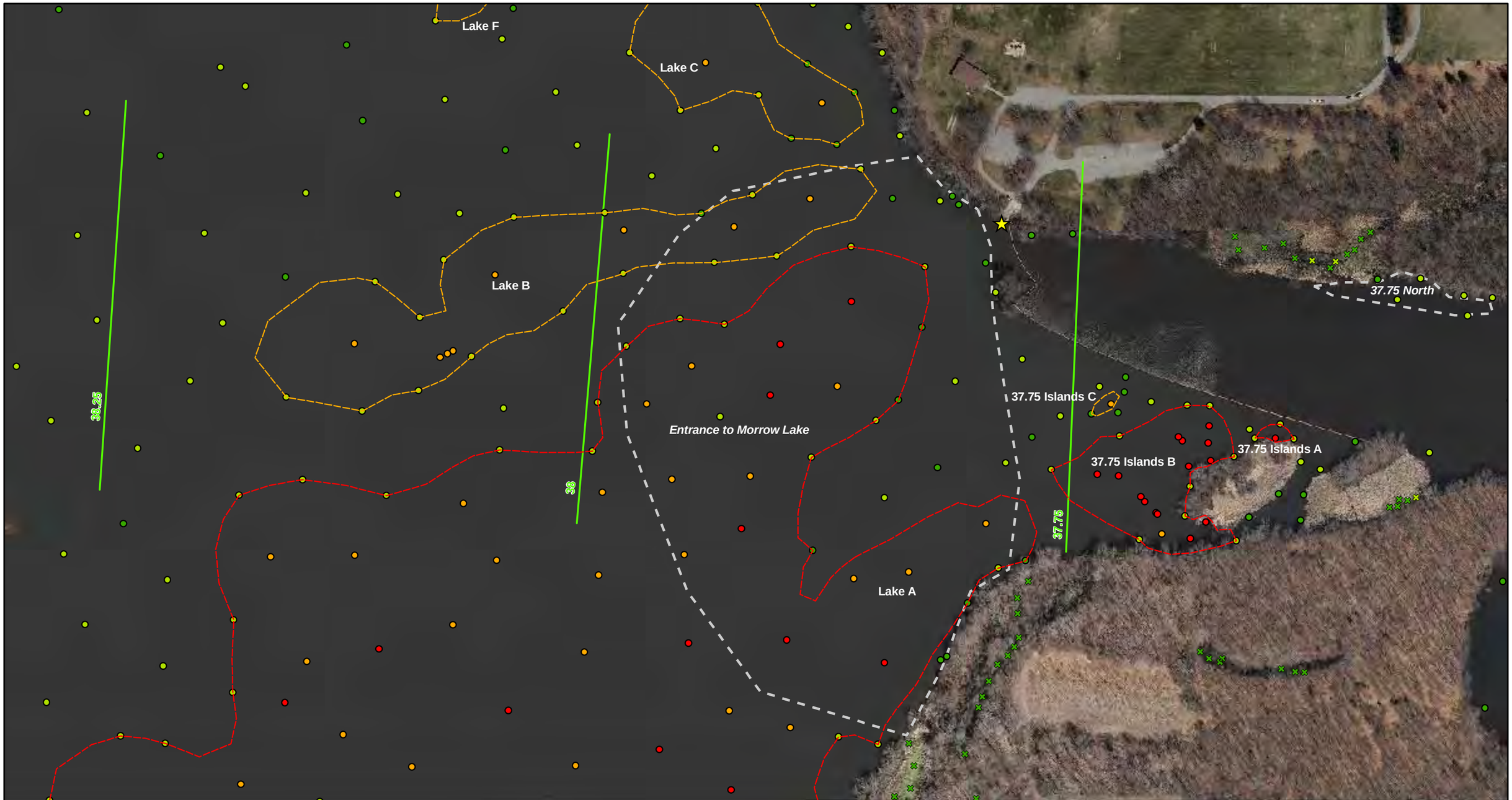
POLING ASSESSMENT RESULTS

MP 36.80 - MP 37.55

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

H:\ArcMap Project Files\Qualitative Results\2011\Poling Results\Poling_Results_Mapset_All.mxd

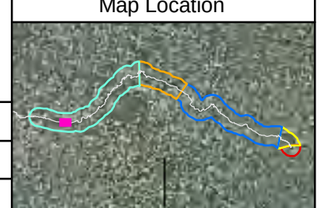
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS	06/18/2011
Approved:	CG	06/18/2011
Project #:	106-4186	

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

- *Poling Focus Areas*
- Transect
- Park/Launch Access Poling Areas
- Bridge Access Poling Areas
- Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

POLING ASSESSMENT RESULTS

MP 37.55 - MP 38.30

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

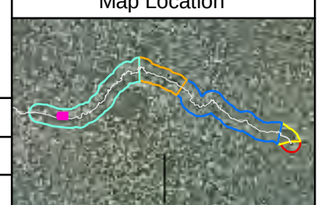
H:\ArcMap Project Files\Qualitative Results\2011\Poling Results\Poling_Results_Mapset_All.mxd

Aerial Photography Date: April 2011

ENBRIDGE

Drawn:	BRS 06/18/2011
Approved:	CG 06/18/2011
Project #:	106-4186

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

Poling Focus Areas

Transect

Park/Launch Access Poling Areas

Bridge Access Poling Areas

Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

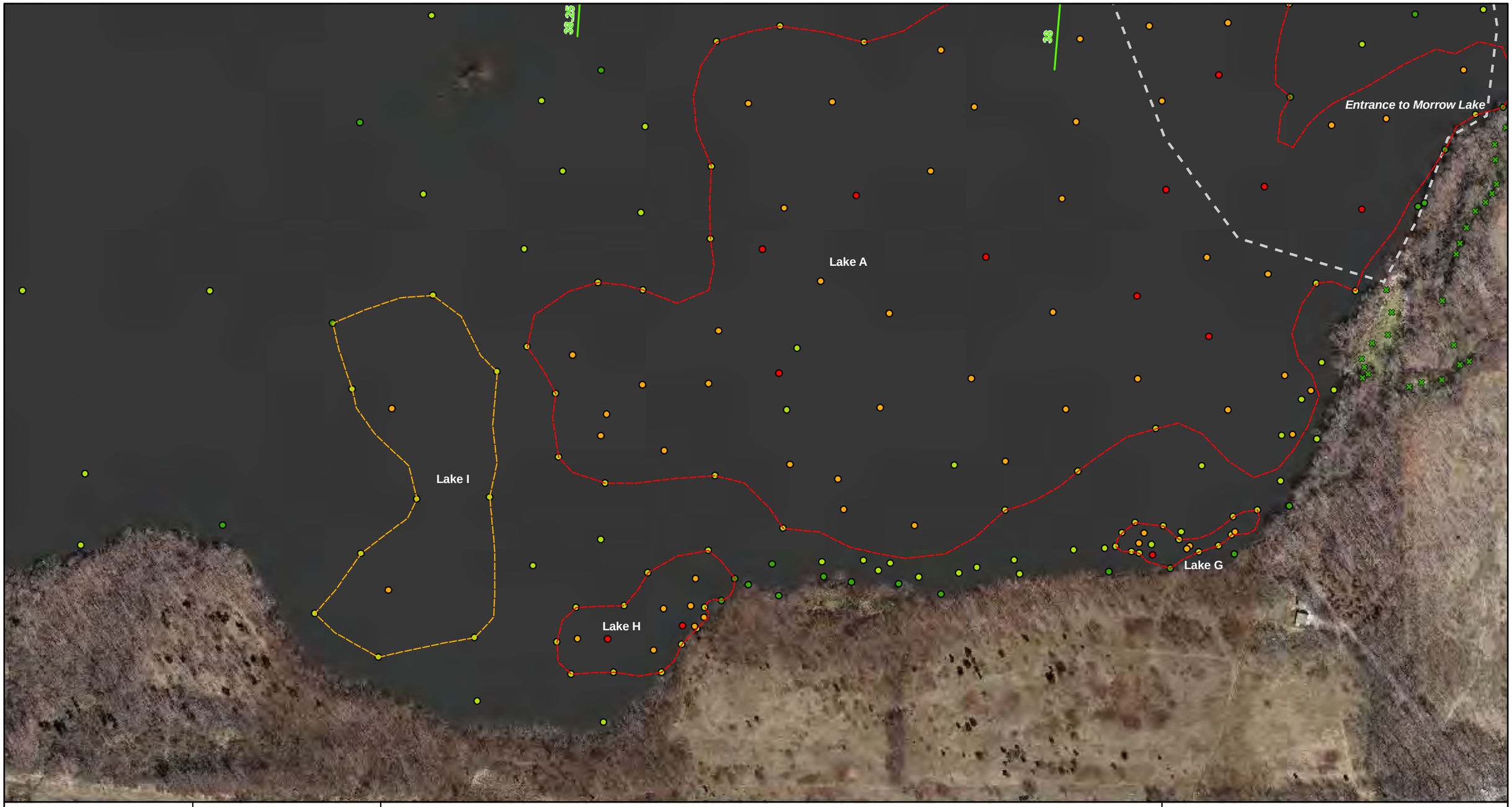
POLING ASSESSMENT RESULTS

MP 37.80 - MP 38.60N

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

H:\ArcMap Project Files\Qualitative Results\2011\Poling Results\Poling_Results_Mapset_All.mxd

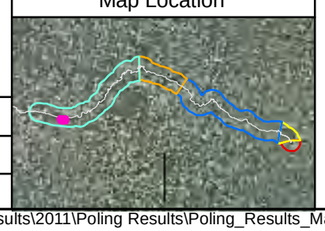
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 06/18/2011
Approved:	CG 06/18/2011
Project #:	106-4186

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

- *Poling Focus Areas*
- Transect
- Park/Launch Access Poling Areas
- Bridge Access Poling Areas
- Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

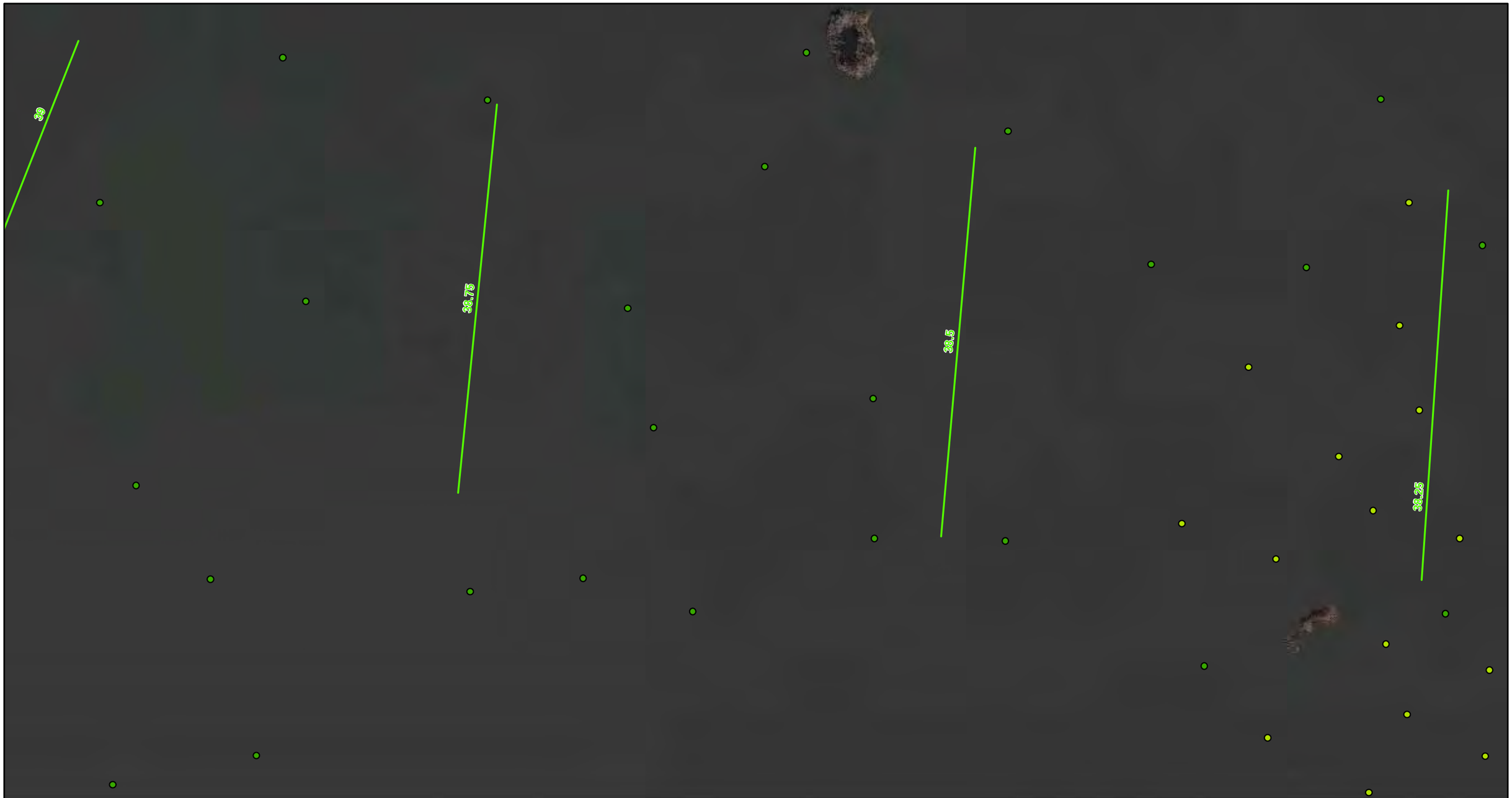
POLING ASSESSMENT RESULTS

MP 37.80 - MP 38.60S

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

H:\ArcMap Project Files\Qualitative Results\2011\Poling Results\Poling_Results_Mapset_All.mxd

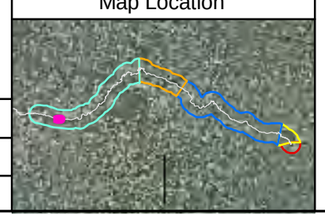
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS	06/18/2011
Approved:	CG	06/18/2011
Project #:	106-4186	

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

Poling Focus Areas

Transect

Park/Launch Access Poling Areas

Bridge Access Poling Areas

Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

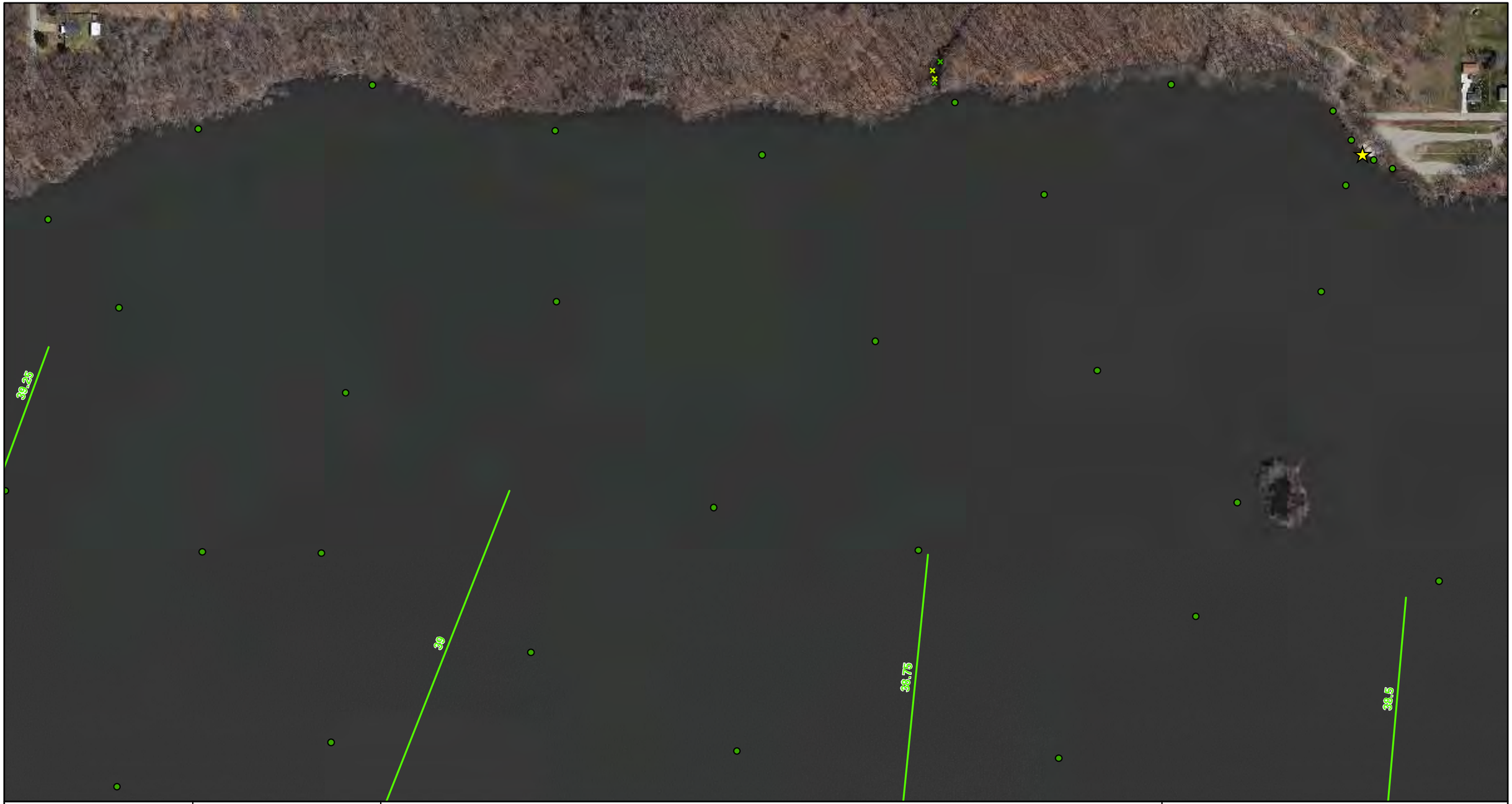
POLING ASSESSMENT RESULTS

MP 38.25 - MP 39.00C

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

H:\ArcMap Project Files\Qualitative Results\2011\Poling Results\Poling_Results_Mapset_All.mxd

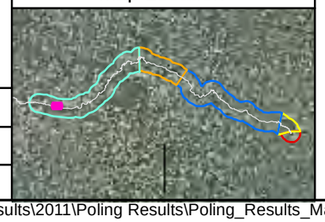
Aerial Photography Date: April 2011



ENBRIDGE

Drawn:	BRS 06/18/2011
Approved:	CG 06/18/2011
Project #:	106-4186

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

Poling Focus Areas

Transect

Park/Launch Access Poling Areas

Bridge Access Poling Areas

Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

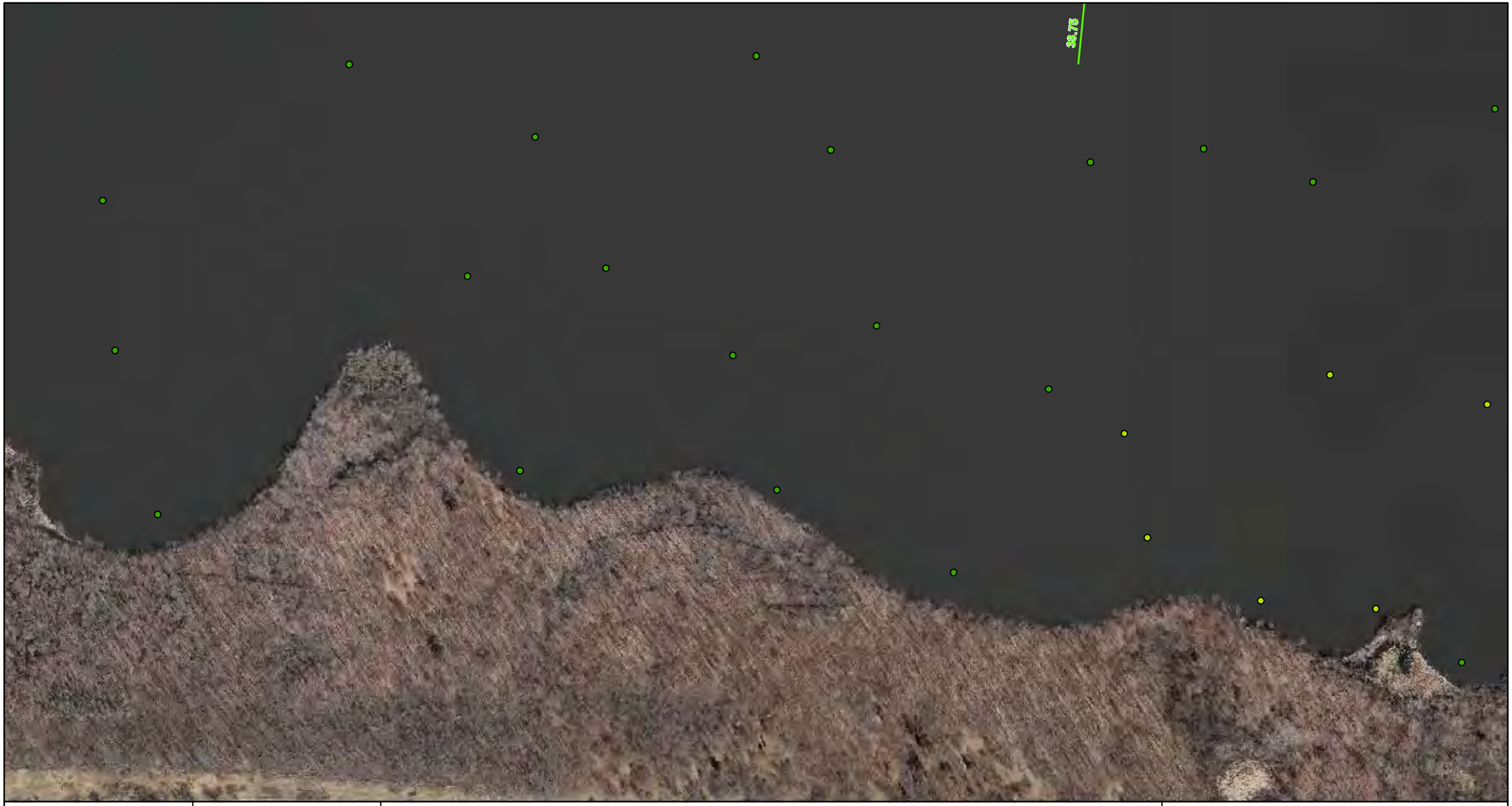
POLING ASSESSMENT RESULTS

MP 38.50 - MP 39.25N

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

H:\ArcMap Project Files\Qualitative Results\2011\Poling Results\Poling_Results_Mapset_All.mxd

Aerial Photography Date: April 2011



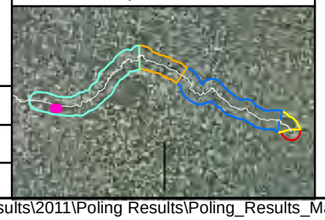
ENBRIDGE

Drawn: BRS 06/18/2011

Approved: CG 06/18/2011

Project #: 106-4186

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

Poling Focus Areas

Transect

Park/Launch Access Poling Areas

Bridge Access Poling Areas

Quarter Mile Grid Segment

N

0 150 300 600

Scale in Feet

POLING ASSESSMENT RESULTS

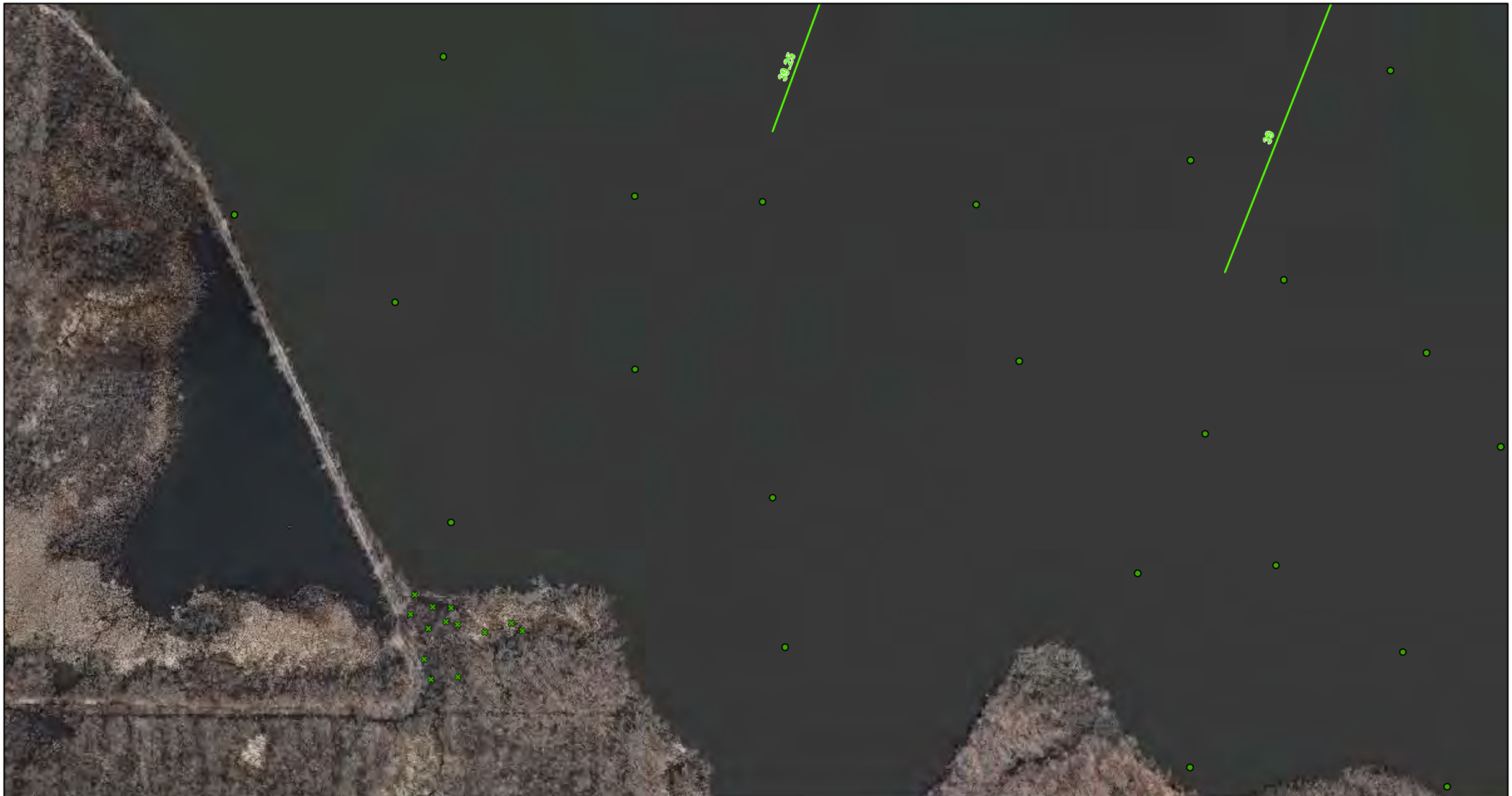
MP 38.50 - MP 39.25S

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

H:\ArcMap Project Files\Qualitative Results\2011\Poling Results\Poling_Results_Mapset_All.mxd

Aerial Photography Date: April 2011

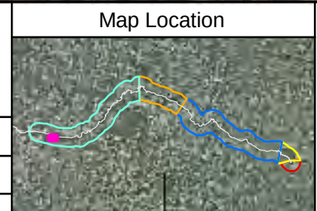
US EPA ARCHIVE DOCUMENT



ENBRIDGE

Drawn:	BRS 06/18/2011
Approved:	CG 06/18/2011
Project #:	106-4186

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

Poling Focus Areas

Transect

Park/Launch Access Poling Areas

Bridge Access Poling Areas

Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

POLING ASSESSMENT RESULTS

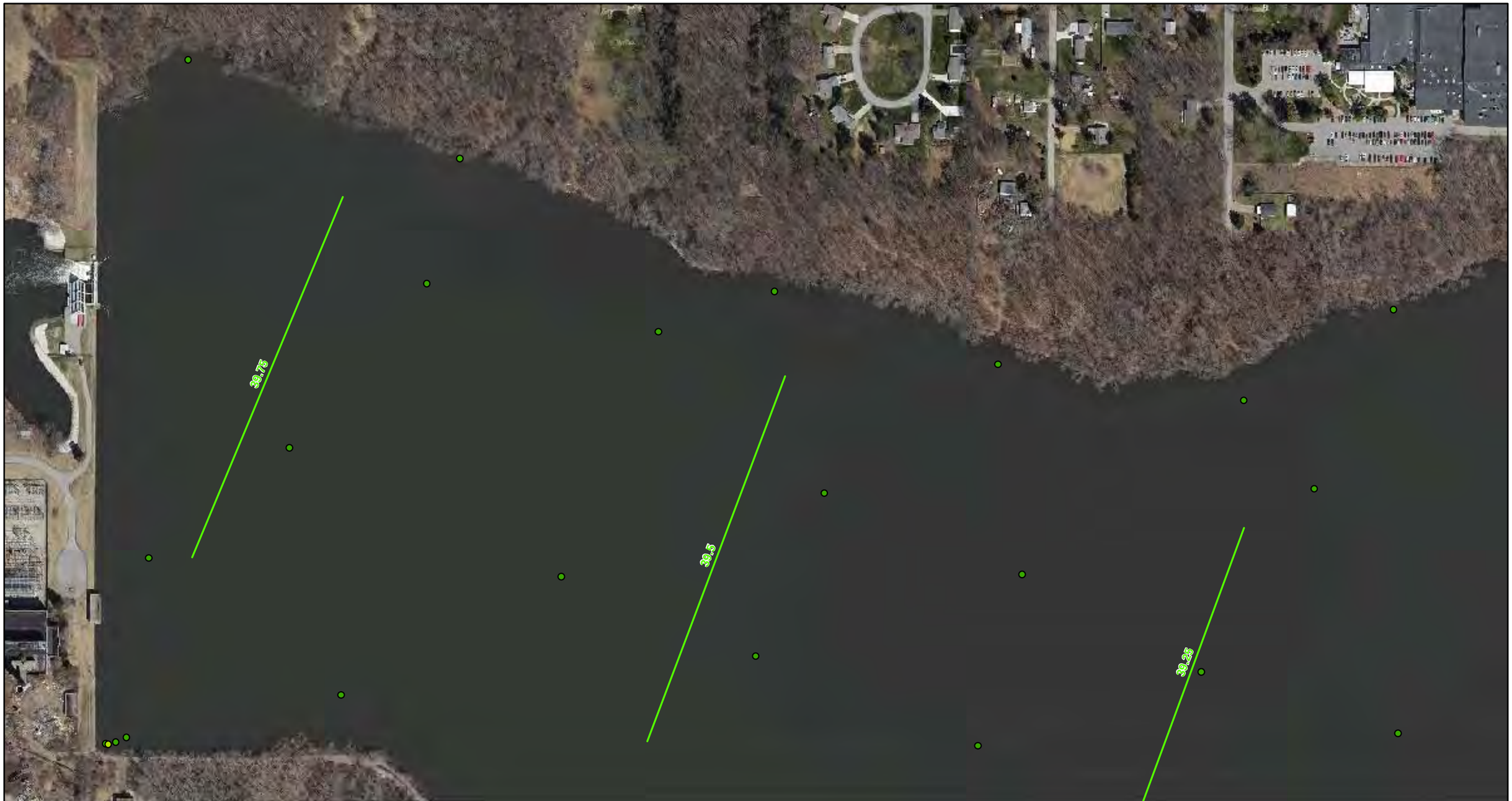
MP 38.90 - MP 39.60S

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

H:\ArcMap Project Files\Qualitative Results\2011\Poling Results\Poling_Results_Mapset_All.mxd

Aerial Photography Date: April 2011

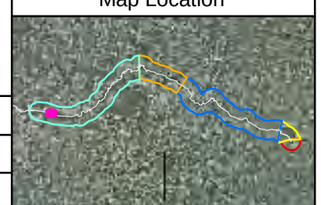
US EPA ARCHIVE DOCUMENT



ENBRIDGE

Drawn:	BRS	06/18/2011
Approved:	CG	06/18/2011
Project #:	106-4186	

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

- *Poling Focus Areas*
- Transect
- Park/Launch Access Poling Areas
- Bridge Access Poling Areas
- Quarter Mile Grid Segment

N

0 150 300 600
Scale in Feet

POLING ASSESSMENT RESULTS

MP 39.15 - MP 39.85

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

H:\ArcMap Project Files\Qualitative Results\2011\Poling Results\Poling_Results_Mapset_All.mxd

Aerial Photography Date: April 2011

US EPA ARCHIVE DOCUMENT

Attachment A

Overbank Surface Schedule

ATTACHMENT A - OVERBANK SURFACE CLEANUP

		JUNE				JULY																
		Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Location	Comments	6/27	6/28	6/29	6/30	7/1	7/2	7/3	7/4	7/5	7/6	7/7	7/8	7/9	7/10	7/11	7/12	7/13	7/14	7/15	7/16	7/17
1.25 RDB 4	Site Complete																					
1.5 RDB 3	Site Complete																					
2 RDB 4	Site Complete																					
2 RDB 5	Site Complete																					
2.25 LDB 5	Site Complete																					
2.5 I 2	Site Complete																					
2.75 RDB 9	Site Complete																					
2.75 I 1	Site Complete																					
2.75 RDB 6	Site Complete																					
2.75 I 2	Site Complete																					
2.75 RDB 7	Site Complete																					
3 I 2	Site Complete																					
3 I 1	Site Complete																					
3.25 RDB 6	Site Complete																					
3.25 I 1	Site Complete																					
3.25 I 2	Site Complete																					
3.5 RDB 2	Site Complete																					
3.75 I 2	Site Complete																					
3.75 I 3	Site Complete																					
3.75 RDB 1	Site Complete																					
3.75 I 1	Site Complete																					
3.75 RDB 2	Site Complete																					
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4 RDB 6	Site Complete																					
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4 LDB 5	Site Complete																					
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6.5 RDB 5	Site Complete																					
6.5 RDB 2	Site Complete																					
6.75 RDB 5	Site Complete																					
6.75 LDB 3	Site Complete																					
6.75 I 1	Site Complete																					
7 I 3	Site Complete																					
7 I 6	Site Complete																					
7 I 1	Site Complete																					
7 RDB 1	Site Complete																					
7 I 5	Site Complete																					
7 I 2	Site Complete																					
7.25 LDB 6	Site Complete																					
7.25 I 1	Site Complete																					
7.25 LDB 7	Site Complete																					
7.25 RDB 3	Site Complete																					
7.25 LDB 5	Site Complete																					
7.25 LDB 3	Site Complete																					
7.5 RDB 9	Site Complete																					
7.5 RDB 4	Site Complete																					
7.5 RDB 1	Site Complete																					
7.5 RDB 11	Site Complete																					
7.5 I 2	Site Complete																					
7.5 RDB 2	Site Complete																					
7.5 I 3	Site Complete																					
7.5 I 1	Site Complete																					
7.75 I 1	Site Complete																					
8 RDB 7	Site Complete																					
8 LDB 1	Site Complete																					

US EPA ARCHIVE DOCUMENT

ATTACHMENT A - OVERBANK SURFACE CLEANUP

		JUNE				JULY																
		Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Location	Comments	6/27	6/28	6/29	6/30	7/1	7/2	7/3	7/4	7/5	7/6	7/7	7/8	7/9	7/10	7/11	7/12	7/13	7/14	7/15	7/16	7/17
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8 I 2	Site Complete																					
8 LDB 3	Site Complete																					
8 RDB 6	Site Complete																					
8 I 1	Site Complete																					
8.25 RDB 6	Site Complete																					
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9 LDB 3	Site Complete																					
9 I 2	Site Complete																					
9 RDB 1	Site Complete																					
9 RDB 11	Site Complete																					
9 RDB 4	Site Complete																					
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9 RDB 5	Site Complete																					
9 RDB 9	Site Complete																					
9 I 4	Site Complete																					
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9.5 I 2	Site Complete																					
9.5 LDB 8	Site Complete																					
9.5 LDB 7	Site Complete																					
9.5 RDB 2	Site Complete																					
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9.75 LDB 3	Site Complete																					
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10 RDB 36	Site Complete																					
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10.25 RDB 16	Site Complete																					
10.25 RDB 29	Site Complete																					
10.25 RDB 32	Site Complete																					

US EPA ARCHIVE DOCUMENT

ATTACHMENT A - OVERBANK SURFACE CLEANUP

		JUNE				JULY																
		Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Location	Comments	6/27	6/28	6/29	6/30	7/1	7/2	7/3	7/4	7/5	7/6	7/7	7/8	7/9	7/10	7/11	7/12	7/13	7/14	7/15	7/16	7/17
10.25 RDB 1	Site Complete																					
10.5 LDB 6	Site Complete																					
10.5 LDB 7	Site Complete																					
10.5 RDB 4	Site Complete																					
10.5 RDB 7	Site Complete																					
10.5 RDB 2	Site Complete																					
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10.5 RDB 5	Site Complete																					
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11 LDB 4	Site Complete																					
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11.75 LDB 2	Site Complete																					
12 LDB 5	Site Complete																					
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13 LDB 2	Site Complete																					
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13 RDB 15	Site Complete																					
13 RDB 16	Site Complete																					
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13 RDB 25	Site Complete																					
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29.5 RDB 3																						
31.75 I 1																						
33 RDB 7																						
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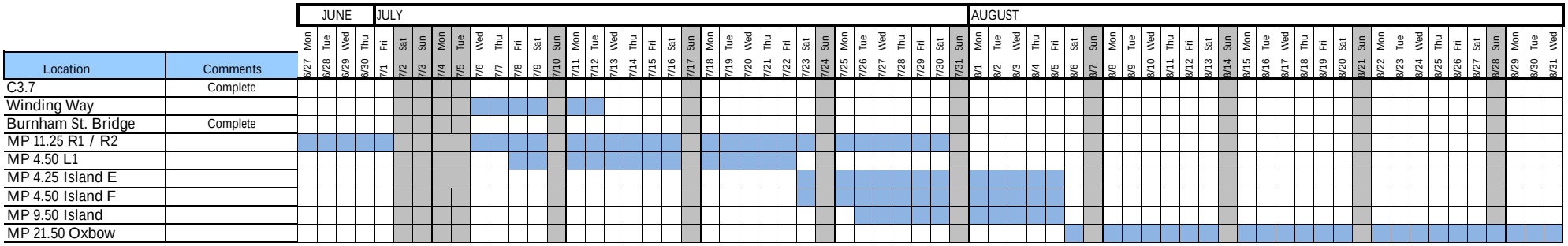
US EPA ARCHIVE DOCUMENT

US EPA ARCHIVE DOCUMENT

Attachment B

Overbank Excavation Schedule

ATTACHMENT B - OVERBANK EXCAVATIONS



US EPA ARCHIVE DOCUMENT

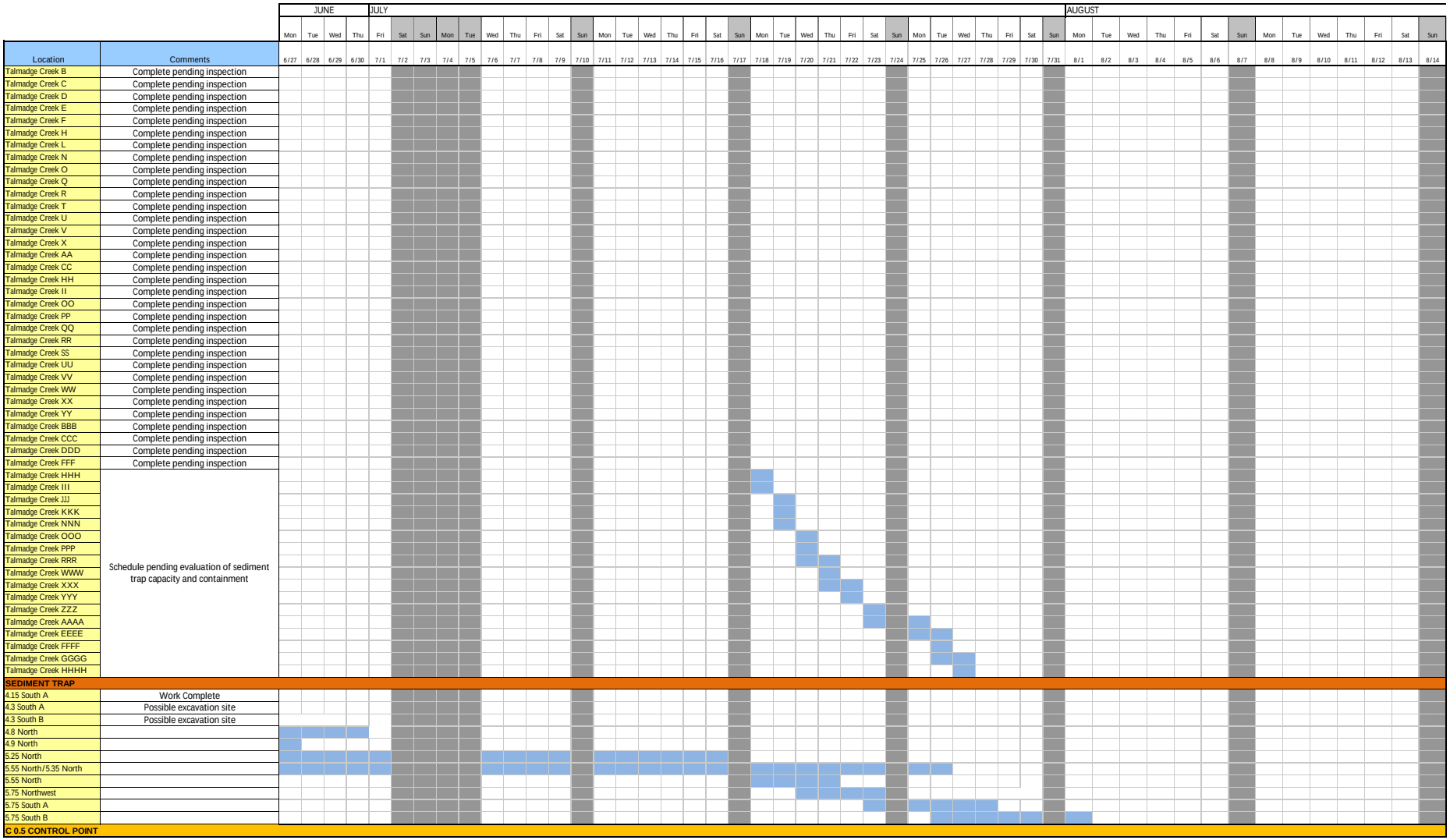
Attachment C

Submerged Oil (Talmadge Creek to Ceresco Dam) Schedule

US EPA ARCHIVE DOCUMENT

ATTACHMENT C - SUBMERGED OIL RECOVERY

Location	Comments
Talmadge Creek B	Complete pending inspection
Talmadge Creek C	Complete pending inspection
Talmadge Creek D	Complete pending inspection
Talmadge Creek E	Complete pending inspection
Talmadge Creek F	Complete pending inspection
Talmadge Creek H	Complete pending inspection
Talmadge Creek L	Complete pending inspection
Talmadge Creek N	Complete pending inspection
Talmadge Creek O	Complete pending inspection
Talmadge Creek Q	Complete pending inspection
Talmadge Creek R	Complete pending inspection
Talmadge Creek T	Complete pending inspection
Talmadge Creek U	Complete pending inspection
Talmadge Creek V	Complete pending inspection
Talmadge Creek X	Complete pending inspection
Talmadge Creek AA	Complete pending inspection
Talmadge Creek CC	Complete pending inspection
Talmadge Creek HH	Complete pending inspection
Talmadge Creek II	Complete pending inspection
Talmadge Creek OO	Complete pending inspection
Talmadge Creek PP	Complete pending inspection
Talmadge Creek QQ	Complete pending inspection
Talmadge Creek RR	Complete pending inspection
Talmadge Creek SS	Complete pending inspection
Talmadge Creek UU	Complete pending inspection
Talmadge Creek VV	Complete pending inspection
Talmadge Creek WW	Complete pending inspection
Talmadge Creek XX	Complete pending inspection
Talmadge Creek YY	Complete pending inspection
Talmadge Creek BBB	Complete pending inspection
Talmadge Creek CCC	Complete pending inspection
Talmadge Creek DDD	Complete pending inspection
Talmadge Creek FFF	Complete pending inspection
Talmadge Creek HHH	Schedule pending evaluation of sediment trap capacity and containment
Talmadge Creek III	
Talmadge Creek JJJ	
Talmadge Creek KKK	
Talmadge Creek NNN	
Talmadge Creek OOO	
Talmadge Creek PPP	
Talmadge Creek RRR	
Talmadge Creek WWW	
Talmadge Creek XXX	
Talmadge Creek YYY	
Talmadge Creek ZZZ	
Talmadge Creek AAAA	
Talmadge Creek EEEE	
Talmadge Creek FFFF	
Talmadge Creek GGGG	
Talmadge Creek HHHH	
SEDIMENT TRAP	
4.15 South A	Work Complete
4.3 South A	Possible excavation site
4.3 South B	Possible excavation site
4.8 North	
4.9 North	
5.25 North	
5.55 North/5.35 North	
5.55 North	
5.75 Northwest	
5.75 South A	
5.75 South B	
C 0.5 CONTROL POINT	



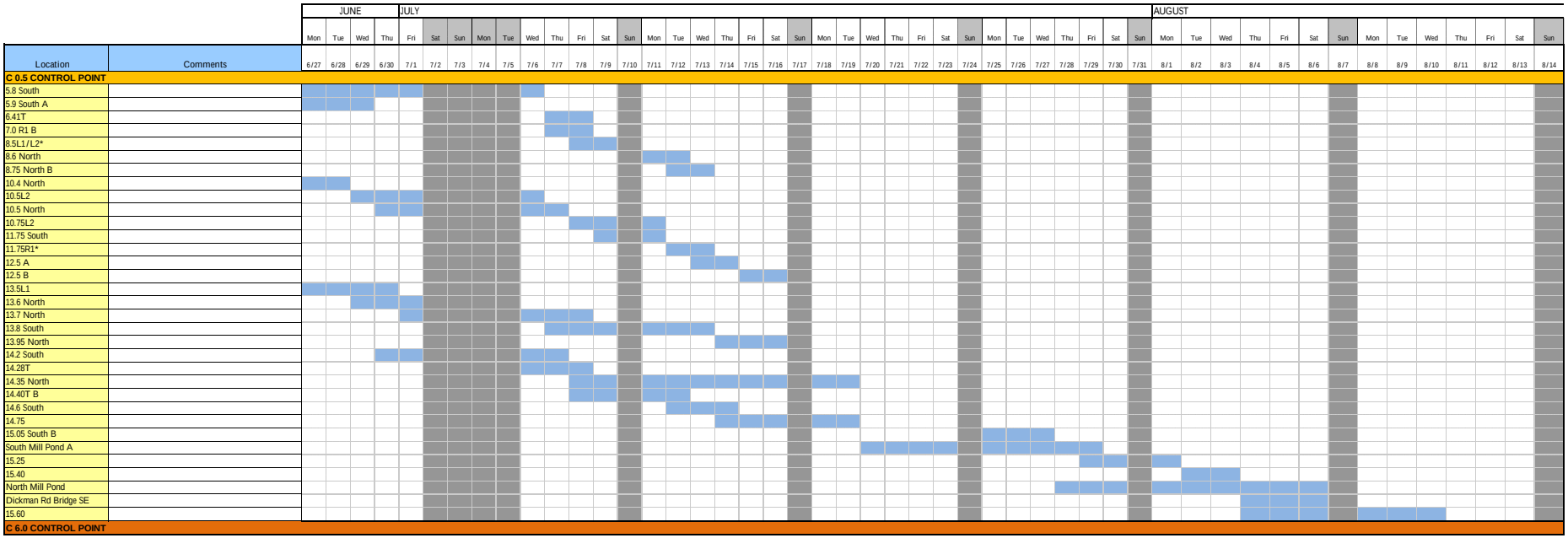
US EPA ARCHIVE DOCUMENT

Attachment D

Submerged Oil (Ceresco Dam to Battle Creek) Schedule

US EPA ARCHIVE DOCUMENT

ATTACHMENT D - SUBMERGED OIL RECOVERY



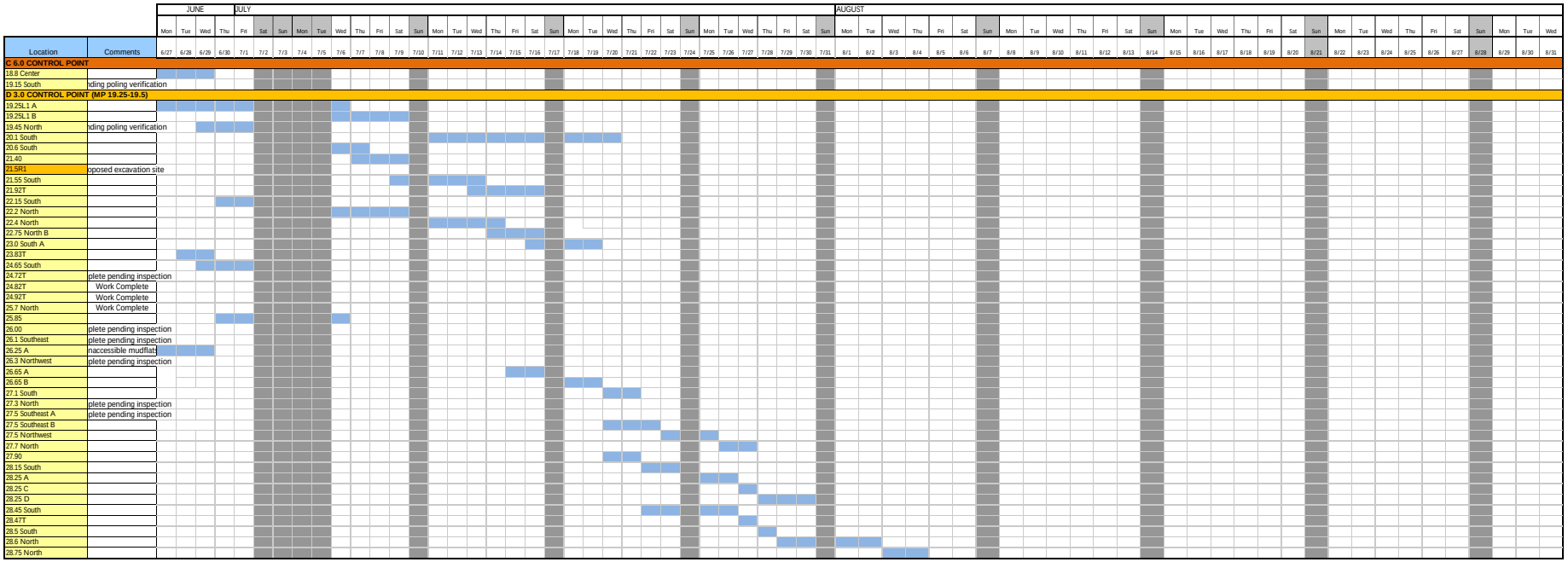
US EPA ARCHIVE DOCUMENT

Attachment E

Submerged Oil (Battle Creek to Morrow Lake) Schedule

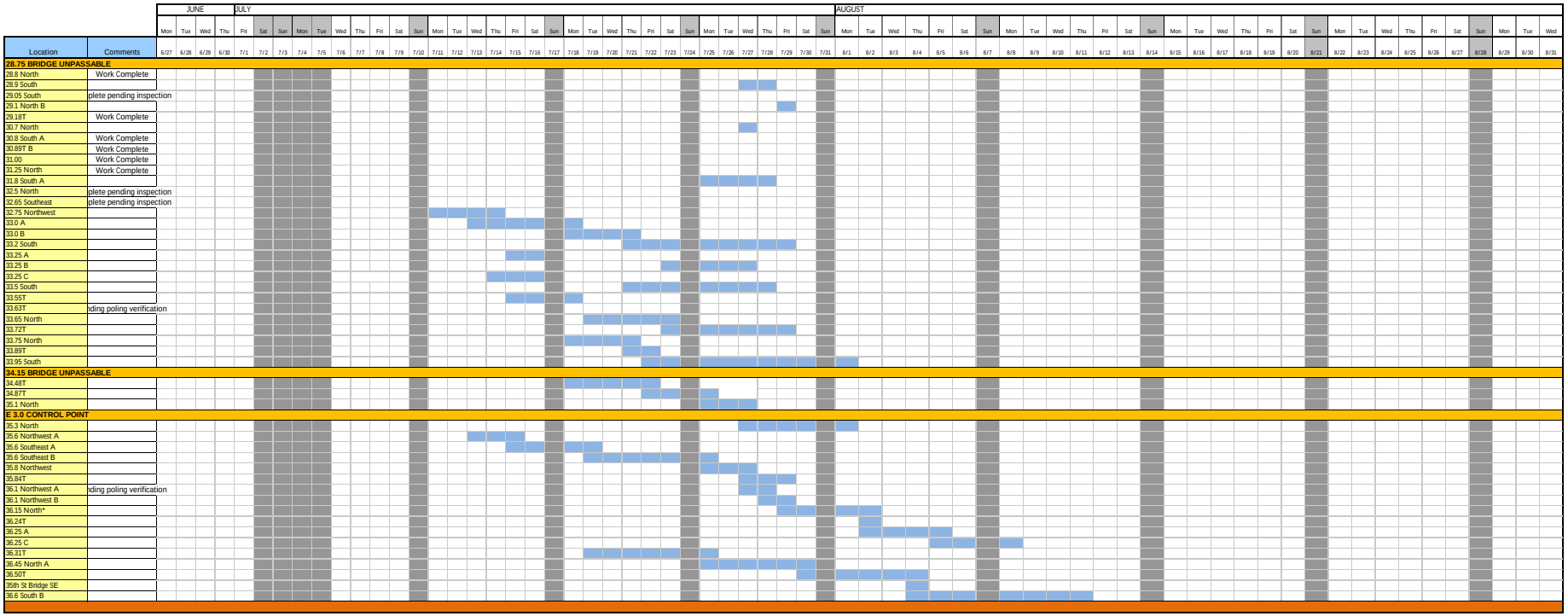
US EPA ARCHIVE DOCUMENT

ATTACHMENT E - SUBMERGED OIL RECOVERY



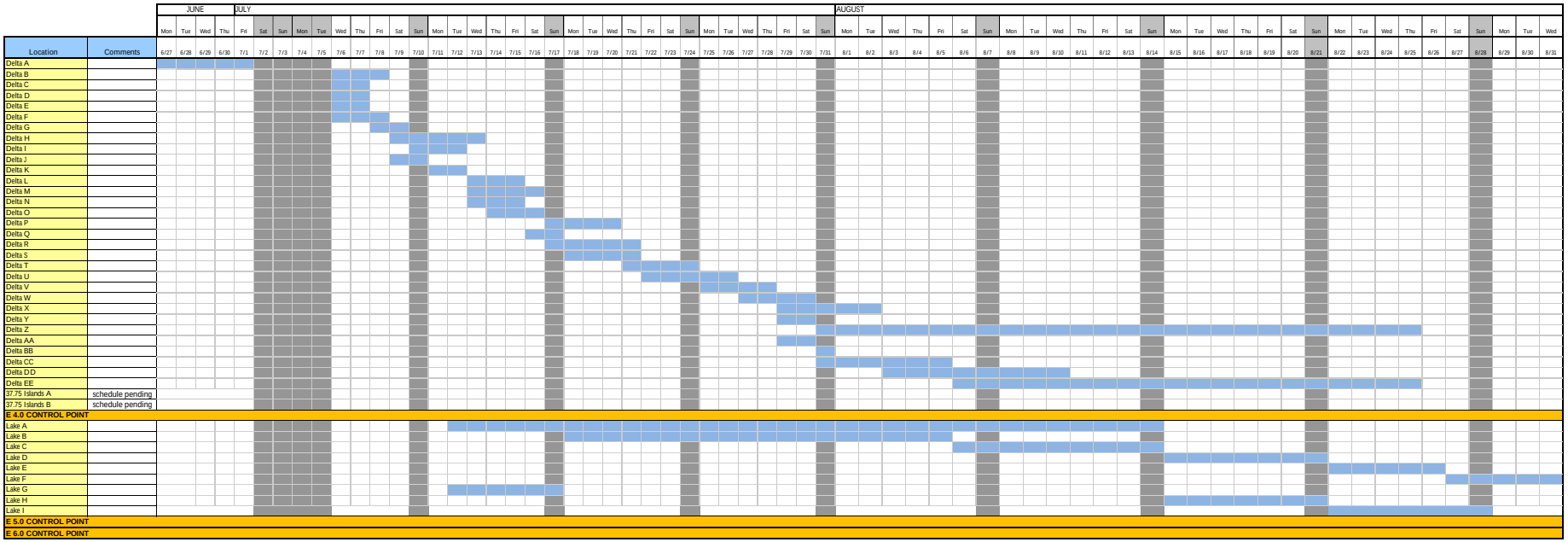
US EPA ARCHIVE DOCUMENT

ATTACHMENT E - SUBMERGED OIL RECOVERY



US EPA ARCHIVE DOCUMENT

ATTACHMENT E - SUBMERGED OIL RECOVERY



US EPA ARCHIVE DOCUMENT

Attachment F

Overbank Oil Recovery Standard Operating Procedure

Approved

US EPA ARCHIVE DOCUMENT

Enbridge Line 6B MP 608

Marshall, MI Pipeline Release

Overbank Oil Recovery Standard Operating Procedures

Prepared for United States Environmental Protection Agency / Michigan Department of Environmental Quality

Enbridge Energy, Limited Partnership

Submitted: May 27, 2011

Approved: June 8, 2011

Approved

1.0 INTRODUCTION 1

2.0 SITE SELECTION 1

3.0 OVERBANK OIL RECOVERY PROCEDURES 2

3.1 Mechanical Removal 2

3.2 Vacuum Removal 3

3.3 Organic Sorbent Application 3

US EPA ARCHIVE DOCUMENT

Approved

LIST OF ACRONYMS

Enbridge	Enbridge Energy, Limited Partnership
GPS	global positioning system
Line 6B	The pipeline owned by Enbridge Energy, Limited Partnership that runs just south of Marshall, Michigan
MDEQ	Michigan Department of Environmental Quality
SCAT	Shoreline Cleanup Assessment Technique.
SOP	Standard Operating Procedure
U.S. EPA	United States Environmental Protection Agency
WTTD	Waste Treatment, Transportation and Disposal Plan

US EPA ARCHIVE DOCUMENT

1.0 INTRODUCTION

The purpose of this Overbank Oil Recovery Standard Operating Procedure (SOP) is to provide general guidance to the ongoing recovery operations of overbank oil resulting from the July 2010 Enbridge Line 6B MP 608 pipeline release in Marshall, Michigan. This SOP addresses overbank oil recovery operations for the sites identified as requiring response activities by Enbridge Energy, Limited Partnership (Enbridge), the United States Environmental Protection Agency (U.S. EPA) and the Michigan Department of Environmental Quality (MDEQ).

This SOP expands upon the approved National Oceanic and Atmospheric Administration (NOAA) Shoreline Cleanup and Assessment Technique (SCAT) Cleanup Recommendations as presented in the September 14, 2010 Kalamazoo River/Enbridge Spill – Cleanup Recommendation Methods. The purpose of this SOP is to remove and recover free oil and oil that is likely to mobilize to the river. Additional investigation and remediation efforts will be conducted at sites identified for oil recovery at a later date and will follow the requirements of the MDEQ consent order.

2.0 SITE SELECTION

The selection of sites for overbank oil recovery using the outlined techniques will be jointly determined by Enbridge, the U.S. EPA, and the MDEQ based on current observed site conditions and the results of the reassessment process. Specific application of one or more of the presented oil recovery procedures will depend upon a number of factors including:

- Site access and logistics;
- Type(s) of remaining oil;
- Ecological setting/sensitivity, and
- Physical setting of the area (wetlands, wood, vegetative cover, etc.).

Overbank locations will be delineated and flagged prior to recovery operations. Areas of concern (i.e. sensitive areas, priority areas, hotspots) will be clearly marked. All boundaries (pre and post removal) will be documented using global positioning survey (GPS) equipment capable of sub-meter accuracy. This information, along with photographs and field notes,

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will be recorded. Concurrence of the agencies with the locations delineated will be obtained prior to commencement of operations.

All response activities will be communicated to and coordinated with the U.S. EPA and the MDEQ prior to mobilization. Oil recovery activities will be conducted in a manner that is safe, and that minimizes the potential to contaminate adjacent areas included the migration of contaminants deeper into the soil. Appropriate personal protective equipment (PPE) will be worn and appropriate measures, including decontamination will be developed and implemented to protect un-impacted areas. All generated waste will be safely handled, containerized, transported, and disposed of pursuant to the approved Waste Treatment, Transportation and Disposal Plan (WTTD).

3.0 OVERBANK OIL RECOVERY PROCEDURES

The following approved oil recovery methods are described in the September 14, 2010 Kalamazoo River/Enbridge Spill – Cleanup Recommendation Methods:

- Manual removal (raking, shoveling, hand);
- Vegetation removal;
- Low pressure cold water flushing, and
- Sorbent material (booms, snares).

In addition to the above approved methods, the following techniques are proposed. These may be used as standalone options or in combination:

- Mechanical soil removal;
- Vacuum removal, and
- Organic sorbents.

3.1 Mechanical Soil Removal

The use of small excavators may be employed at sites where the area of a maximum of oil recovery makes manual recovery inefficient. The maximum depth of excavation will not exceed 6 inches. Small excavators will be used to scrap soil and vegetation to remove oil and oil saturated media. Consideration will be given to minimize impact to the site by the excavator during both access and oil recovery. Excavators will avoid wetlands and sensitive

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areas. Mats will be used as applicable to minimize disturbance to the soil. Care will be taken to minimize the impact to woody vegetation.

The oily material will be containerized and transport to Frac Tank City for proper characterization and disposal pursuant to the approved WTTD.

3.2 Vacuum Removal

The use of vacuum devices to remove oil and oil saturated media may be employed at sites. Vegetation will be cleared from the area to be vacuumed and oil and oily soil will be collected using a portable vacuum or other suction device. Areas accessible by land may utilize truck mounted vacuum units.

All oiled soil and debris will be double bagged or drummed and transport to Frac Tank City for proper characterization and disposal pursuant to the approved WTTD.

3.3 Organic Sorbent Application

The use of organic oil sorbent material (peat) may be employed at sites to remove free oil. Vegetation will be cleared from around identified location and the selected sorbent will be by applied by hand and gently raked into the oiled areas. The applied sorbent will remain for a minimum of 24 hours for absorption. Following 24 hours, the area will be examined to determine if additional treatment is needed.

All used sorbent will be removed using rakes and/or vacuum and will be double bagged or drummed and transport to Frac Tank City for proper characterization and disposal pursuant to the approved WTTD.

US EPA ARCHIVE DOCUMENT

US EPA ARCHIVE DOCUMENT

Attachment G

Submerged Oil Recovery Standard Operating Procedure

Approval Pending

US EPA ARCHIVE DOCUMENT

Enbridge Line 6B MP 608
Marshall, MI Pipeline Release

Submerged Oil Recovery Standard Operating Procedure

Prepared for Michigan Department of Environmental Quality

Enbridge Energy, Limited Partnership

Submitted: June 9, 2011

Resubmitted: June 28, 2011

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1.0 SCOPE AND APPLICATION 1

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4.0 EQUIPMENT AND PERSONNEL 2

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LIST OF ACRONYMS

Enbridge	Enbridge Energy, Limited Partnership
GIS	geographic information system
GPS	Global Positioning System
HASP	Health and Safety Plan
Line 6B	The pipeline owned by Enbridge Energy, Limited Partnership that runs just south of Marshall, Michigan
MDEQ	Michigan Department of Environmental Quality
MDEQ Order	Administrative Consent Order And Partial Settlement Agreement entered *In the Matter of Enbridge Energy Partners, L.P., and Enbridge Energy, Limited Partnership*, proceedings under the Michigan Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, MCL 324.101 et seq. signed November 1, 2010
MP	Mile Post
O&M	Operations and Maintenance
SOP	Standard Operating Procedure
SORT	Shoreline and Overbank Reassessment Technique
SO	Submerged Oil
Supplemental Order	Supplement to Order for Compliance Under Section 311(c) of the Clean Water Act, issued by USEPA Region 5 on September 23, 2010 to Enbridge Energy Partners, L.P. *et al*., Respondents, Docket No: CWA 1321-5-10-001
WP	Work Plan
IAP	Incident Action Plan

US EPA ARCHIVE DOCUMENT

US EPA ARCHIVE DOCUMENT

1.0 SCOPE AND APPLICATION

The purpose of the Submerged Oil Recovery Standard Operating Procedure (SOP) is to provide general guidance to the recovery operations of submerged oil resulting from the Enbridge Line 6B pipeline release in Marshall, Michigan. This SOP addresses submerged oil recovery operations for the sites approved for treatment by the Michigan Department of Environmental Quality (MDEQ).

2.0 PRIORITIZATION OF SITES FOR SUBMERGED OIL RECOVERY

The sites selected for submerged oil recovery were characterized during the 2011 reassessment poling phase. The areas with significant submerged oil were identified and delineated using poling techniques. The poling locations were surveyed using a Global Positioning System (GPS) capable of sub-meter accuracy. The delineation was conducted by working away from significant submerged oil until a light sheen or no sheen was found. The GPS data was input into the Geographic Information System (GIS) database and maps produced with the recovery area delineations and approximate sizes. The submerged oil recovery schedule of work sites was prioritized based on the strategic plan for reopening the river

3.0 SITE PREPARATION

The submerged oil recovery activities will be implemented using the following procedures:

- Present a schedule identifying the sites for submerged oil recovery using the outlined techniques.
- Poling continues with pre-polling verification to confirm contaminated areas identified during the poling reassessment.
- Confirm the integrity of the hard containment boom and X-Tex or GeoTextile curtain prior to implementation. If no containment is in place, establish containment prior to implementation of the submerged oil recovery techniques.
- Deploy sorbent boom along the perimeter of the work area including any vegetated areas to prevent contamination from migration. Perimeter of the work area will include shoreline and non-contained areas. Deployment of sorbent boom along

control point hard boom will be installed as determined necessary based on field observations during recovery operations.

- Conduct the work within each recovery area by moving from upstream to downstream. Floating oil will be directed to a collection area within the boomed work area. Select an area that has the lowest ecological complexity (if possible), and that is easily accessible within the oil collection area. When selecting a collection point, natural wind and current direction/flow should be used to assist collection. Leaf blowers may be also be used to direct recovered oil to the collection point.
- Collect and remove the recovered oil using sorbent materials. A skimmer may be utilized if conditions warrant.

Adverse weather or river conditions may delay or impact the efficiency of recovery efforts.

4.0 EQUIPMENT AND PERSONNEL

Appropriate equipment and personnel will be deployed to the site based on the recovery technique and the site characteristics. The recovery will be started using the tool with the best chance for success based on site-specific conditions. Additional tools should be made available if conditions warrant.

The submerged oil recovery crews will be 4 to 6 personnel in size. On larger focus areas, crews will be merged together to form a team consisting of 8 to12 personnel.

The teams will be led by a inspector who is responsible for the team's location, execution, production, documentation, photo documentation, and in process and post poling to determine if the recovery was successful or not. The remainder of the team will consist of recovery technicians responsible for the use of the recovery tools and collection of the recovered submerged oil.

Additional supporting equipment and personnel will be available as needed.

5.0 METHODS FOR SUBMERGED OIL RECOVERY

The methods to recover submerged oil are based on the May 26, 2011 Submerged Oil Recovery Pilot Program and subsequent Submerged Oil Pilot Studies. Methods are provided with a description of the procedures to be used during the recovery activities.

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Procedures may be used separately or in combination to achieve the oil recovery objective. Prior to implementing any of these procedures, pre-poling will be conducted to verify the locations of oil.

5.1 Raking

- Use a hand held rake to agitate the sediment to the bottom to release submerged oil.
- The rake is a steel tine garden rake with a three inch depth penetration.
- The rake is best used in non and light vegetated areas in shallow water.
- Sorbent materials will then be used for the collection and removal of recovered oil.
- Direct any floating oil to the collection area and sorbent boom lining the work area.
- This process will be repeated until there is no oil visibly released from the cell.

5.2 Hand Held Tiller

- Use a hand held, gas powered tiller to agitate the top 6 to 8-inches of the sediment.
- The hand-held garden tiller has two blades measuring approximately 8-inches in diameter and set approximately 8-inches apart.
- The tiller's engine must remain above the water surface at all times.
- The tiller works best in areas with little to no bottom debris.
- The tiller is best applied in non and light vegetated areas. It can be used in both soft sediment and sand bed areas.
- Each pass of the tiller will make contact to ensure complete coverage of the area.
- Allow the released oil to float to the surface to enable surface recovery at a collection point within the contained area. Sorbent materials will then be used for the collection and removal of recovered oil.
- This process will be repeated until there is no oil visibly released from the cell.

5.3 Hand Held Stinger

- A stinger consists of a hand held discharge wand equipped with river water supply.
- The water injecting/flushing device is constructed using an 8-foot long (1 ½-inch diameter) vertical pole with a 45-degree elbow fitting and a short nozzle of 1 ½-inch pipe that has been flattened to create a fan-like water discharge.

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- The water supply used will be high volume/low pressure supplied by a submersible, trash or water pump.
- This tool can be modified to include three or four vertical pipes welded together on 6-inch to 8-inch centers with 90-degree (or greater) fittings.
- The entire area will be flushed using an overlapping sweeping motion to ensure complete coverage of the area.
- Allow the released oil to float to the surface to enable surface recovery at a collection point within the contained area. Sorbent materials will then be used for the collection and removal of recovered oil.
- This process will be repeated until there is no oil visibly released from the cell.

5.4 Vessel Mounted Water Injector

- The vessel mounted subsurface deluge system consists of a spreader bar (6 to8-feet in length) mounted to the front of the vessel.
- The spreader bar will be lowered to the desired depth prior to activation.
- Water will be pushed through the spreader bar and discharged through ports located along the width of the bar, at 45 and 90-degree angles to the bar.
- The vessel will then move along a grid layout to ensure complete coverage of the area.
- Allow the released oil to float to the surface to enable surface recovery at a collection point within the contained area. Sorbent materials will then be used for the collection and removal of recovered oil.
- This process will be repeated until there is no oil visibly released from the cell.

5.5 Chain Drag

- The chain drag apparatus consists of a 5-foot long, 2-inch diameter round metal spreader bar with ¼–inch grade 8 metal chains attached at approximately 6-inch centers. A second spreader bar of the same size is attached to the chains to minimize tangling.
- The chain drag will be pulled by either a shore mounted system or by a boat following a grid layout to unsure complete coverage of the area.

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- The chain drag is an effective oil recovery tool in submerged environments with minimal debris (fallen trees or submerged stumps). It is an effective tool at releasing tar balls and tar patties.
- Allow the released oil to float to the surface to enable surface recovery at a collection point within the contained area. Sorbent materials will then be used for the collection and removal of recovered oil.
- This process will be repeated until there is no oil visibly released from the cell.

5.6 Vessel Mounted Pipe Drag

- The vessel mounted bottom drag device consists of an 8-foot long (2-inch diameter) steel horizontal tube with wheels attached on both ends.
- A boat mounted trash pump injects river water through a threaded fitting near the center of the horizontal tube and the water is released from a series of holes drilled into the horizontal tube.
- The bottom drag discharges water through holes in the steel pipe.
- The device is lowered to the sediment surface and then pulled horizontally over the sediment.
- The bottom drag works best in open water areas or areas with minimal vegetation and without submerged debris. It is best used in larger areas with moderate water depths.
- Allow the released oil to float to the surface to enable surface recovery at a collection point within the contained area. Sorbent materials will then be used for the collection and removal of recovered oil.
- This process will be repeated until there is no oil visibly released from the cell.

5.7 Rotating Stingers

- A set of stingers consists of hand held discharge wands equipped with water supply.
- The rotating stinger device is constructed using an 8-foot long (1 ½- inch diameter) steel vertical pole with two 6-foot long horizontal steel pipes attached approximately 1-foot from the bottom at 90-degrees to the vertical pole and 180-degrees from each other.
- The drilled holes are angled toward the bottom where it will agitate and release submerged oil from the sediment.

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- The water supply used will be high volume/low pressure supplied by a submersible, trash or water pump.
- The rotating stinger is recommended for large non-vegetated areas with sand or hard river bottoms and shallow or moderate water depths.
- The rotating stinger works best in areas with submerged oil limited to the upper couple inches of sediment. Spreading the flow across 12-feet of pipe through several small holes (increased energy losses) reduces the effective force of the water jets and limits the depth of penetration into the sediment.
- Allow the released oil to float to the surface to enable surface recovery at a collection point within the contained area. Sorbent materials will then be used for the collection and removal of recovered oil.
- This process will be repeated until there is no oil visibly released from the cell.

6.0 RECOVERY OF PRODUCT

Collection points will be established at each Submerged Oil location to allow for the collection of sheen and globules released by submerged oil operations. Collection will utilize a variety of techniques including skimmers, sorbents, and peat. When peat is used the following Best Management Practices will be used:

- All appropriate personal protective equipment will be used including:
    - Chemical proof gloves
    - Safety glasses
    - Personal floatation device
- Broad cast the peat over the impacted area. Allow 15-20 minutes for sheen to adhere to the peat amendment.
- Utilize air diversion (airboat or leaf blower) to mobilize the commingled peat amendment and sheen to a collection point. The collection point should be downstream or downwind depending on which is stronger at the given location.

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- Utilize pool nets to recover the commingled peat amendment and sheen. The impacted debris should be placed into a clear plastic bag and taken for disposal at the end of the operational period.

- The number of bags of debris should be recorded by site and reported to operations in your daily field notes.

7.0 DECOMMISSIONING OF EQUIPMENT AND WASTE DISPOSAL

Oiled debris including the sorbent booms, pads, and other material used to collect the recovered oil will be disposed of in accordance with the Enbridge Waste Treatment, Transportation and Disposal Plan dated May 20, 2011.

All equipment impacted as a result of the recovery operations will be decontaminated by either “dry” decontamination onsite or transported to Frac Tank City for a full decontamination.

8.0 FINAL SITE INSPECTION

Following the recovery activities, the area will be poled and the poling locations surveyed using the sub-meter GPS and input into the GIS database. Completed areas will be inspected by Enbridge following completion of the recovery techniques.

9.0 SAFETY CONSIDERATIONS

All activities will adhere to the Incident Action Plan (IAP) and the Enbridge Health and Safety Plan (HASP) procedures and policy.

ALL OPERATIONS AND TARGETS DESCRIBED IN THIS STANDARD OPERATING PROCEDURE (SOP) ARE BASED ON THE FIELD OBSERVATIONS AND JUDGEMENT OF ENBRIDGE FIELD SUPERVISORS.

US EPA ARCHIVE DOCUMENT

US EPA ARCHIVE DOCUMENT

Attachment H

Submerged Oil Recovery Standard Operating Procedure Addendum (Inclusion of Peat and/or Moss for Surface Oil Recovery)

Approval Pending

US EPA ARCHIVE DOCUMENT

Enbridge Line 6B MP 608
Marshall, MI Pipeline Release

Submerged Oil Recovery Standard Operating Procedure Addendum
(Inclusion of Peat and/or Moss for Surface Oil Recovery)

Prepared for Michigan Department of Environmental Quality

Enbridge Energy, Limited Partnership

Submitted: June 17, 2011

1.0 SCOPE AND APPLICATION 1

2.0 RECOVERY OF OIL USING PEAT AND/OR SPHAGNUM MOSS 1

3.0 DECOMMISSIONING OF EQUIPMENT AND WASTE DISPOSAL 2

US EPA ARCHIVE DOCUMENT

LIST OF ACRONYMS

Enbridge	Enbridge Energy, Limited Partnership
Line 6B	The pipeline owned by Enbridge Energy, Limited Partnership that runs just south of Marshall, Michigan
MDEQ	Michigan Department of Environmental Quality
SOP	Standard Operating Procedure

US EPA ARCHIVE DOCUMENT

1.0 SCOPE AND APPLICATION

The purpose of the *Submerged Oil Recovery Standard Operating Procedure (SOP) Addendum* is to include the use of peat and/or sphagnum moss as a proven alternative for surface oil recovery.

2.0 RECOVERY OF OIL USING PEAT AND/OR SPHAGNUM MOSS

Collection points will be established at each submerged oil location to allow for the collection of sheen and globules released by submerged oil operations. Collection will utilize a variety of techniques including peat and/or sphagnum moss.

Peat and moss naturally repel water due to their chemical structure. When spread on the surface of a water body, it will float on the surface while absorbing oil.

Depending upon prevailing conditions (e.g. water turbulence), peat and/or sphagnum moss can float for several days before eventually taking on water and sinking. During this time it will absorb water-borne oil on contact.

When peat is used the following Best Management Practices will be used:

- All appropriate personal protective equipment will be used including:
    - Chemical proof gloves
    - Safety glasses
    - Personal floatation device
- Broad cast the peat over the impacted area. Allow 15-20 minutes for sheen to adhere to the peat amendment.
- Utilize air diversion (airboat or leaf blower) to mobilize the commingled peat amendment and sheen to a collection point. The collection point should be downstream or downwind depending on which is stronger at the given location.
- Utilize pool nets to recover the commingled peat amendment and sheen. The impacted debris should be placed into a clear plastic bag and taken for disposal at the end of the operational period.

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- The number of bags of debris should be recorded by site and reported to operations in your daily field notes.

3.0 DECOMMISSIONING OF EQUIPMENT AND WASTE DISPOSAL

Bags of impacted debris will be disposed of in accordance with the Enbridge Waste Treatment, Transportation and Disposal Plan.

All equipment impacted as a result of the recovery operations will be decontaminated by either “dry” decontamination onsite or transported to Frac Tank City for a full decontamination.

US EPA ARCHIVE DOCUMENT

US EPA ARCHIVE DOCUMENT

Attachment I

Oil Recovery Plan Team Structure

Oil Recovery Plan Group Structure

Overbank
- Planning Group Leader
- Safety Group Leader
- Right-of-Way (ROW) Group Leader
- Finance Group Leader
- Procurement Group Leader

Deep Soil Excavation
- Environmental Team Leader
- Operations Team Leader

Field Teams
- Environmental Inspector
- Operations Inspector
- Agency Observers
- Workers

Shallow Soil Excavation
- Environmental Team Leader
- Operations Team Leader

Field Teams
- Environmental Inspector
- Operations Inspector
- Agency Observers
- Workers

Submerged Oil
- Planning Group Leader
- Safety Group Leader
- Right-of-Way (ROW) Group Leader
- Finance Group Leader
- Procurement Group Leader

Submerged Oil – 1
- Environmental Team Leader
- Operations Team Leader

Field Teams
- Environmental Inspector
- Operations Inspector
- Agency Observers
- Workers

Submerged Oil – 2
- Environmental Team Leader
- Operations Team Leader

Field Teams
- Environmental Inspector
- Operations Inspector
- Agency Observers
- Workers

Morrow Lake
- Environmental Team Leader
- Operations Team Leader

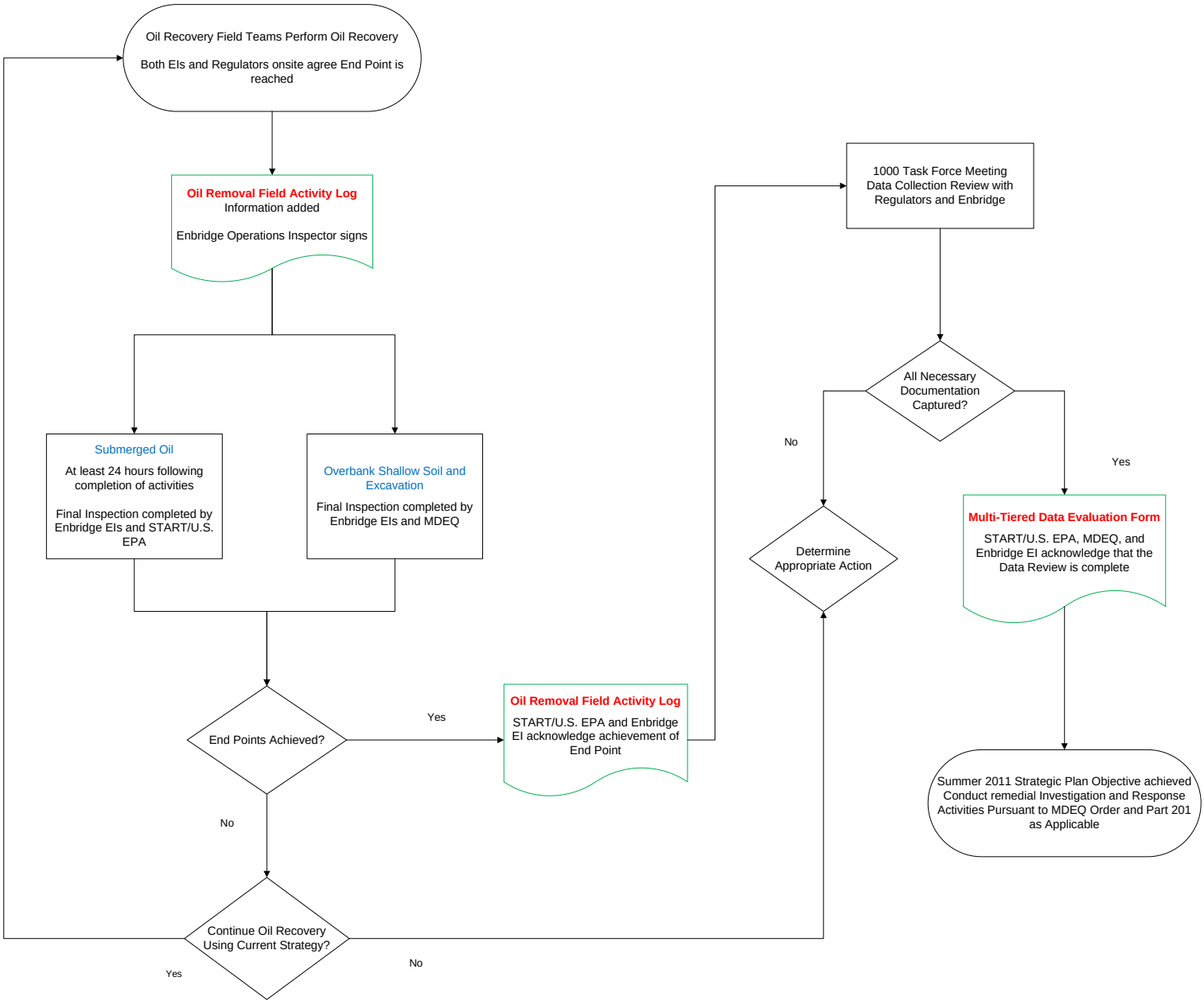
Field Teams
- Environmental Inspector
- Operations Inspector
- Agency Observers
- Workers

US EPA ARCHIVE DOCUMENT

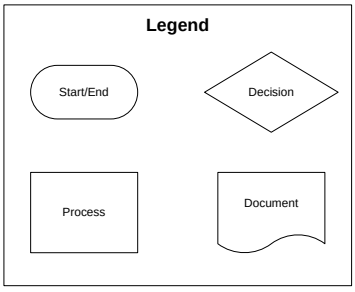
Attachment J

Acknowledgement Process Flow

Summer 2011 Oil Recovery Inspection Acknowledgment Flow Path



ENBRIDGE AND REGULATORS WILL CONTINUALLY EVALUATE PROGRESS THROUGHOUT THE RECOVERY TO EVALUATE ALTERNATE RECOVERY STRATEGIES TO OPTIMIZE EFFECTIVE ACHIEVEMENT OF END POINTS



June 25, 2011

US EPA ARCHIVE DOCUMENT

US EPA ARCHIVE DOCUMENT

Attachment K

Daily Progress Report

Environment
Daily Progress Report

ENBRIDGE

Site: _____ **Date:** _____ mm/dd/yy

Project Name: _____ **Team Lead** _____

Project #: 91153SC10125 **Contractor:** _____

Temp.(ºF): Hi _____ **Lo** _____ **Conditions:** _____ **Start Time:** _____ **Stop Time:** _____

Production

Activity & Technique(s) Used	Start	End	Todays Progress

Comments:

GENERAL COMMENTS: (Summary of Work Completed, denote work completed after the 1600hr report time)

ELECTRONIC DOCUMENTATION: (GPS Data collected, Photographs Taken - Pre/During/Post)

POTENTIAL EXTRA WORK (delays, out of scope work, re-work, etc.):

SAFETY (tailgate/safety meeting topics and general comments):

ENVIRONMENT (sampling, environment concerns)

_____ _____

Print **Signature**

Environmental Inspector

US EPA ARCHIVE DOCUMENT

US EPA ARCHIVE DOCUMENT

Attachment L

Overbank Oil Removal Field Activity Log

APPROVED

Enbridge Line 6B MP 608 Pipeline Release

Oil Removal Field Activity Log

Overbank

Segment ID: MP _____ Bank _____ and/or Island _____ Unique ID _____

The signatures below document that the following activities conducted at the location identified above were conducted in accordance with the following SOP:

Manual Oil Removal _____ Overbank Oil Recovery _____

This location is being referred to the Environmental Compliance Branch for further evaluation.

Method Used: Excavation _____ Raking _____

Vacuum _____ Shoveling _____ Vac-Truck _____

Other Method _____

Waste Quantities Data

Material Removed:	Units (bags, tons, etc)	Total Number
Soil/Oil Residuals	_____	_____
Tar Patties	_____	_____
Vegetation	_____	_____
Woody Debris	_____	_____
Other _____	_____	_____

Additional Comments on Back: Yes_____ No _____

Enbridge Operation Inspector Signature _____

Acknowledgment Signatures

_____ START/U.S. EPA _____ Date

_____ Printed Name

_____ MDEQ _____ Date

_____ Printed Name

_____ Enbridge _____ Date

_____ Printed Name

Revised: 6/27/11

US EPA ARCHIVE DOCUMENT

APPROVED

Comments: _____

Revised: 6/27/2011

US EPA ARCHIVE DOCUMENT

US EPA ARCHIVE DOCUMENT

Attachment M

Submerged Oil Removal Field Activity Log

APPROVED

Enbridge Line 6B MP 608 Pipeline Release

Oil Removal Field Activity Log

Submerged Oil

Segment ID: MP _____, Unique ID _____

The signatures below document that the following activities conducted at the location identified above were conducted in accordance with the following SOP:
Submerged Oil Recovery_____ Other Plan _____

This location is being referred to the Environmental Compliance Branch for further evaluation.

Method Used: Hand Tiller _____ Raking _____

Chain Drag _____ Water Jetting _____

Other Method _____

Waste Quantities Data

Material Removed:	**Units (bags, tons, etc)**	**Total Number**
Oil Residuals (Spent Sorbent / Peat Moss / Vegetation)	_____	_____
Other _____	_____	_____

Additional Comments on Back: Yes_____ No _____

Enbridge Operation Inspector Signature _____

Enbridge Environmental Inspector Signature _____

Acknowledgment Signatures

_____ START/U.S. EPA _____ Date

_____ Printed Name

_____ Enbridge _____ Date

_____ Printed Name

Revised: 6/25/11

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APPROVED

Comments: _____

Revised: 6/25/2011

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Attachment N

Data Capture Process Flow

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Strategic Plan Field Data Collection Process

		Environmental Task Manager (Deputy)	Data Capture Contact	Geographic Information System (GIS)
Submerged Oil MP 0 to 15.75 [SO1]	AM	- Obtain Field Report Forms	- Obtain Assigned Camera - Obtain Assigned Memor Card (A) - Obtain Photolog Form	N/A
	PM		- Drop off Assigned Memory Card (A) - Pick Up Assigned Memory Card (B) from “outbox” - Drop Off Field Report Form and Photo Log to Task Designated “Inbox”	- Tetra Tech GIS Sends Electronic Data to AECOM Daily
Submerged Oil MP 15.75 to 40.00 [SO2]	AM	- Obtain Field Report Forms	- Obtain Assigned Camera - Obtain Assigned Memor Card (A) - Obtain Photolog Form	N/A
	PM		- Drop off Assigned Memory Card (A) - Pick Up Assigned Memory Card (B) from “outbox” - Drop Off Field Report Form and Photo Log to Task Designated “Inbox”	- Tetra Tech GIS Sends Electronic Data to AECOM Daily
Overbank Oil [OBOIL]	AM	- Obtain Field Report Forms	- Obtain Assigned Camera - Obtain Assigned Memor Card (A) - Obtain Photolog Form	- Obtain Assigned YUMA
	PM		- Drop off Assigned Memory Card (A) - Pick Up Assigned Memory Card (B) from “outbox” - Drop Off Field Report Form and Photo Log to Task Designated “Inbox”	- Drop Off YUMA and Await Confirmed Successful Electronic Data Upload
Overbank Excavation [OBEX]	AM	- Obtain Field Report Forms	- Obtain Assigned Camera - Obtain Assigned Memor Card (A) - Obtain Photolog Form	- Obtain Assigned YUMA
	PM		- Drop off Assigned Memory Card (A) - Pick Up Assigned Memory Card (B) from “outbox” - Drop Off Field Report Form and Photo Log to Task Designated “Inbox”	- Drop Off YUMA and Await Confirmed Successful Electronic Data Upload

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Attachment O

Multi-Tiered Data Evaluation Form

APPROVED

Enbridge Line 6B MP 608 Pipeline Release
Multi-Tiered Data Evaluation Form

Segment ID: From MP _____, Bank _____ and/or Island_____, Unique ID ____

The purpose of this form is to acknowledge U.S. EPA (START), MDEQ, and Enbridge have conducted a check of the data generated by the technologies listed below and as described in the Overbank and Submerged Oil Recovery operations. The purpose of this check is to verify that the data generated reflect field activities were conducted within all the necessary subareas of the location noted above.

Initials:

GIS Data (polygon/photos/log)	START/US EPA _____	MDEQ _____	Enbridge _____
Daily Progress Report	START/US EPA _____	MDEQ _____	Enbridge _____
Field Activity Log	START/US EPA _____	MDEQ _____	Enbridge _____

Action Items

Action Item Description	Date Resolved

Data Review Acknowledged

_____ START/US EPA _____ Date

_____ Printed Name

_____ MDEQ _____ Date

_____ Printed Name

_____ Enbridge _____ Date

_____ Printed Name

Revised: 6/28/2011

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Attachment P

Water Quality Measurement Standard Operating Procedure

Approval Pending

Enbridge Line 6B MP 608
Marshall, MI Pipeline Release

Water Quality Measurement Standard Operating Procedure

Prepared for Michigan Department of Environmental Quality

Enbridge Energy, Limited Partnership

Submitted: July 26, 2011

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LIST OF ACRONYMS

Enbridge	Enbridge Energy, Limited Partnership
DO	dissolved oxygen
DRO	Diesel Range Organics
GRO	Gasoline Range Organics
GPS	Global Positioning System
mg/kg	Milligrams per kilogram (parts per million)
mg/l	Milligrams per liter (parts per million)
NTU	nephelometric turbidity units
ORP	Oxidation Reduction Potential

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1.0 INTRODUCTION

Enbridge Energy, Limited Partnership (Enbridge) proposes to evaluate water quality, specifically the potential risk posed to fish populations in the Ceresco and Morrow Lake impoundments related to the reduced dissolved oxygen (DO) levels. In addition, turbidity caused by submerged oil recovery efforts throughout the river and at Ceresco, Morrow, and throughout the river will be measured and documented. Current conditions present in the impoundments behind the Ceresco and Morrow Lake dams due to increased water temperature, low water levels, and increases in turbidity. This plan has been developed to evaluate water quality in relation to the potential to affect fish populations.

2.0 WATER QUALITY MEASUREMENTS

Water quality measurements will be collected from locations within the Ceresco impoundment, Morrow Lake, and at locations in the river where submerged oil recovery activities are occurring. Locations will be selected to assess water quality across the impoundments including the deepest, in channel locations. In the river, measurements will be taken upstream, side gradient, within, and downstream of the submerged oil recovery sites. Water quality measurements will be collected at each of these locations, prior to starting oil recovery and up to three times throughout the day. Monitoring locations will be recorded using a Global Positioning System (GPS) instrument. A YSI water quality meter or similar device will be used to collect real time water quality parameters including:

- Temperature,
- Dissolved Oxygen (DO),
- pH,
- Turbidity,
- Oxidation Reduction Potential (ORP), and
- Conductivity.

Water quality readings will be collected at the surface and vertically at 2-foot intervals to the top of the sediment at each location.

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3.0 ACTION LEVELS

Action levels for turbidity and dissolved oxygen depend on the situation encountered. Basically, there are two containment scenarios (partial and full) which have different responses to action levels.

3.1 Partially Contained Submerged Oil Work Sites

These are defined as submerged oil recovery sites where the work areas are only partially contained, that are where any fish within the work areas have a fairly easy egress route out of the area and to higher quality water. The submerged oil work area is not totally enclosed by boom and sediment curtain allowing fish to leave the area. Water quality readings will be collected upgradient, side gradient, down gradient, and within the work zones along transects perpendicular to the flow. Background water quality parameters will be collected upgradient. A point established 300 feet downstream of the work site will be the location at which action levels will be assessed.

Dissolved Oxygen

If DO readings fall below 4 milligrams per liter (mg/l) within the work area, egress routes will be verified and if acceptable, work can continue. DO levels adjacent to the site will be measured to check that fish can escape to water where DO is greater than 4 mg/l. Work will be stopped if any stressed fish are observed or if no suitable egress routes are available. Work can resume once the problem is solved and verified.

Turbidity

If turbidity readings downstream of the submerged oil work area are detected at 50 nephelometric turbidity units (NTU) or two times background (whichever is greater), the monitoring crew will delineate the extent of the elevated turbidity. The monitoring crew will focus on monitoring the area of elevated turbidity until the level falls below 50 NTUs above background. If turbidity readings exceed 50 NTUs 300 feet below the work site, work will be stopped, notification will be provided, and action will be taken to correct the problem. Recovery work and monitoring will continue once corrective action levels have been successful. All observations (water color, presence/absence of sheen) will be documented.

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3.2 Fully Contained Submerged Oil Work Sites

These are defined as submerged oil recovery sites where the work areas are completely or nearly completely contained, that is where fish within the work areas do not have an egress route out of the area and to higher quality water. The submerged oil work area is totally or near totally enclosed by boom and sediment curtain preventing fish from leaving the area.

Dissolved Oxygen

If DO readings fall below 4 mg/l within the work area, or if stressed fish are observed, work will be stopped. Work can resume once the DO readings are above 4 mg/l (by pumping in water, aeration, or some other means.)

Turbidity

If turbidity readings 300 feet downstream of the submerged oil work area are detected at 50 NTU or two times background (whichever is greater), the monitoring crew will stop work, provide notification, and investigate and repair containment as required. Once the containment has been addressed, work can be resumed and monitoring will continue.

4.0 NUTRIENT SAMPLING

In addition, at select locations, water samples will be collected for subsequent laboratory analysis. Samples will be collected at two to three locations within Ceresco, Morrow Lake, and the Mill Pond (if recovery work is being conducted). Locations will be selected in-channel, in the fan, and at an intermediate location. Samples will be collected every two feet of water depth using a peristaltic pump into appropriate laboratory containers, preserved, labeled, stored on ice, and shipped under chain-of-custody documentation to ALS Group Laboratory in Holland, Michigan. Water samples will be analyzed for:

- Nitrate,
- Nitrite, and
- Total Phosphorus.

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5.0 DOCUMENTATION AND REPORTING

Exceedances of turbidity and DO will be provided as soon as encountered to the Enbridge Monitoring Division. The exceedances will be provided daily via email to the agencies. Field data will be collected one of two ways, YUMA entry and notes or field forms and field notes. The YUMA will geo-reference the data at each collection point for assimilation into the project GIS system. This information will be downloaded daily to produce a figure which will illustrate the locations where water quality measurements and samples were collected. The actual readings for temperature DO, pH, turbidity, conductivity, and ORP and nutrient analysis (once laboratory results have been received) will be linked to the locations. A summary table of all the water quality readings along with figures of Morrow Lake and Ceresco will be provided via email to the agencies. The figures will indicate water quality measurements at each location in call out boxes with exceedances highlighted.

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Approval Pending

Enbridge Line 6B MP 608
Marshall, MI Pipeline Release

Supplement to the 2011 Summer Strategic Work Plan for the Performance of Dredging Submerged Oil Impacted Sediments

Prepared for United States Environmental Protection Agency

Enbridge Energy, Limited Partnership

Submitted: July 14, 2011

Resubmitted: July 30, 2011

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Approval Pending

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ATTACHMENTS

Attachment A	**July 2011 Poling Results**
Attachment B	**Examples of Bathymetry Mapping from 2010 Ceresco Dam Dredging**
Attachment C	**Dewatering Pads Prototypes**
Attachment D	**Example Daily Summary Report**
Attachment E	**Dredging Schedules**
Attachment F	**Oil Removal Field Activity Log**
Attachment G	**Legacy Site Tables and Figures**

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LIST OF ACRONYMS

ATVs	All-Terrain Vehicles
BTEX	Benzene, toluene, ethylbenzene, and xylene
DO	Dissolved oxygen
DRO	Diesel Range Organics
EI	Enbridge Environmental Inspector
FI	Enbridge Final Inspector
FOSC	Field On Scene Coordinator
GAC	Granular Activated Carbon
gpm	Gallons per minute
GRO	Gasoline Range Organics
HASP	Health and Safety Plan
HDPE	High Density Polyethylene
hp	Horse power
MDEQ	Michigan Department of Environmental Quality
MDNRE	Michigan Department of Natural Resources and Environment
MP	Mile Post
MSDS	Material Safety Data Sheet
NPDES	National Pollution Discharge Elimination System
OI	Enbridge Operations Inspector
OSHA	Occupational Safety and Health Administration
ppb	parts per billion
PPE	Personal Protective Equipment
PVC	poly vinyl chloride
SDR	Standard Dimension Ratio
SSHO	Site Safety & Health Officer
Strategic Plan	*Strategic Planning, 2011 Summer Operations*
TCLP	Toxicity Characteristics Leachate Procedure
TPH	Total Petroleum Hydrocarbon
UHF	Ultra High Frequency
U.S. EPA	United States Environmental Protection Agency
VOC	Volatile Organic Compound
WTP	Water Treatment Plant
WTTD	*Waste Treatment, Transportation and Disposal Plan*

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1.0 INTRODUCTION

This *Supplement to the 2011 Summer Strategic Work Plan* has been prepared in the event dredging is determined to be a required and feasible approach to address submerged oil accumulating in any of the three major depositional areas in the Kalamazoo River between the confluence with Talmadge Creek and Morrow Lake. The three areas are located in the vicinity of Ceresco Dam at Mile Post (MP) 5.75, the Kalamazoo River Dam at Mile Post 15.6 (North of the Dickman Avenue Bridge), and the Morrow Lake Delta at Mile Post 37.25 (Area Delta Z). These depositional areas occur at the end of three river segments where submerged oil recovery efforts have been and are being conducted using a top-to-bottom approach for work sequencing and to maximize efficiency. The three river segments are as follows:

- MP 0.0 to MP 6.0, Talmadge Creek to Ceresco Dam,
- MP 6.0 to MP 15.6, Ceresco Dam to Battle Creek, and
- MP 15.6 to MP 39.75, Battle Creek to Morrow Lake.

As it has been observed, it appears that submerged oil may continue to migrate and accumulate in the depositional areas. Accordingly, continued use of tool box techniques will be weighed against the feasibility, potential effectiveness and timing of dredging. This Supplement provides details on the approach to dredging at each location, while some of the key considerations such as feasibility, timing, legacy sites, and potential, relative effectiveness will likely need further discussion between Enbridge and the U.S. EPA. Feasibility aspects for implementing dredging include an evaluation of an interim report and/or post-recovery data on submerged oil recovery effectiveness, consideration of access and staging areas; land owner approvals, suspension of other pre-existing contaminants in the sediments, and other factors.

In any case, the goal of dredging would be to remove sediment to a sufficient depth so that post-recovery poling results in none to light designations. The dredging efforts will be performed sequentially initiating with the upstream location (Ceresco Dam) to downstream (Morrow Lake).

Section 1 of this Supplement provides an overview of the three depositional areas and potential dredge volumes, dredge methods, and logistical and project management aspects applicable to all three locations. *Section 2* provides a summary of potential impacts from

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legacy sites. From there, *Sections 3* through *5* provide more detailed information on the proposed work to be performed at each location.

1.1 Siting

The maps contained in *Attachment A* depict poling results current to July 7, 2011 for MP 5.25 to Ceresco Dam, MP 14.2 to Kalamazoo River Dam at MP 15.6, and the Morrow Lake Delta at MP 37.25. Dewatering pad locations and equipment laydown areas have been tentatively identified for Ceresco Dam, Kalamazoo River Dam and the Morrow Lake Delta.

1.1.1 Ceresco Dam

The dewatering pad and laydown area utilized during the 2010 construction season at Ceresco Dam are sufficient for the 2011 dredging operations. The identical unit operations for water treatment have been contemplated. If dredging is required at Ceresco Dam, hydraulic dredging will be performed to remove a nominal cut of 1-foot (including 6-inch over dredge cut) that will result in sediment volumes of up to approximately 20,000 cubic yards (see *Table 1).* This volume is two times the 2010 volume of approximately 10,000 cubic yards. If dredging is used in conjunction with the tool box methods for recovery of submerged oil and oil impacted sediments this volume can be reduced significantly (possibly as low as 8,000 cubic yards). The location and footprint of the existing dewatering pad on Mr. Olds farm is well suited for this project provided the 2011 approach mirrors the 2010 project. The 1-foot dredge cut should be sufficient since this area was dredged in 2010, and the submerged oil deposition should be in the top few inches.

1.1.2 Kalamazoo River Dam

Discussions have occurred with contractors that perform both mechanical and hydraulic dredging methods for use at this location. A 1.5-foot cut (including 6-inch over dredge cut) over the 2-acre area at MP 15.6 just north of the Dickman Avenue Bridge will result in a sediment volume of up to approximately 4,900 cubic yards (see *Table 1*). The dewatering pad and equipment laydown area design will accommodate this volume.

Enbridge conducted a site walk with the potential dredging contractor to evaluate candidate locations. The result was the selection of the SEMCO property adjacent to the Kalamazoo River Dam. SEMCO has been contacted to discuss use of their property. The dredging contractor is satisfied that the laydown area is sufficient for access to the project footprint. The approximate 2 acres will accommodate either mechanical or hydraulic dredging

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methods at the projected volume of 5,000 cubic yards. This volume will require either 200 roll-off boxes or 4 Geotubes®.

1.1.3 Morrow Lake Delta

Two sites have been identified as potential locations for the dewatering pad and equipment laydown area suitable for dredging at the Morrow Lake delta. The Geotube® layout on a 5.5-acre footprint will accommodate a project requiring removal of up to approximately 25,000 in-situ cubic yards of submerged oil impacted sediment. It is anticipated that about 16,000 cubic yards will require removal. The soft sediment layer of approximately 6 inches will be removed above the hard bottom. The submerged oil is deposited in the soft sediment and will be captured as a result, even though the dredge cut will likely be 1-foot including the over dredge allowance. Each of the sites has a footprint in excess of 10 acres and is sufficient for either scenario. Discussions with the landowners are ongoing and have yet to be finalized at this time.

1.2 Dredging Means and Methods

Hydraulic and mechanical dredging will be evaluated for each location. The potential volumes for sediment removal are shown in *Table 1* below based on approximate acreage of each area.

Estimated dredge cuts have been established by using core logging data. The submerged oil has typically been identified in the top 6 inches of the sediment cores. This is practically the thinnest cut a dredge can achieve based upon the limitations of the equipment and productivity considerations. An over dredge allowance of an additional 6 inches is provided for the dredging contractor which equates to a total cut of 1-foot. Confirmation poling will be performed to verify the effectiveness of the dredging operation. The endpoint is achievement of a light designation. An additional dredge pass will be performed if the endpoint is not achieved on the first pass.

The water treatment system will consist of three unit operations. Bag filtration canisters will remove particulate in the weep water, followed by organoclay canisters for gross removal of free oil, followed by granular activated carbon canisters for removal of soluble phase organics. The system is modular and mobilized on flat bed trucks to the site.

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Poling data that results in a light designation will be used to verify the appropriate dredge depth has been achieved. Verification will be provided by logging sediment cores for the purpose of detecting oil.

Material will be transported from the excavations in either a pipeline hydraulically or mechanically using low ground pressure equipment (like a marsh buggy). The dewatering pad has a 1-foot deep stone working surface and drainage layer. An impervious High Density Polyethylene (HDPE) liner sloped slightly to a sump located on the edge is the base material. This system is similar to the dewatering pad used last season at Ceresco Dam.

Table 1 Potential Dredge Volumes

Area	Area Approx. (acres)	Area Approx. (sq. ft.)	# of Moderate Poling Locations*	# Heavy Poling Locations*	Mean Water Depth (ft.)	Mean Soft Sediment Thickness (ft.)	Dredge Cut (ft.)***	Dredge Volume (c.y.)
Talmadge Creek to Ceresco Dam								
5.25 North**	5	218,500	15	17	3.60	2.90	1	8,093
5.55 North (includes 5.35 North)**	5.45	237,300	23	9	2.10	2.90	1	8,789
5.75 South**	1.7	72,500	7	12	3.30	2.00	1	2,685
Ceresco Dam to Battle Creek								
MP 15.6	2	88,400	6	25	1.10	1.90	1.5	4,911
Battle Creek to Morrow Lake								
Delta Z (includes 37.25)	10	440,600	47	79	0.70	0.30	1	16,319

*These areas were last poled on July 7, 2011

**Estimated 19,567 cubic yards to be addressed through toolbox; Dredging to address volume not recovered by tool box if appropriate.

***Includes a 6 inch over-dredge allowance.

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1.2.1 Hydraulic Dredging

Three types of hydraulic dredges are available for use on the Kalamazoo River for the removal of submerged oil impacted sediments. These machines will be utilized based upon the specific conditions at each dredging location, specifically:

- Depth of the water to accommodate dredge vessel draft requirements,
- Depth of the dredge cut and over dredge allowance, and
- Availability of laydown area for sediment dewatering (if not, use dry dredge).

Several Ellicott self-propelled swinging ladder circular cutter head dredges are available but require a minimum draft of 2-feet. This machine can make cuts of 6 inches to 1-foot of depth. The dredge production is 20 in-situ cubic yards per hour at a hydraulic load of 1,000 gallons per minute (gpm) at the dewatering pad. This machine is capable of pumping up to 1 mile using the onboard pump working with a small terrestrial based booster pump.

The Amphibex horizontal cutter head dredge is available when little to no draft is available because the machine can walk or float into the dredge area. Last construction season the Amphibex successfully made 1-foot cuts at a productivity of 20 in-situ cubic yards per hour. The hydraulic load at the dewatering pad was approximately 1,000 gpm. A terrestrial-based booster pump was used last year to assist in conveyance of the hydraulic dredge slurry to the dewatering pad.

A low ground pressure Marsh Buggy equipped with a circular cutter head attached to a swinging ladder is available this year for use when little draft is available. This machine can walk or float into the dredge area and make cuts of 1-foot. Productivity of 10 in-situ cubic yards per hour is anticipated. A 300-horse power (hp) booster pump serves as the counterweight for dredge slurry conveyance. This machine can also pump up to one mile using a small booster pump staged on the upland.

1.2.2 Mechanical Dredging

Amphibious Marsh Buggies will be utilized to perform mechanical dredging using a bucket attachment on the excavator arm. This machine is presently staged on-site and is working on overbank excavation. It can be utilized to remove material that is placed by the operator into a hopper equipped with a pump to hydraulically convey the slurry to a dewatering pad staged on the upland. The material may be placed in a roll-off box staged on the overbank by the operator. The weep water will drain back into the containment area in the project

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footprint. Sawdust may be used to absorb weep water in the roll-off box to meet paint filter test requirements for transport and landfill acceptance.

1.3 Mobilization and Site Preparation

Personnel and equipment will be mobilized to each dredge area, and will receive site-specific training. Training will address health and safety, traffic control, spill prevention, and other relevant topics. In addition, equipment operators will be trained in the operation of vessels and aeration equipment being utilized as needed.

Enbridge and its contractors will use the already established on-site office facilities that were set up for the project. Additional site-specific needs will be evaluated.

Personnel will begin receiving, unloading, and staging equipment and materials. Staging area(s) will be as follows:

- Talmadge Creek to Ceresco Dam Area - 13200 12 Mile Road, in Ceresco, MI,
- Ceresco Dam to Battle Creek - (C5 Boat Launch), in Battle Creek, MI, and
- Battle Creek to Morrow Lake - 9100 Miller Drive in Galesburg, MI.

If required, mobilization will occur concurrently and require 3 days.

1.4 Surveying

A pre-dredge survey will be performed to estimate the total volume and depth of sediment to be removed. Poling information and sediment core logging results will be used to establish the areal footprint and dredge cut depth. Daily post-dredge bathymetric and poling surveys will be conducted to estimate the volume of material removed and assess dredge performance. *Attachment B* contains examples of bathymetry mapping developed for the 2010 Ceresco Dam Dredging project.

1.5 Containment

A containment cell will be constructed around the perimeter of each work area. This work area will consist of surface boom on the open face of the river channel, up to the edge of the shoreline. The boom will be anchored to the shoreline as well as in-stream as required, depending on the contours of the work area. The surface boom will consist of a hard Boom (22-ounce poly vinyl chloride (PVC) coated 6-inch flotation with at least a 12-inch skirting,

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5/16-inch high tension cable, 3/8 inch ballast chain at bottom of skirt). X-Tex curtain equipped with a ballast chain will be attached to the surface boom. This X-Tex curtain will extend from the water surface to the bottom of the channel. Absorbent boom will be installed along any shoreline areas that could potentially become impacted by the surface product/sheen. Site containment will be inspected prior to start up each day as well as throughout the work period. Increased containment will be installed as required dependent on flow rate, water depth, and general site conditions.

1.6 Bench Scale Tests

The bench scale tests involve various tests ranging from polymer evaluation to Rapid Dewatering Tests (RDT). During the polymer evaluation, the material sample is exposed to several different cationic and anionic polymers, as well as other types of flocculants, to determine which works best for enhancing separation of water from solids. Once a polymer type and dose has been established, the RDT is performed using a small swath of Geotubes® in the form of a cone, treating the material with the preferred polymer dose, then pouring the treated material into the cone-shaped Geotubes® and observing rate of retention, clarity of decant, and achievable percent solids of the dewatered material.

If the results of the bench scale testing are favorable, the next step is to move to a Hanging Bag Test (HBT), or Geotube Dewatering Test (GDT). The HBT involves a Geotube® configured to a bag that hangs from a scaffold; the GDT involves a „pillow' sized Geotube® placed on a drainable surface. Both tests have similar objectives: to evaluate whether or not a particular slurry will dewater in a Geotube®; to test the polymer scheme developed during the bench scale testing; and, to gather baseline data for estimating the rate of solids capture and material consolidation in Geotubes® of a larger scale. Both tests involve the process of mixing small batches of slurry to the consistency that will most likely be experienced in the field, mixing in polymer, and injecting into the preferred test Geotube®. Results will be recorded and evaluated.

1.7 Dewatering Pad Construction

The existing dewatering pad at the Ceresco Dam site will be used for work from Talmadge Creek to Ceresco Dam. Dewatering pads will need to be constructed in the vicinity of MP 15.6 and MP 37.25 for the dredging at the Kalamazoo River Dam and the Morrow Lake Delta. The dewatering pads will be similar to the prototypes presented in *Attachment C.*

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This design utilizes a stone working surface 1-foot thick that drains to a HDPE liner that gravity drains all carriage water to a collection sump.

1.8 Construction & Equipment Installation

Following mobilization for each of the three dredge areas, personnel will begin construction of the dredge discharge, Geotubes® header, and polymer injection pipelines. The dredge discharge pipeline and Geotubes® header will be constructed of 8-inch diameter, Standard Dimension Ratio (SDR) 17.5 HDPE pipe. Connections will be made using a combination of butt fusion welds and mechanical fittings. The polymer injection pipeline will be constructed of 2-inch diameter vinyl hose. Prior to startup, all pipelines will be leak tested with river water.

The polymer system will be adjacent to the dewatering pad. A source of electricity and clean water will be needed to operate the make down and feed systems. During construction, the various mechanical parts of the polymer system (including pumps, tanks, flow meter, macerator, and density meter) will be installed and tested.

The Granular Activated Carbon (GAC) water treatment system will be placed adjacent to the dewatering pad. Pipelines will be constructed to connect each treatment unit. Filters will be filled with media. Carbon vessels will be loaded with carbon and rinsed to remove fines and allow the pH inside the vessels to stabilize. All treatment units will be started up and wet tested prior to startup.

1.9 Environmental Protection and Regulatory Compliance

This section summarizes the regulatory requirements applicable to the project.

1.9.1 Michigan NPDES Permit

The National Pollution Discharge Elimination (NPDES) Certificate of Coverage (No. MIG081158) was issued by the MDNRE on September 22, 2010 for the dredging activities at Ceresco. NPDES permits required for additional dredging activities will be obtained prior to start up.

1.9.2 Michigan Wetlands Protection Permits

Permit applications (Part 303 Wetlands Protection Permit, Part 301 Inland Lakes & Streams Water Quality Permit, and Part 31 Water Resources Protection Flood Plain Permit) have been submitted to date and are pending approval for the following areas:

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- 4.25 – 5.75 (dredging) submitted on June 10, 2011 (includes Oxbow 21.5R1),
- Island E (4.25) and Island F (4.50) (excavation/island removal) submitted on June 16, 2011, and
- 23.25 – 36.75 (dredging) submitted on June 20, 2011.

A permit application is currently being developed for the Morrow Lake Delta (MP 36.75 - MP 37.5).

1.9.3 Release/Spill Reporting

Any releases or spills outside the contained bermed area will be immediately communicated to the appropriate Enbridge, U.S. EPA, and MDEQ personnel.

1.10 Standard Operating Procedures

Site-specific operating procedures will be developed by experienced personnel for:

- Pipeline leak testing and systems start up,
- Fueling the dredge and other marine equipment,
- Unloading/storing, deploying and operating Geotubes®,
- WTP unit operations, including filter backwashing,
- WTP sampling and analytical testing,
- Short-term and extended systems shut down,
- Spill response, and
- Equipment decontamination and demobilization.

1.11 Preventative Maintenance

Preventative maintenance schedules and checklists will be developed for all of the mechanical equipment in use on site. Preventative maintenance will be performed in accordance with the manufacturer's recommendations and will be documented.

1.12 Demobilization and Decontamination

Following completion of dredging/dewatering activities, temporary facilities and utilities, personnel, equipment and materials will be removed from the site. Construction equipment will be decontaminated before leaving the site. Cleaning methods for equipment may include brushing and pressure washing to remove potentially contaminated material, as

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necessary. As part of decontamination efforts, all non-porous surfaces (e.g., pipes, fittings, appurtenances, pumps, vessels) that have come into contact with sediment and/or filtrate will be cleaned as follows:

- All portions of the sediment dewatering and water treatment systems will be flushed in place with river water supplied by the Amphibex dredge. Rinsing will be considered complete when at least one hour's pumping of river water has passed through the system.
- After rinsing is complete, the system will be drained and discharged to the river.
- Media from the oil absorbing and GAC vessels will be disposed off-site at an approved facility.

1.13 Post-Dredge Conditions Assessment

Upon completion of the dredging activities, a post-dredge conditions assessment will be submitted to document final post-dredge conditions. This assessment will include all qualitative and quantitative data collected during implementation. This includes poling data and core logging data. The effectiveness of the dredge removal efforts will be determined by poling results that contain none to light designations in the project footprint. This comparison results will be summarized in a Completion Report, which will be submitted to Enbridge and U.S. EPA. A running report of the pre and post assessments will be submitted to the U.S. EPA OSC on an ongoing basis as part of the daily report.

1.14 Waste Management

Waste generated during the dredging and dewatering activities will be handled accordance to the U.S. EPA approved *Waste Treatment, Transportation and Disposal Plan* (WTTD). This plan was used last construction season to complete the landfill disposal for the approximately 8,000 cubic yards of filter cake generated by the Ceresco Dam dredging project.

1.15 Project Schedule

The dredging efforts will be performed sequentially initiating with the upstream location (Ceresco Dam) to downstream (Morrow Lake). General dredging schedules have been developed and are presented in *Attachment E*. Specific dredging schedules will be developed for each area when the scope, timing and other factors (access, river conditions,

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etc.) are firm. Given the 2010 experience at Ceresco Dam, realistic detailed schedules can be prepared, and updates will be ongoing throughout the project and will be presented to the U.S. EPA and MDEQ regularly.

1.16 Completion Report

A Completion Report will be prepared and submitted to Enbridge, U.S. EPA and MDEQ upon completion of the dredging/dewatering activities (one report will be issued for the three areas). The report will include at a minimum a summary of the work performed, pre- and post-dredge condition assessment information, daily field reports, and photographic documentation.

2.0 LEGACY SITES

At the request of U.S. EPA, analytical data were compiled to assess the potential for impacts to sediment quality from legacy sites. This section summarizes the sediment sampling events in the Kalamazoo River and Morrow Lake that included the analysis of polychlorinated biphenyls (PCBs). PCBs were analyzed for and detected in sediment during the course of the Enbridge Line 6B Marshall, MI Pipeline Release project. These data were collected by Enbridge and U.S. EPA Great Lakes National Program Office (GLNPO) during monitoring and submerged oil recovery sampling events.

The sampling events are described and the analytical results are presented in the following sections.

2.1 SAMPLING EVENTS

Pursuant to the U.S. EPA Order, Enbridge has collected sediment samples for routine monitoring and to assist with submerged oil recovery assessment. Prior to the issuance of the U.S. EPA Order, the U.S. EPA GLNPO collected sediment samples to monitor sediment quality following the release. These sampling events are summarized below.

2.1.1 Routine Monitoring

Grab sediment samples were collected twice weekly and analyzed for PCBs from August 18, 2010 to October 23, 2010 as part of a routine sediment quality monitoring program. Grab samples consisted of surficial sediment, collected from approximately the top 6-inches. A

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total of 622 samples (including duplicates) were submitted to ALS-Holland and Test America Laboratories for analysis of a suite of parameters that included PCBs.

Monitoring sample locations were selected to provide initial characterization data and then subsequently, routine locations were established at approximately mile intervals in Kalamazoo River and within Morrow Lake. Targeted sample depths were 0 to 0.5-feet below sediment surface (bss).

2.1.2 Submerged Oil Recovery

A total of 20 sediment core samples were collected from Morrow Lake (delta and fan) on June 24 and 25, 2011. The core samples were characterized and depth intervals were defined for distinct profile layers based on physical properties (e.g. color, texture). Samples were collected from the defined core profile layers. A total of 79 characterization samples (including duplicates) were submitted to ALS-Holland for analysis of a suite of parameters that included PCBs.

Submerged oil recovery assessment sample locations were positioned in depositional areas in Morrow Lake and Morrow Lake Delta to target areas most likely to serve as sediment and submerged oil traps. Targeted sample depths were 0 to 2-feet bss.

2.1.3 U.S. EPA GLNPO

Sediment samples were collected by U.S. EPA GLNPO to monitor the effects of the release on sediment quality in Morrow Lake and to establish a routine monitoring program. The sediment samples were collected approximately twice weekly and analyzed for PCBs from July 30, 2010 to August 25, 2010. Sample locations were selected to provide spatial coverage and to target areas most likely to have deposition. Targeted sample depths were from 0 to 0.25-feet bss.

2.2 RESULTS

The analytical data for the sediment monitoring sampling program is presented on *Table 1* of *Attachment G*. The sample locations, frequency of detections, and maximum detected concentrations are shown on *Figure 1* of *Attachment G*. Laboratory reports containing these results were previously submitted to the agency in the *Enbridge Line 6B MP 608 Pipeline Release Marshall, Michigan. Report to U.S. EPA. Enbridge Energy* (November 27, 2010).

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The analytical data for the submerged oil recovery sampling event is presented on *Table 2* of *Attachment G*. Sample locations and the frequency of detections and maximum detected concentrations shown on *Figure 1* of *Attachment G*.

The analytical data for the U.S. EPA GLNPO monitoring program is presented on *Table 3* of *Attachment G* and summarized on *Figure 1* of *Attachment G*.

3.0 CERESCO DAM DREDGING

Work at the Ceresco Dam area is similar to the 2010 effort and will take place at the Jim Olds farm property located at 13200 12 Mile Road, in Ceresco, MI. Landside work includes the following:

- Mobilize personnel and equipment to site,
- Construct the Geotubes® header system,
- Install and operate the polymer feed system,
- Deploy and operate Geotubes®,
- Construct and operate the WTP,
- Decontaminate above-described equipment and piping, upon completion of work, and
- Demobilize personnel and equipment from site.

Marine work includes the following:

- Mobilize personnel and equipment to site,
- Construct/connect discharge piping from dredge(s) to dewatering pad,
- Remove contaminated sediment from the river utilizing a hydraulic dredge,
- Convey dredged sediment to the dewatering pad,
- Decontaminate above-described equipment upon completion of work, and
- Demobilize personnel and equipment from site.

3.1 Sequence of Work

Dredging of the Ceresco Dam site may be conducted concurrently with sediment removal operations at the other locations.

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3.1.1 Debris

It is anticipated that approximately 20,000 cubic yards of oil-impacted sediments may be removed from the Ceresco Dam site utilizing an 8-inch diameter hydraulic dredge. Large debris encountered in the dredge path will be left in place. Debris which becomes entangled in the dredge head or creates a plug in the dredge discharge pipeline will be removed and placed at the dewatering pad for disposal.

3.1.2 Water Quality Monitoring

Water quality (turbidity) downstream of the dredge will be monitored during dredging operations in accordance with the *Submerged Oil Recovery Monitoring Plan* submitted June 25, 2011. This plan provides specific provisions for turbidity monitoring, collection, and logging of sediment cores for qualitative and quantitative data, and reporting of the results. If monitoring shows excessive sediment re-suspension, operational controls will be implemented. An example of an operational control would be to deploy turbidity curtains to prevent re-suspended material from migrating downstream.

3.1.3 Conveyance

If needed to keep the dredge discharge slurry flowing at the desired velocity, booster pump station(s) will be installed in the pipeline between the dredge and the sediment dewatering pad.

3.2 Chemical Conditioning

Dredge slurry will be pumped to the sediment dewatering pad via the dredge discharge pipeline. At the dewatering pad, the dredge slurry will be conditioned with polymer to promote flocculation and separation of solid material from the carriage water. Operators will determine the optimal dose of polymer by observing the dredge slurry and performing jar tests. The desired dosage rate will be entered into the polymer feed controls system, which will adjust the output of the polymer feed pump(s) based upon real-time measurements of dredge flow and density.

3.3 Dewatering of Sediment

Sediment dredged from the vicinity of the dredged area will be pumped to Geotextile tubes (Geotubes®) for dewatering, situated on a dewatering pad located in the soil handling area. The proposed dewatering pad is approximately 360-feet by 200-feet. The dewatering pad will be constructed by compaction of the existing soil base, installation of an impermeable

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liner, and placing a layer of drainage aggregate as a working surface. One Geotube®, for each 1,500 cubic yards that require removal will be delivered to the site to facilitate the dewatering process. A geocomposite may potentially be substituted for the aggregate and used as the working surface.

3.3.1 Geotube® Operations

Geotubes® will be factory rolled and delivered to the site on flatbed trucks. Geotubes® will be individually wrapped and labeled for length and direction of unroll. Forklifts and/or All-Terrain Vehicles (ATVs) will be used to deploy the Geotubes® in the dewatering pad. Site personnel will inspect the unrolled Geotubes® for evidence of damage prior to its intended use.

The dredged sediment will consist of an approximate 8% slurry mixture. The mixture is pumped into a header pipe then distributed into a manifold system with valves to direct the flow of the slurry into non-woven textile tubes, also referenced as Geotubes®. This system utilizes a flocculent to settle out the solids while a pump is connected to the other end to aid in the removal of water. The material safety data sheet for the flocculent will be provided prior to project commencement. Once a Geotube® is full, flow is diverted to another Geotube® while the full Geotube® dewaters. The Geotubes® will go through “fill and rest” cycles until it reaches its full capacity as per the manufacture’s specifications. Operators will continuously monitor the Geotubes® during filling and will also monitor shrinkage in Geotubes® prior to fill cycles to evaluate the remaining capacity of each Geotube®.

Once the Geotube® is full of sediment and dewatering is sufficient, it will be cut open to allow an excavator to place the sediment into an appropriate transportation container. Depending on the nature of the sediment, the material will either be directed to an appropriate landfill for disposal or be taken to Frac Tank City for appropriate solidification prior to being sent offsite for disposal.

Prior to the dewatered sediment being removed for disposal, waste characterization will be required. Sediment waste characterization of each Geotube® will be determined by dividing each Geotube® into four quadrants based on the actual dimensions of the Geotube® (200--foot long and 60-foot in circumference). Composite sediment samples will be collected from each quadrant by collecting sediment from four unique locations in the quadrant utilizing an excavator bucket. A total of four composite samples per Geotube® will be collected and submitted to ALS, Holland, MI, for chemical analyses. The complete analyte list is summarized below and will include percentage solids composition.

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- Toxicity Characteristics Leachate Procedure (TCLP) metals,
- TCLP Volatile Organic Compound (VOC),
- TCLP Semi-VOC,
- Paint filter test for free liquids,
- pH,
- Polychlorinated Biphenyls (PCBs),
- Flashpoint,
- Total Petroleum Hydrocarbon Diesel Range Organics- Gasoline Range Organics (TPH DRO-GRO),
- Oil & Grease,
- Percent solids, and
- Analyte criteria for solidification versus disposal at landfill.

3.3.2 Containment and Collection of Weep Water

The dewatering pad will be designed with a berm to contain water. It will also be designed to slope towards a 30-foot by 65-foot by 5-foot deep sump which represents approximately 72,935 gallons of capacity (one hour of water treatment system capacity). The water drained to the dewatering pad (i.e., weep water), along with storm water, will be collected in this sump and treated in an on-site temporary water treatment plant. The containment area pad with the associated berm will allow for a containment capacity of approximately 400,000 gallons which can used for storage should the dredging operation produce more water than the system is capable of handling. The water treatment system can then be operated beyond the timeframe of the day's dredging activities should it be needed to treat the water from that day's dredging work.

3.3.3 Water Treatment and Discharge

Water collected in the sump will be pumped to a water treatment system which includes bag filters with oil grabbing bags, oil absorbing pressure vessels (i.e., organoclay cans), and GAC vessels. The treatment system will be sized to meet the discharge requirements of <20 parts per billion (ppb) of total benzene, toluene, ethyl benzene, and xylene (BTEX). The water treatment contractor will provide a licensed Wastewater Treatment Operator and treatment system operators to assure that the discharge requirements are met as per the NPDES permit as follows:

- Total benzene, toluene, ethyl benzene, and xylene (BTEX) - 20 ug/l,

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- Dissolved oxygen (DO) - 4.0 mg/l, and
- pH 6.5 to 9 S.U.

The anticipated flow rate is to between 1,500 and 2,000 gallons per minute (gpm) with a maximum capacity of 2,250 gpm. This flow rate can be adjusted manually based on the level of water within the dewatering pad and the efficiency of the downstream equipment.

There are two bag filters arranged in parallel, which utilize fabric filters to physically separate solids and oil from the stream of water. The effluent from the bag filters is passed through a vessel filled with organoclay, which removes additional oil from the water stream. The two oil-absorbing vessels are piped in series (lead-lag). The bag filters and organoclay cans act as a buffer for the GAC vessels, intercepting contaminants that would otherwise foul the GAC filter media and shorten their service life.

The GAC vessels will provide tertiary water treatment prior to discharge back to the Kalamazoo River. Two GAC vessels are piped in series (lead-lag) for a single treatment train. Each vessel contains 10,000 pounds of GAC and the series of two vessels is designed to treat 750 gpm. Three treatment trains identified as A, B, and C are connected to operate in parallel to treat between 1,500 and 2,000 gpm with a maximum capacity of 2,250 gpm. The differential pressure across the GAC vessels is monitored for signs of plugging and/or physical fouling due to suspended solids and/or biological growth. Backwash of the bed is initiated when the differential pressure across the vessel reaches 15 pounds per square inch, or twice that of a clean bed. The backwash water will be returned to the sump for treatment and ultimate discharge.

This treatment plant will discharge treated water back to the Kalamazoo River and operate under a NPDES Certificate of Coverage (No. MIG081158) issued by MDEQ. Treated water will be continuously discharged in accordance with the NPDES permit. Effluent will be discharged into the Kalamazoo River using a vertical riser pipe with a dispersion cap. The discharge pipe and vertical riser will be mounted to a floating dock approximately 40-feet from shore. The discharge point will be monitored at least three times per week to confirm no riverbed erosion is occurring. In the event that allowable levels in the NPDES permit are exceeded, the dredging, dewatering, and filtration systems will be turned off while the cause of the exceedances is investigated and corrective actions are taken.

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Additional discharge and treatment system monitoring will be required and directed on an as needed basis by the lead U.S. EPA Field On Scene Coordinator (FOSC) for the Dredging Operations.

An odor-masking agent will be procured and used on-site to ameliorate potential odor issues associated with materials handling. The Material Safety Data Sheet (MSDS) for this product will be submitted to the U.S. EPA FOSC for this project for approval prior to initiation of its use.

4.0 KALAMAZOO RIVER DAM DREDGING

Proposed work at the Battle Creek Culverts/Kalamazoo River Dam area is outlined below. Specific parcels for landside work are yet to be determined.

A mechanical dry dredge technique may be used if an appropriate laydown area cannot be located and configured properly for Geotube® dewatering. This removal technique is also appropriate for smaller removal volumes capable of being managed in roll-off containers staged near the overbank.

4.1 Sequence of Work

As noted above for Ceresco Dam, dredging of the Battle Creek Culverts/Kalamazoo River Dam site may be conducted concurrently with sediment removal operations at the other locations.

4.2 Dredging

It is estimated that 4,900 cubic yards of oil-impacted sediments will be removed from the Battle Creek Culverts/Kalamazoo River Dam site utilizing an 8-inch diameter hydraulic dredge, or amphibious Marsh Buggy excavator dredge. Dredging is expected to be completed within 45 days, based upon a target dredge production rate of 150-240 cubic yards per day and 80% up-time efficiency.

4.2.1 Debris

Large debris encountered in the dredge path will be left in place. Debris which becomes entangled in the dredge head or creates a plug in the dredge discharge pipeline will be removed and disposed of at the dewatering pad.

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4.2.2 Water Quality Monitoring

Water quality (turbidity) downstream of the dredge will be monitored during dredging operations in accordance with the *Submerged Oil Recovery Monitoring Plan* submitted June 25, 2011. This plan provides specific provisions for turbidity monitoring, collection, and logging of sediment cores for qualitative and quantitative data, and reporting of the results. If monitoring shows excessive sediment re-suspension, operational controls will be implemented. An example of an operational control would be to deploy turbidity curtains to prevent re-suspended material from migrating downstream.

4.2.3 Conveyance

If needed to keep the dredge discharge slurry flowing at the desired velocity, booster pump station(s) will be installed in the pipeline between the dredge and the sediment dewatering pad. If an amphibious Marsh Buggy mechanical excavator is used a hopper equipped with a conveyance pump will be staged near the work area for use by the operator. The dredge spoils removed by the bucket will be placed by the operator in the hopper for conveyance to the landside dewatering pad. If an appropriate landside dewatering pad cannot be located and configured properly, dredge spoils will not be conveyed hydraulically. The operator will place the dredge spoils in a roll-off box staged near the overbank.

4.3 Chemical Conditioning

Dredge slurry will be pumped to the sediment dewatering pad via the dredge discharge pipeline. At the dewatering pad, the dredge slurry will be conditioned with polymer to promote flocculation and separation of solid material from the carriage water. Operators will determine the optimal dose of polymer by observing the dredge slurry and performing jar tests. The desired dosage rate will be entered into the polymer feed controls system, which will adjust the output of the polymer feed pump(s) based upon real-time measurements of dredge flow and density.

4.4 Dewatering of Sediment

Hydraulically dredged sediment from the vicinity of the dredged area will be pumped to Geotubes® for dewatering, situated on a dewatering pad located in the soil handling area. The proposed dewatering pad is approximately 360-feet by 200-feet. The dewatering pad will be constructed by compaction of the existing soil base, installation of an impermeable liner, and placing a layer of drainage aggregate as a working surface. Approximately 12 Geotubes® will be delivered to the site to facilitate the dewatering process. A geocomposite

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may potentially be substituted for the aggregate and used as the working surface. Sediment removed mechanically will dewater in the roll-off box staged near the overbank.

4.4.1 Geotube® Operations

The dredged sediment will consist of an approximate 8% slurry mixture. The mixture is pumped into a header pipe then distributed into a manifold system with valves to direct the flow of the slurry into non-woven textile tubes, also referenced as Geotubes®. This system, location to be determined, utilizes a flocculent to settle out the solids while a pump is connected to the other end to aid in the removal of water. The material safety data sheet for the flocculent will be submitted to the U.S. EPA FOSC for this project for approval prior to initiation of its use. Once a Geotube® is full, flow is diverted to another Geotubes® while the full Geotube® dewaters. The Geotubes® will go through "fill and rest" cycles until it reaches its full capacity as per the manufacture's specifications. Operators will continuously monitor the Geotubes® during filling and will also monitor shrinkage in Geotubes® prior to fill cycles to evaluate the remaining capacity of each Geotube®.

Once the Geotube® is full of sediment and dewatering is sufficient, it will be cut open to allow an excavator to place the sediment into an appropriate transportation container. Depending on the nature of the sediment, the material will either be directed to an appropriate landfill for disposal or be taken to Frac Tank City for appropriate solidification prior to being sent offsite for disposal.

Prior to the dewatered sediment being removed for disposal, waste characterization will be required. Sediment waste characterization of each Geotube® will be determined by dividing each Geotube® into four quadrants based on the actual dimensions of the Geotube® (200-foot long and 60-foot in circumference). Composite sediment samples will be collected from each quadrant by collecting sediment from four unique locations in the quadrant utilizing an excavator bucket. A total of four composite samples per Geotube® will be collected and submitted to ALS, Holland, MI for chemical analyses.

5.0 MORROW LAKE DELTA DREDGING

Proposed work at the Morrow Lake Delta area is outlined below. Specific parcels for staging and other logistical aspects for this site are still under review. Landside work to be performed includes:

- Mobilize personnel and equipment to site,

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- Construct the Geotubes® header system,
- Install the polymer feed system,
- Deploy and operate Geotubes®,
- Operate the polymer feed system,
- Construct and operate the WTP,
- Decontaminate above-described equipment and piping, upon completion of work, and
- Demobilize personnel and equipment from site.

Marine work to be performed includes:

- Mobilize personnel and equipment to site,
- Construct/connect discharge piping from dredge(s) to dewatering pad,
- Remove contaminated sediment from the Morrow Lake Delta utilizing a hydraulic dredge,
- Convey dredged sediment to the dewatering pad,
- Decontaminate above-described equipment upon completion of work, and
- Demobilize personnel and equipment from site.

5.1 Sequence of Work

Dredging of the Morrow Lake Delta area may be conducted concurrently with sediment removal operations at the other locations if they are also proceeding.

5.2 Dredging

Up to approximately 16,300 cubic yards of oil-impacted sediments may be removed from the Morrow Lake Delta utilizing an 8-inch diameter hydraulic dredge(s). This volume assumes a six inch cut over approximately 10 acres, the footprint of Delta Z. Dredging is expected to be completed within 45 days, based upon a target dredge production rate of 480 cubic yards per day and 80% up-time efficiency.

5.2.1 Debris

Large debris encountered in the dredge path will be left in place. Debris which becomes entangled in the dredge head or creates a plug in the dredge discharge pipeline will be removed and disposed of at the dewatering pad.

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5.2.2 Water Quality Monitoring

Water quality (turbidity) downstream of the dredge will be monitored during dredging operations in accordance with the *Submerged Oil Recovery Monitoring Plan* submitted June 25, 2011. This plan provides specific provisions for turbidity monitoring, collection, and logging of sediment cores for qualitative and quantitative data, and reporting of the results. If monitoring shows excessive sediment re-suspension, operational controls will be implemented. An example of an operational control would be to deploy turbidity curtains to prevent re-suspended material from migrating downstream.

5.2.3 Conveyance

If needed to keep the dredge discharge slurry flowing at the desired velocity, booster pump station(s) will be installed in the pipeline between the dredge and the sediment dewatering pad.

5.3 Chemical Conditioning

Dredge slurry will be pumped to the sediment dewatering pad via the dredge discharge pipeline. At the dewatering pad, the dredge slurry will be conditioned with polymer to promote flocculation and separation of solid material from the carriage water. Operators will determine the optimal dose of polymer by observing the dredge slurry and performing jar tests. The desired dosage rate will be entered into the polymer feed controls system, which will adjust the output of the polymer feed pump(s) based upon real-time measurements of dredge flow and density.

5.4 Dewatering of Sediment

Sediment dredged from the vicinity of the dredged area will be pumped to Geotubes® for dewatering, situated on a dewatering pad located in the soil handling area. The proposed dewatering pad is approximately 360-feet by 200-feet. The dewatering pad will be constructed by compaction of the existing soil base, installation of an impermeable liner, and placing a layer of drainage aggregate as a working surface. Approximately 12 Geotubes® will be delivered to the site to facilitate the dewatering process. However, based on the larger volume of dredging needed at this location, it is possible that additional Geotubes® will be needed. If the site conditions require additional Geotubes®, they will be stacked. A geocomposite may potentially be substituted for the aggregate and used as the working surface.

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5.4.1 Geotube® Operations

The dredged sediment will consist of an approximate 8 % slurry mixture. The mixture is pumped into a header pipe then distributed into a manifold system with valves to direct the flow of the slurry into non-woven textile tubes, also referenced as Geotubes®. This system, utilizes a flocculent to settle out the solids while a pump is connected to the other end to aid in the removal of water. The material safety data sheet for the flocculent will be submitted to the U.S. EPA FOSC for this project for approval prior to initiation of its use. Once a Geotube® is full, flow is diverted to another Geotube® while the full Geotube® dewaters. The Geotubes® will go through "fill and rest" cycles until it reaches its full capacity as per the manufacture's specifications. Operators will continuously monitor the Geotubes® during filling and will also monitor shrinkage in Geotubes® prior to fill cycles to evaluate the remaining capacity of each Geotube®.

Once the Geotube® is full of sediment and dewatering is sufficient, it will be cut open to allow an excavator to place the sediment into an appropriate transportation container. Depending on the nature of the sediment, the material will either be directed to an appropriate landfill for disposal or be taken to FTC for appropriate solidification prior to being sent offsite for disposal.

Prior to the dewatered sediment being removed for disposal, waste characterization will be required. Sediment waste characterization of each Geotube® will be determined by dividing each Geotube® into four quadrants based on the actual dimensions of the Geotube® (200 -foot long and 60 -foot in circumference). Composite sediment samples will be collected from each quadrant by collecting sediment from four unique locations in the quadrant utilizing an excavator bucket. A total of four composite samples per Geotube® will be collected and submitted to ALS Laboratories, Holland, MI, for chemical analyses.

5.4.2 Containment and Collection of Weep Water

The dewatering pad will be designed with a berm to contain water. It will also be designed to slope towards a sump appropriately sized to handle water treatment capacity. The water drained to the dewatering pad (i.e., weep water), along with storm water, will be collected in this sump and treated in an on-site temporary water treatment plant. The containment area pad with the associated berm will allow for a containment capacity of approximately 400,000 gallons which can used for storage should the dredging operation produce more water than the system is capable of handling. The water treatment system can then be operated

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beyond the timeframe of the day's dredging activities should it be needed to treat the water from that day's dredging work.

5.4.3 Water Treatment and Discharge

Water collected in the sump will be pumped to a water treatment system which includes bag filters with oil grabbing bags, oil absorbing pressure vessels (i.e., organoclay cans), and GAC vessels. The treatment system will be sized to meet the discharge requirements of <20 ppb of total BTEX. The water treatment contractor will provide a licensed Wastewater Treatment Operator and treatment system operators to assure that the discharge requirements are met as per the NPDES permit as follows:

- Total BTEX - 20 ug/l,
- DO - 4.0 mg/l, and
- pH 6.5 to 9 S.U.

The anticipated flow rate is to between 1,500 and 2,000 gallons per minute (gpm) with a maximum capacity of 2,250 gpm. This flow rate can be adjusted manually based on the level of water within the dewatering pad and the efficiency of the downstream equipment.

There are two bag filters arranged in parallel, which utilize fabric filters to physically separate solids and oil from the stream of water. The effluent from the bag filters is passed through a vessel filled with organoclay, which removes additional oil from the water stream. The two oil-absorbing vessels are piped in series (lead-lag). The bag filters and organoclay cans act as a buffer for the GAC vessels, intercepting contaminants that would otherwise foul the GAC filter media and shorten their service life.

The GAC vessels will provide tertiary water treatment prior to discharge back to the Kalamazoo River. Two GAC vessels are piped in series (lead-lag) for a single treatment train. Each vessel contains 10,000 pounds of GAC and the series of two vessels is designed to treat 750 gpm. Three treatment trains identified as A, B, and C are connected to operate in parallel to treat between 1,500 and 2,000 gpm with a maximum capacity of 2,250 gpm. The differential pressure across the GAC vessels is monitored for signs of plugging and/or physical fouling due to suspended solids and/or biological growth. Backwash of the bed is initiated when the differential pressure across the vessel reaches 15 pounds per square inch, or twice that of a clean bed. The backwash water will be returned to the sump for treatment and ultimate discharge.

US EPA ARCHIVE DOCUMENT

This treatment plant will discharge treated water back to the Kalamazoo River and operate under a NPDES Certificate of Coverage. Treated water will be continuously discharged in accordance with the NPDES permit. Effluent will be discharged into the Kalamazoo River using a vertical riser pipe with a dispersion cap. The discharge pipe and vertical riser will be mounted to a floating dock approximately 40-feet from shore. The discharge point will be monitored at least three times per week to confirm no riverbed erosion is occurring. In the event that allowable levels in the NPDES permit are exceeded, the dredging, dewatering, and filtration systems will be turned off while the cause of the exceedances is investigated and corrective actions are taken.

Additional discharge and treatment system monitoring will be required and directed on an as needed basis by the lead U.S. EPA FOSC for the Dredging Operations.

An odor-masking agent will be procured and used on-site to ameliorate potential odor issues associated with materials handling. The MSDS for this product will be submitted to the U.S. EPA FOSC for this project for approval prior to initiation of its use.

6.0 FIELD AND OFFICE QUALITY ASSURANCE/QUALITY CONTROL

An Enbridge Operations Inspector (OI) who is responsible for the team's location and execution will oversee dredging activities. The Enbridge Environmental Inspector (EI) leads the production of field and photo documentation. In a combined effort, both the OI and EI are responsible for the progress of the dredge areas to achieve end points.

6.1 Final Inspections

Final inspections are initiated by the Final Enbridge Operations Inspector (FI), as recommended by the OI and EIs and the clean up team including the agencies. The inspections proceed through the OI and the EI who is responsible for documenting the oil recovery operations through Daily Progress Reports (*Attachment D*) and the Field Activity Logs (*Attachment F*) and photos. After the site has achieved agreed endpoints (presumed to be poling results of light to none) the Oil Removal Field Activity Log will be signed by Enbridge and the agencies. If the site does not achieve clearance, appropriate response actions will resume and continue again through clearance until the defined end points have been achieved.

US EPA ARCHIVE DOCUMENT

7.0 CONTINGENCIES

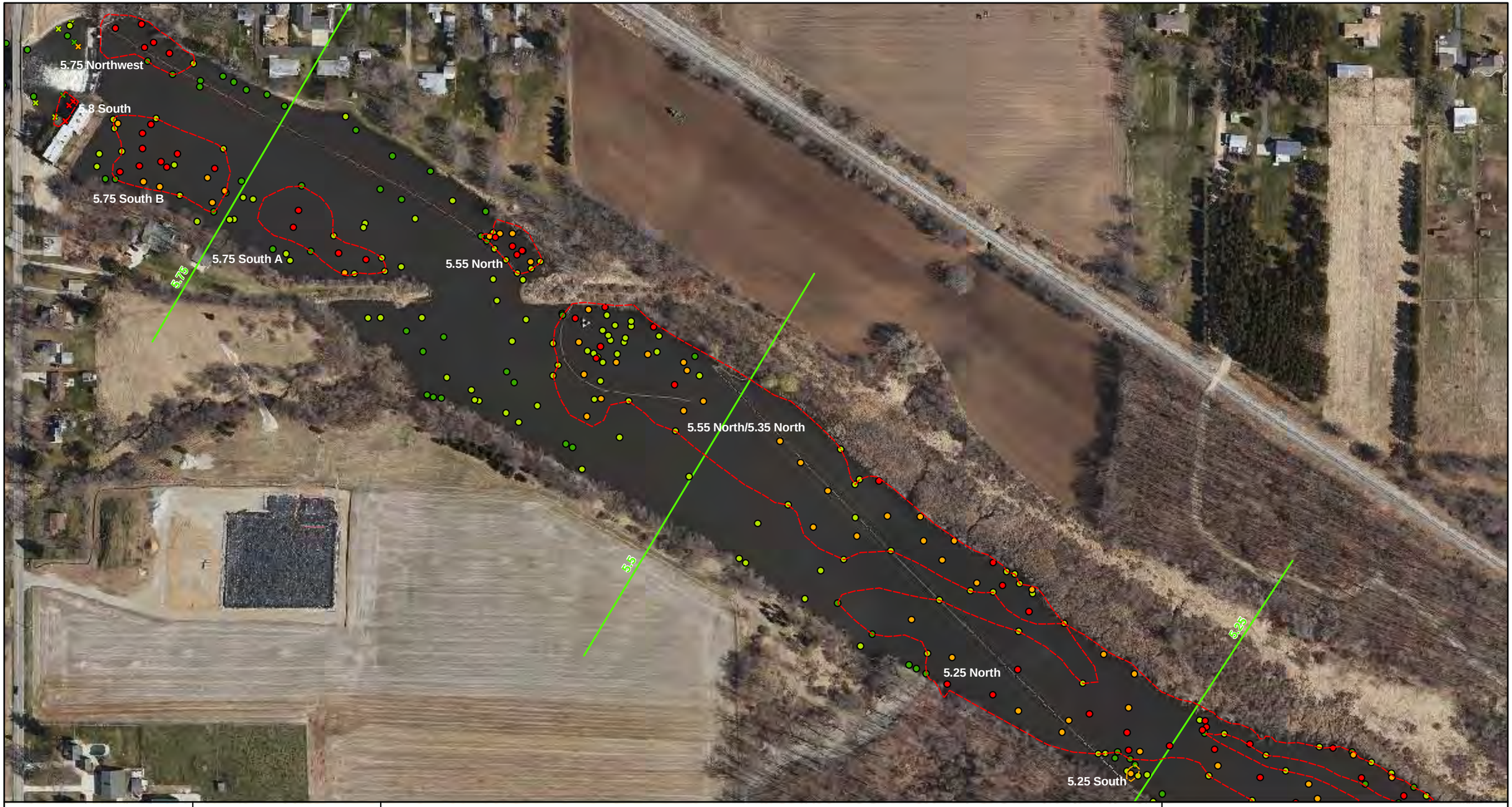
This work plan presents a strategy to implement dredging operations at three major depositional areas in the river system. Adverse weather or river conditions may delay or impact the efficiency and timing of oil recovery efforts. As well, other key constraints that may impact implementation or schedule aspects include land access or other logistical constraints. Notably, riparian landowners in the Morrow Lake Delta have expressed concerns regarding mobilization of legacy contaminants, and additionally have not provided the required approvals and property access to implement the work. Within actual dredge activities, target areas may require further response methods based on site conditions encountered during operations. The projects may experience schedule creep if dredging volumes increase due to greater quantities of submerged oil than anticipated. Enbridge intends to continue the use of tool box techniques in conjunction with dredging to achieve schedule compression or reduce dredge volumes requiring disposal. As new situations arise, Enbridge will swiftly react, in consultation with the U.S. EPA and MDEQ, to develop a response strategy to achieve the necessary end points.

US EPA ARCHIVE DOCUMENT

US EPA ARCHIVE DOCUMENT

Attachment A

July 2011 Poling Results



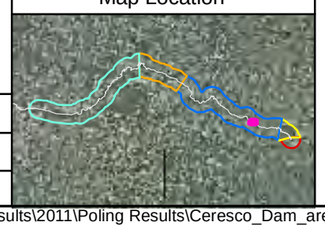
ENBRIDGE

Drawn: BRS 07/10/2011

Approved: DBR 07/10/2011

Project #: 106-4186

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

Quarter Mile Grid Segment

N

0 75 150 300
Scale in Feet

POLING ASSESSMENT RESULTS
THROUGH 6/20/11

Ceresco Dam Area

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

H:\ArcMap Project Files\Qualitative Results\2011\Poling Results\Ceresco_Dam_area.mxd

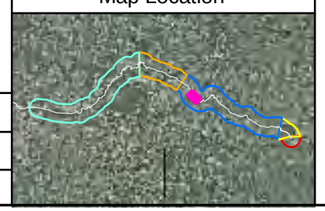
Aerial Photography Date: April 2011

US EPA ARCHIVE DOCUMENT

ENBRIDGE

Drawn:	BRS 07/08/2011
Approved:	DBR 07/08/2011
Project #:	106-4186

Map Location



Legend

Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

Quarter Mile Grid Segment

N

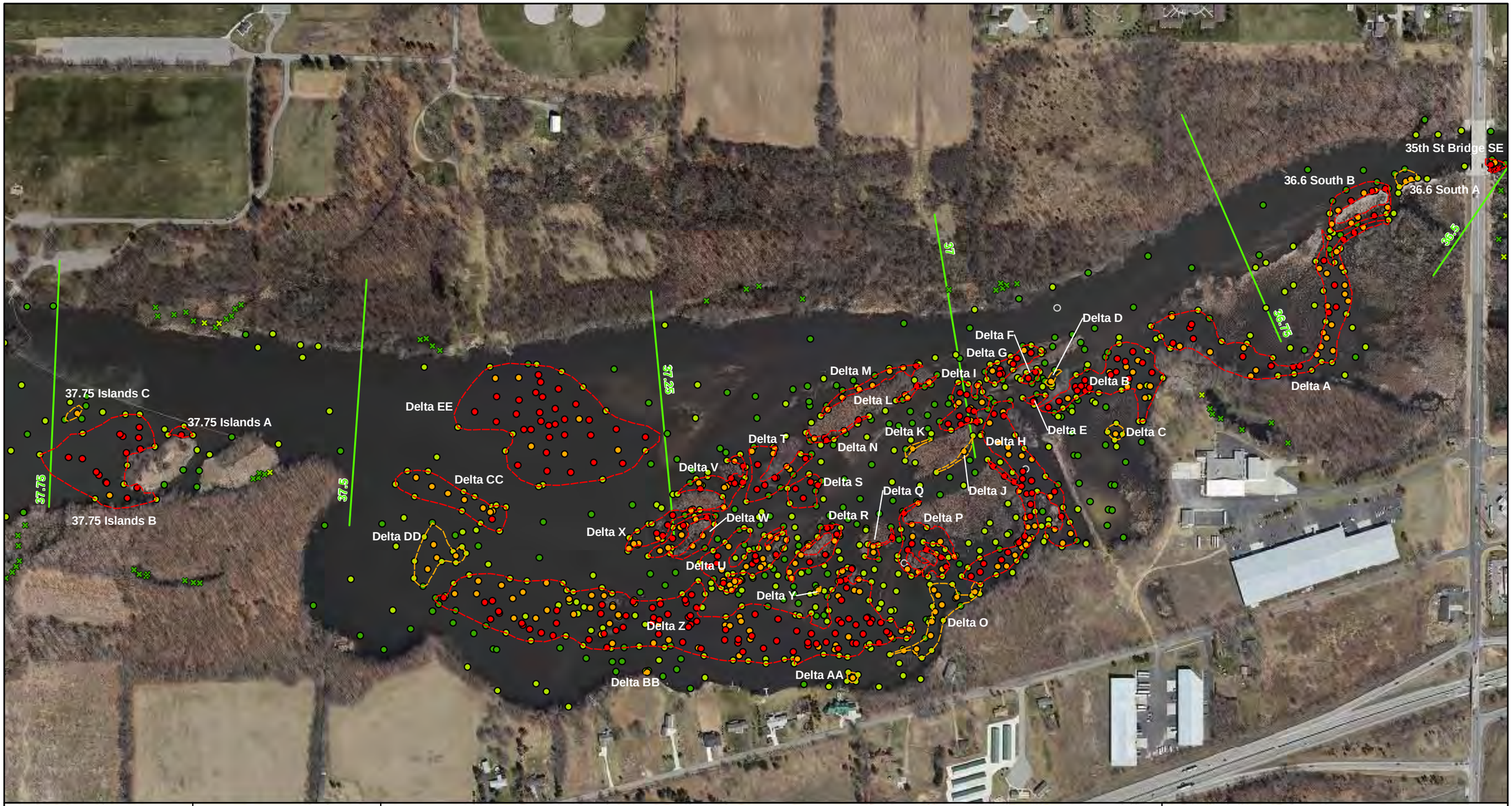
0 150 300 600
Scale in Feet

POLING RESULTS
THROUGH JULY 7, 2011

MP 14.2 to Kalamazoo River Dam

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Aerial Photography Date: April 2011



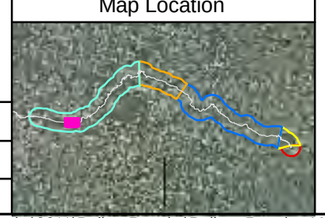
ENBRIDGE

Drawn: BRS 06/15/2011

Approved: DBR 06/15/2011

Project #: 106-4186

Map Location



Legend

SOTF Submerged Oil Category
- Heavy
- Moderate
- Light
- None
- N/A

STRIKE Submerged Oil Category
- Heavy
- Moderate
- Light
- None

SOTF Delineation Areas
- Heavy
- Moderate

STRIKE Delineation Areas
- Heavy
- Moderate

Quarter Mile Grid Segment

N

0 200 400 800

Scale in Feet

POLING ASSESSMENT RESULTS
THROUGH 6/14/11

Morrow Lake Delta

ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

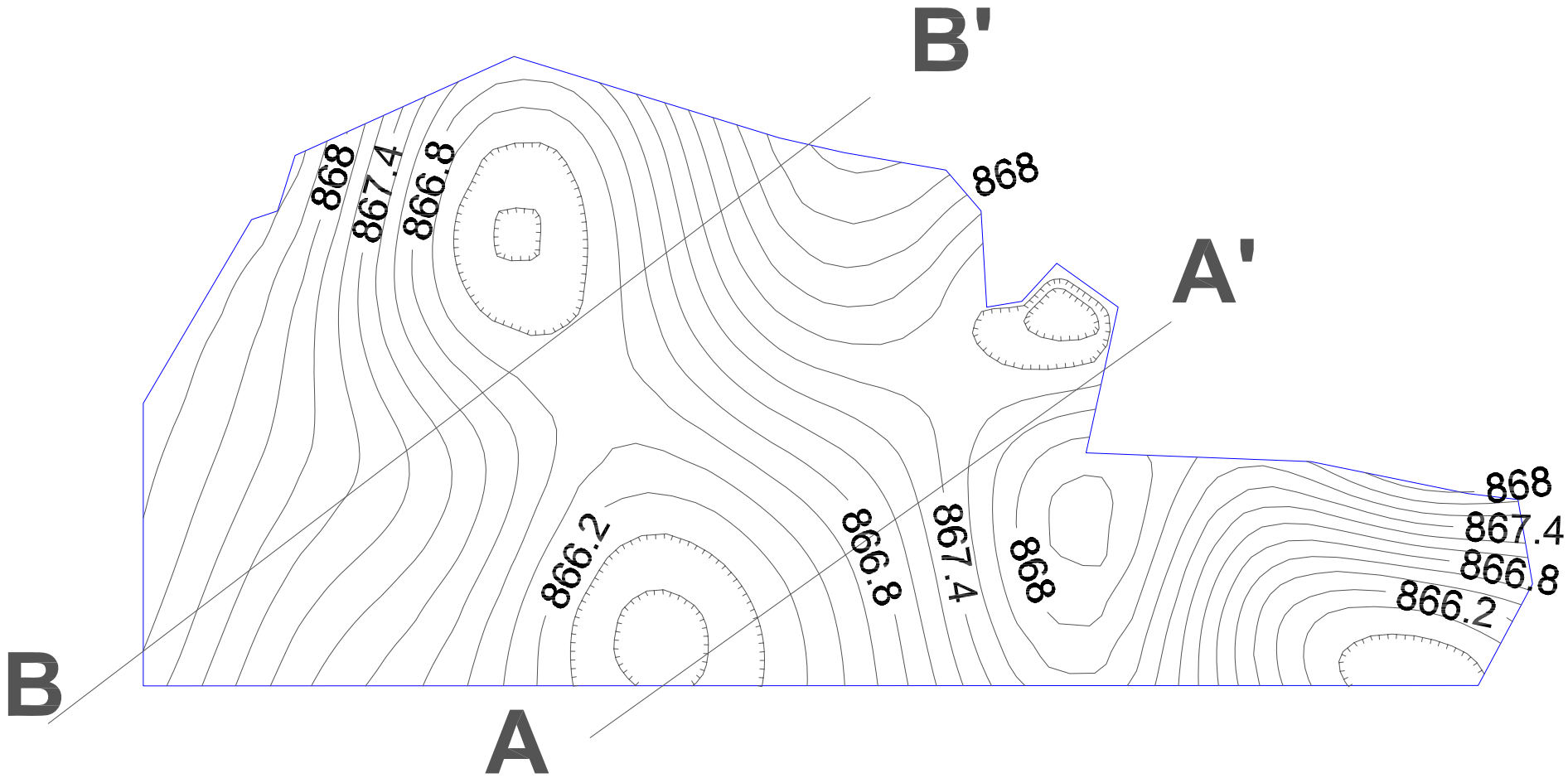
H:\ArcMap Project Files\Qualitative Results\2011\Poling Results\Poling_Results_Morrow_Lake.mxd

Aerial Photography Date: April 2011

US EPA ARCHIVE DOCUMENT

Attachment B

Examples of Bathymetry Mapping from 2010 Ceresco Dam Dredging



TETRA TECH

Bathymetry Map
Pre-Dredge Elevation
Ceresco Dam - 5.75 NW
Submerged Oil Task Force
Calahoun County, MI
November 3, 2010

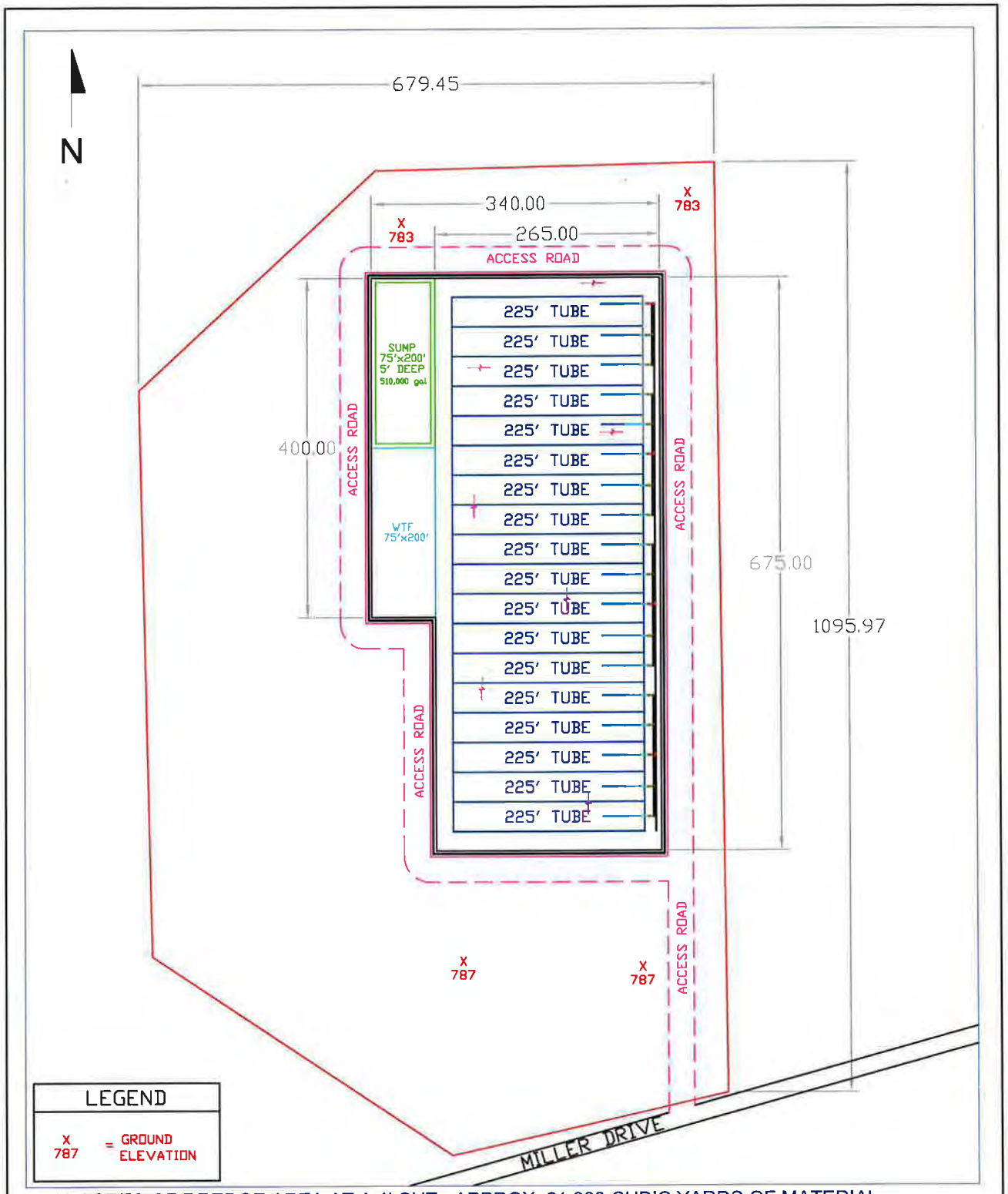
N

Countours Created on Surfer using the Kriging Meathod
Scale 1" = 20'
Created by: L. Hejnal

US EPA ARCHIVE DOCUMENT

Attachment C

Dewatering Pad Prototypes



13 ACRES OF DREDGE AREA AT A 1' CUT= APPROX. 21,000 CUBIC YARDS OF MATERIAL
13 ACRES OF DREDGE AREA AT A 1.5' CUT= APPROX. 30,000 CUBIC YARDS OF MATERIAL

THE TUBE CONFIGURATION SHOWN CONTAINS APPROXIMATELY 28,000 CUBIC YARDS OF MATERIAL.

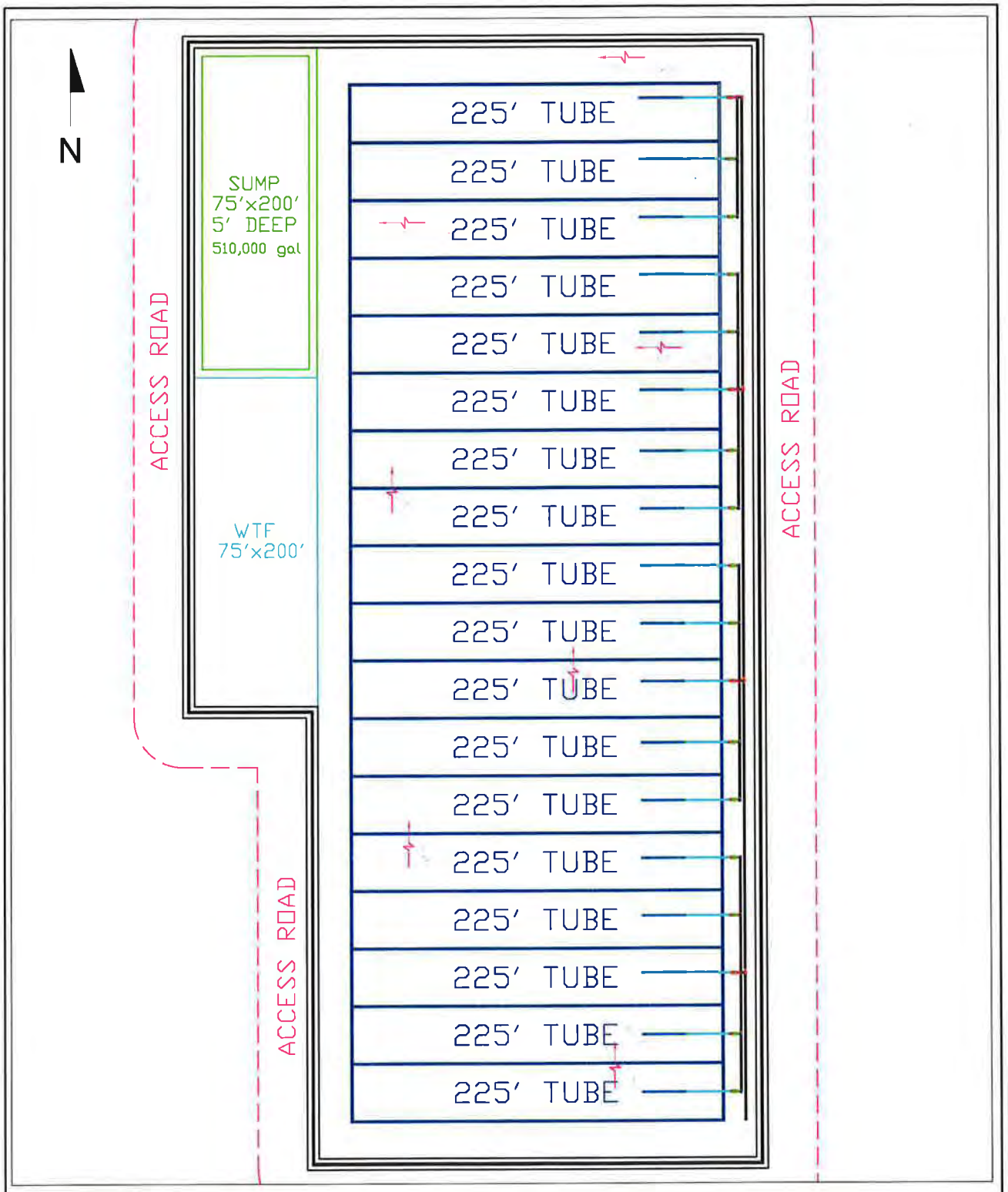
THE LAYDOWN PAD CAN BE EXPANDED TO INCORPORATE MORE OF THE FARM FIELD CREATING EXTRA CAPACITY FOR ANY EXTRA YARDAGE.

DRAFT COPY- NOT FOR CONSTRUCTION

TETRA TECH
GALESBURG, MICHIGAN
MORROW LAKE DELTA

GEOTEXTILE LAYDOWN PAD

INFRASTRUCTURE ALTERNATIVES



13 ACRES OF DREDGE AREA AT A 1' CUT= APPROX. 21,000 CUBIC YARDS OF MATERIAL
13 ACRES OF DREDGE AREA AT A 1.5' CUT= APPROX. 30,000 CUBIC YARDS OF MATERIAL

THE TUBE CONFIGURATION SHOWN CONTAINS APPROXIMATELY 28,000 CUBIC YARDS OF MATERIAL.

THE LAYDOWN PAD CAN BE EXPANDED TO INCORPORATE MORE OF THE FARM FIELD CREATING EXTRA CAPACITY FOR ANY EXTRA YARDAGE.

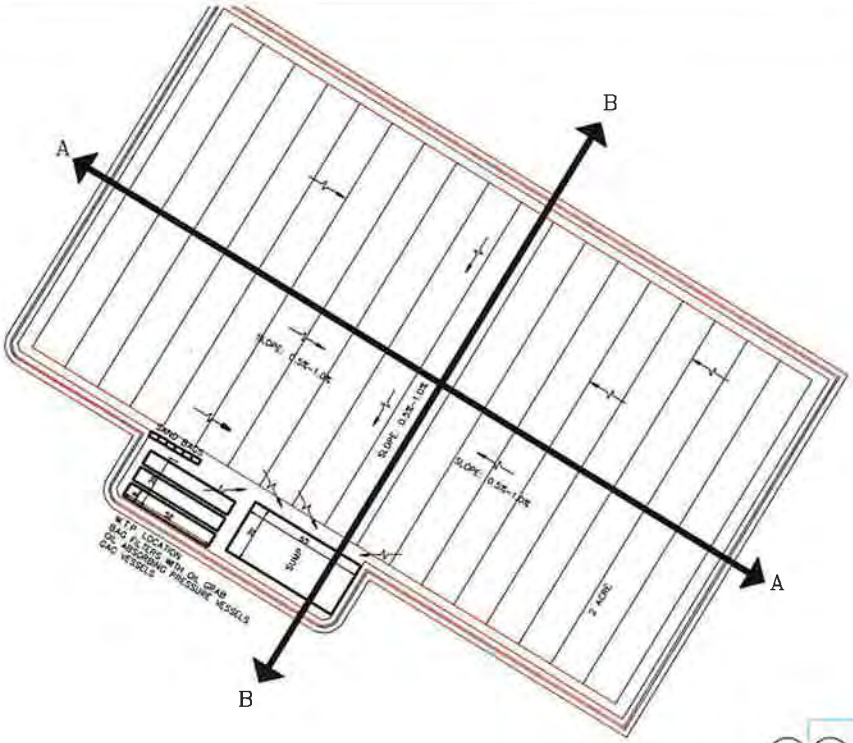
DRAFT COPY- NOT FOR CONSTRUCTION

2

TETRA TECH
GALESBURG, MICHIGAN
MORROW LAKE DELTA

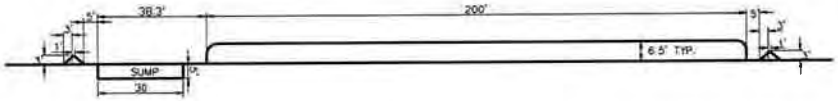
GEOTEXTILE LAYDOWN PAD–CLOSEUP

INFRASTRUCTURE ALTERNATIVES

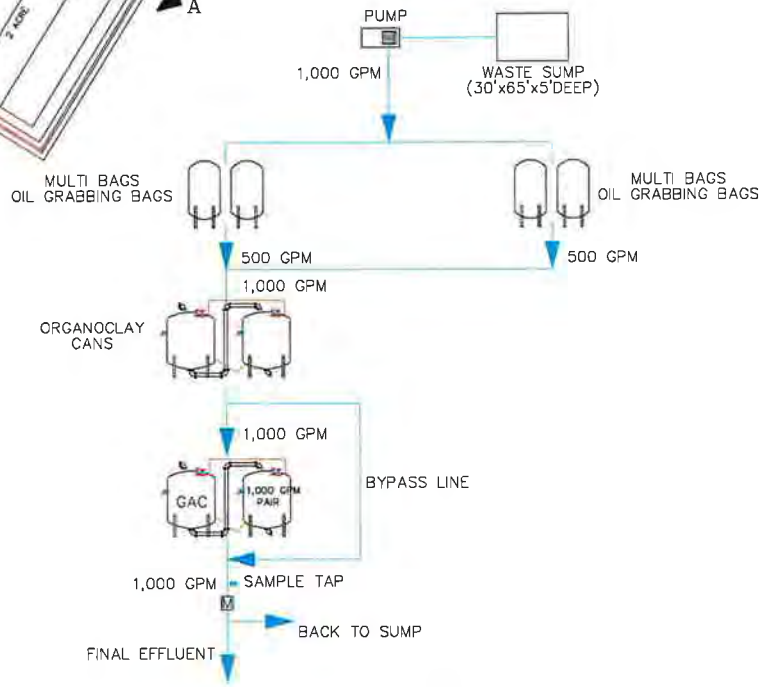


PROPOSED LAYDOWN AREA

SECTION A–A



SECTION B–B



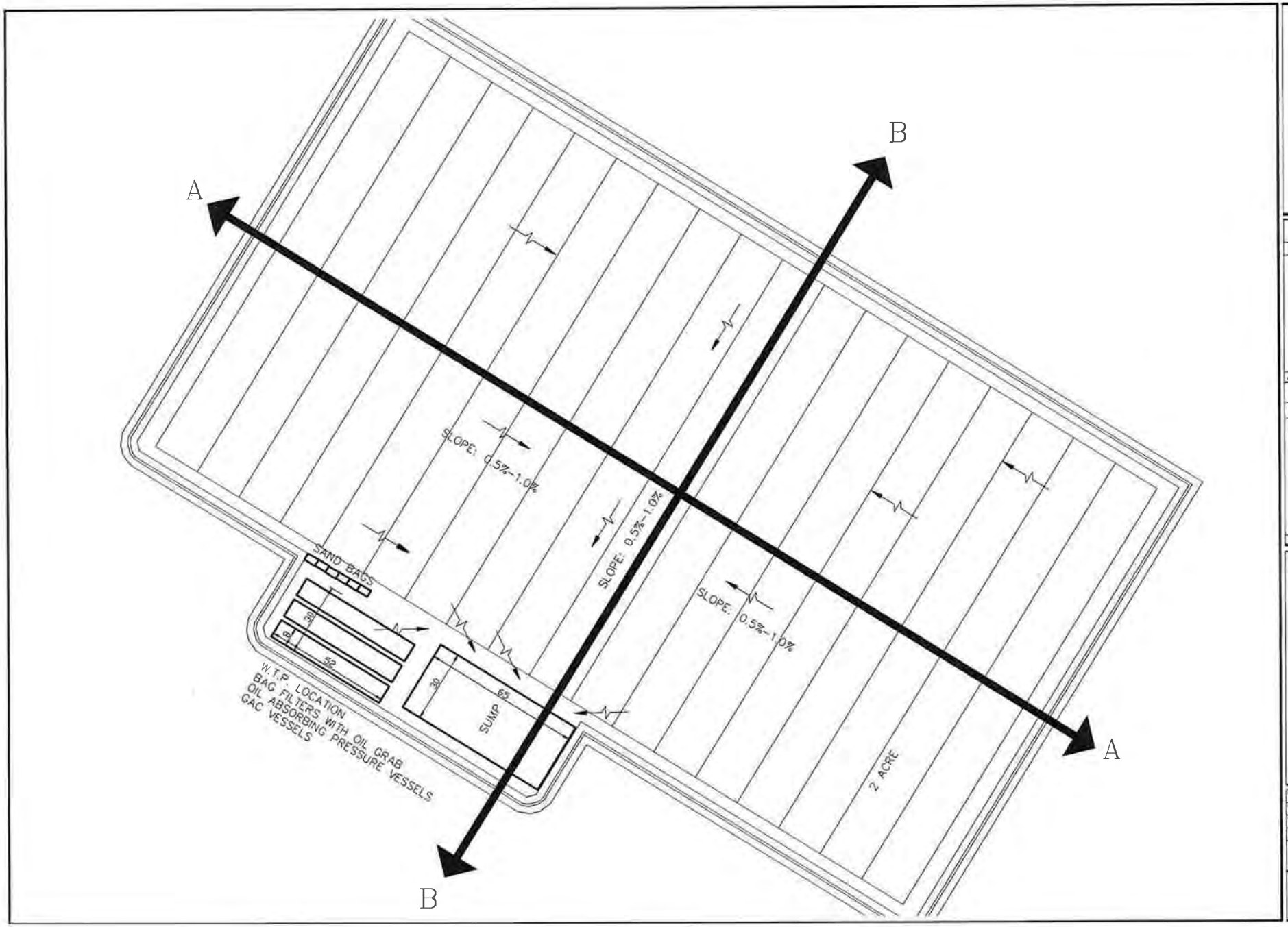
PROPOSED MASS BALANCE

INFRASTRUCTURE ALTERNATIVES

Kalamazoo River

PROPOSED LAYDOWN AREA

1

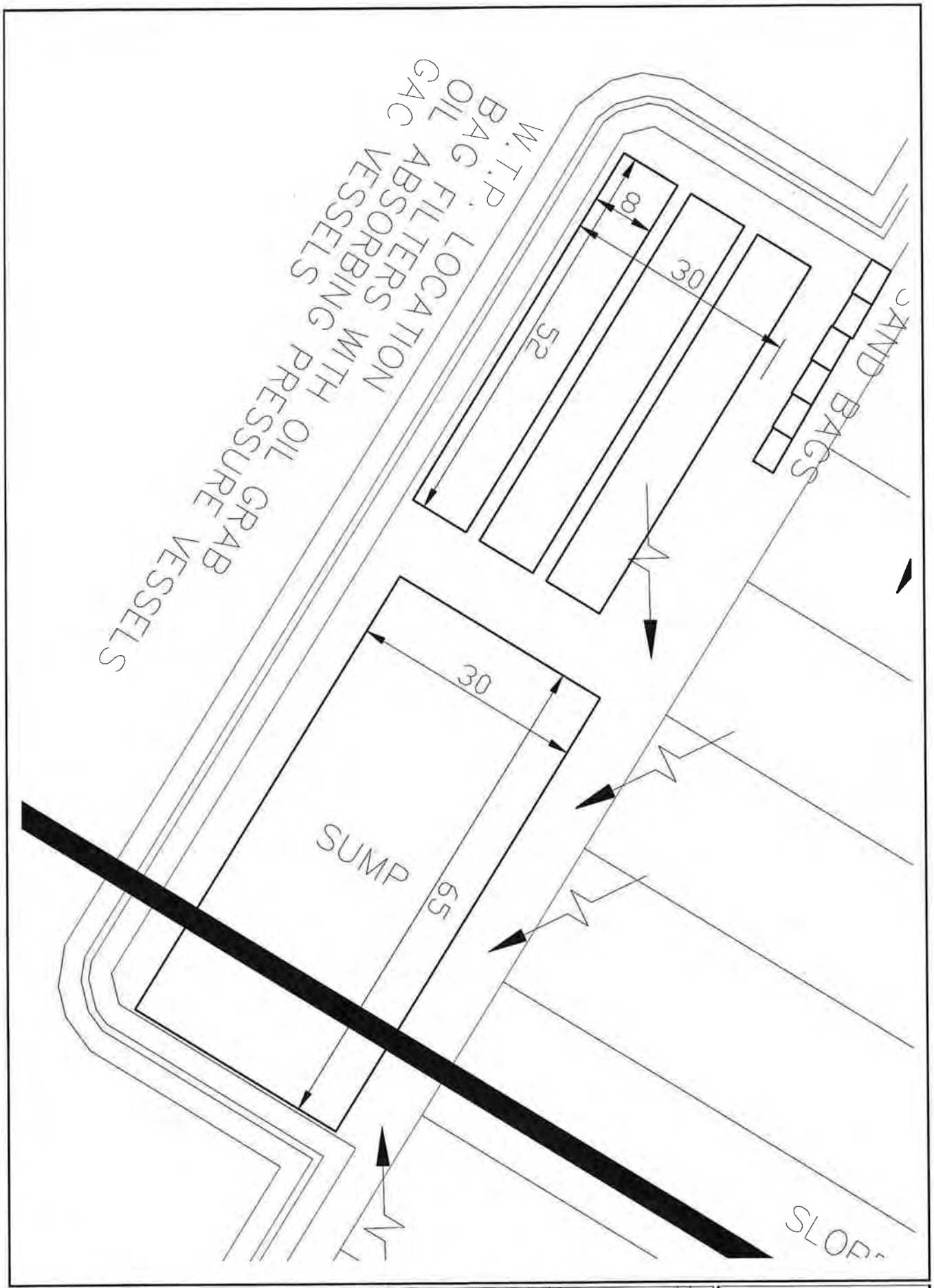


INFRASTRUCTURE ALTERNATIVES

Kalamazoo River

PROPOSED LAYDOWN AREA

2

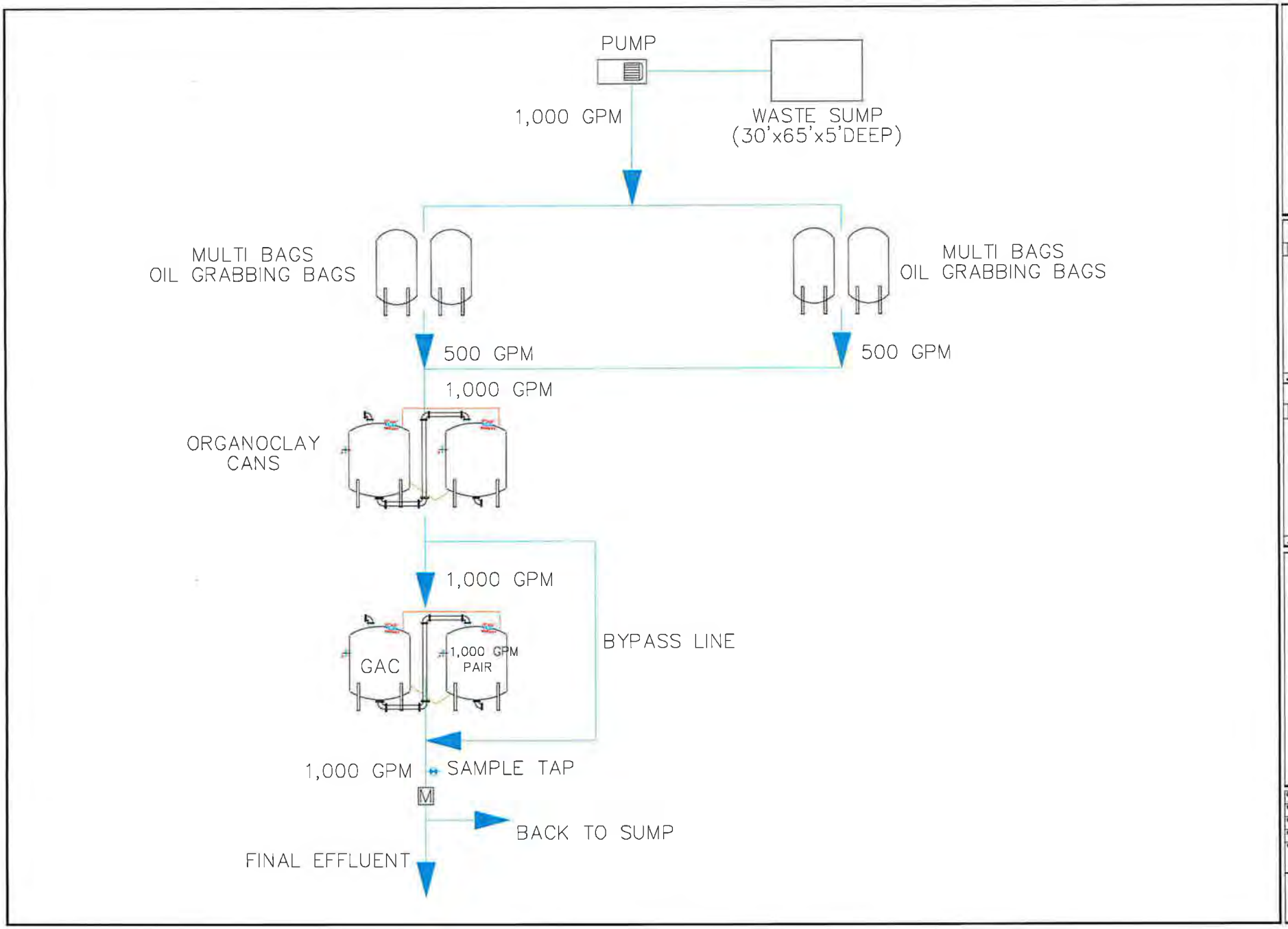


Kalamazoo River

PROPOSED TREATMENT AREA

INFRASTRUCTURE ALTERNATIVES

3



INFRASTRUCTURE ALTERNATIVES

Kalamazoo River

MASS BALANCE

NTS

4

US EPA ARCHIVE DOCUMENT

Attachment D

Example Daily Summary Report

TETRA TECH EC, INC.

CONTRACTOR PRODUCTION REPORT

CONTRACT		TITLE AND LOCATION				Report Number	
Enbridge Line 6B Response		Ceresco Dredge				38	
CONTRACTOR		Site Manager				DATE	11/8/2010
Tetra Tech EC, Inc		Dan Sullivan				DAY	Monday
AM WEATHER		PM WEATHER,			MAX	MIN	Rain
Sunny, mild		Sunny, mild			63	40	None
Work Performed							
Contractor	Activity					Personnel	
Terra	Operate Treatment System					0	
	Water Treated Today - 0 Gal @ 12:00 pm						
	Cumulative Total - 14,302,000 Gal @ 12:00 pm						
	0 bags changed out (1,451 to date)(0-50 & 0-25 Micron bags.)						
	System operation as required as flow is minimal. / system was not operated today.						
IAI	Geotubes 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9					4	
	Consolidating : 8 & 9						
	Load-out = #8 & #9						
	Complete = #1 + #2 + #3 + #4 + #5 + #6 + #7 + #8						
	IAI had 4 staff on-site demobing equipment and pipe						
CTEH	Performing required air and personnel monitoring.					2	
Superior	NPDES water treatment samples were not taken today.					0	
	Oil and Grease samples were not taken from the sump and the effluent.						
Safety Kleen	Transportation and Disposal of dredged sediments.					8	
Minnesota Limited	Long stick excavator loading out 16 truck train loads of Tube 8 and 9 sediment.					3	
	Timber mat forwarder on site.						
	Was a Job Safety meeting held this date?			__X__Yes	_____No		
JOB	(If yes attach copy of minutes)						
SAFETY	Were there any lost time accidents this date?						
	(If yes attach copy of OSHA report)			_____Yes	___X__No		
Was trenching / scaffold / HV electrical ? High work done				_____Yes	___X__No		
(If Yes attach statements or checklist showing inspection performed)							
Was Hazardous Material / Waste released into the environment?							
(If Yes attach description of incident and proposed action)				_____Yes	__X__No		
Remarks/problems							
The sediment loadout continued today with 6 trains for a total of 16 loads. 16 loads at 36 CY= 576 CY							
Tube #1 = Began 10/28 completed on 10/30. Total loads = 21 Loads at 36 CY = 756 CY							
Tube #2 = Began on 10/29 completed on 10/30. Total loads = 16 Loads at 36 CY = 576 CY							
Tube #3 = Began on 11/1 and 4.5 loads shipped today completing the tube #3 disposal. Total Loads = 18.5 Loads at 36 CY = 666 CY							
Tube #4 = Began on 11/2 completed on 11/3. Total loads = 19.5 Loads at 36 CY = 702 CY							
Tube #5 = Began 11/3 with 7 loads shipped at 36 CY per load = 252 CY and completed 11/4 with 12 Loads at 36 CY = 432 : Total Loads = 19 Loads at 36 CY = 684 CY							
Tube #6 = Began 11/4 with 6 loads shipped at 36 CY per load = 216 CY and completed 11/5 with 12 Loads at 36 CY = 432 : Total Loads = 18 Loads at 36 CY = 648 CY							
Tube #7 = Began 11/5 with 5 loads shipped at 36 CY per load = 180 CY and completed 11/6 with 12 Loads at 36 CY = 432 : Total Loads = 17 Loads at 36 CY = 612 CY							
Tube #8 = Began 11/8 and completed 11/8 with 13 loads shipped at 36 CY per load = 468 CY							
Tube #9 = Began 11/8 with 3 loads shipped at 36 CY per load = 108 CY							
Project total to date = 145 loads @ 36 CY = 5220 CY shipped off site.							
Safety Clean personnel on site operating the truck lining station for load-out of the dredge spoils.							
Minnesota Limited on site with a CAT 324 D L long reach excavator and the timber mat forwarded loading out, completed tube #8 and began tube #9							
	Contractor / Supervisor				Dan Sullivan		

US EPA ARCHIVE DOCUMENT

US EPA ARCHIVE DOCUMENT

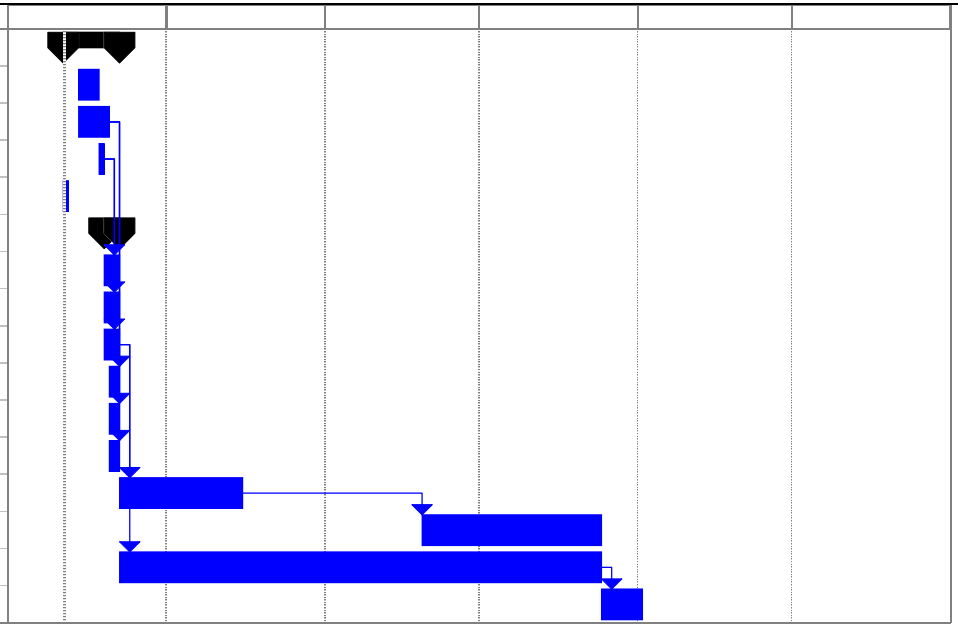
Attachment E

Dredging Schedules

US EPA ARCHIVE DOCUMENT

Ceresco Dam-2011
Dredging Project

ID		Task Name	Duration	Predecessors
1		**Mobilization and Setup**	**10 days?**	
2		Siting	3 days	
3		Pad Construction	5 days	
4		WTP Equipment delivery	1 day	
5		Tube order ??	1 day?	
6		**Install Equipment**	**3 days**	
7		Multi Bags bag filter	3 days	4
8		Oil Absorbers	3 days	4
9		Carbon Vessels	3 days	4
10		Tube delivery deployment	2 days	3
11		Header system install	2 days	3
12		Polymer system & polymer	2 days	3
13		**Dredging**	20 days	9
14		**Load out - T & D**	30 days?	13FS+30 days
15		**Water Treatment**	80 days	9
16		**Demobilization**	7 days?	15



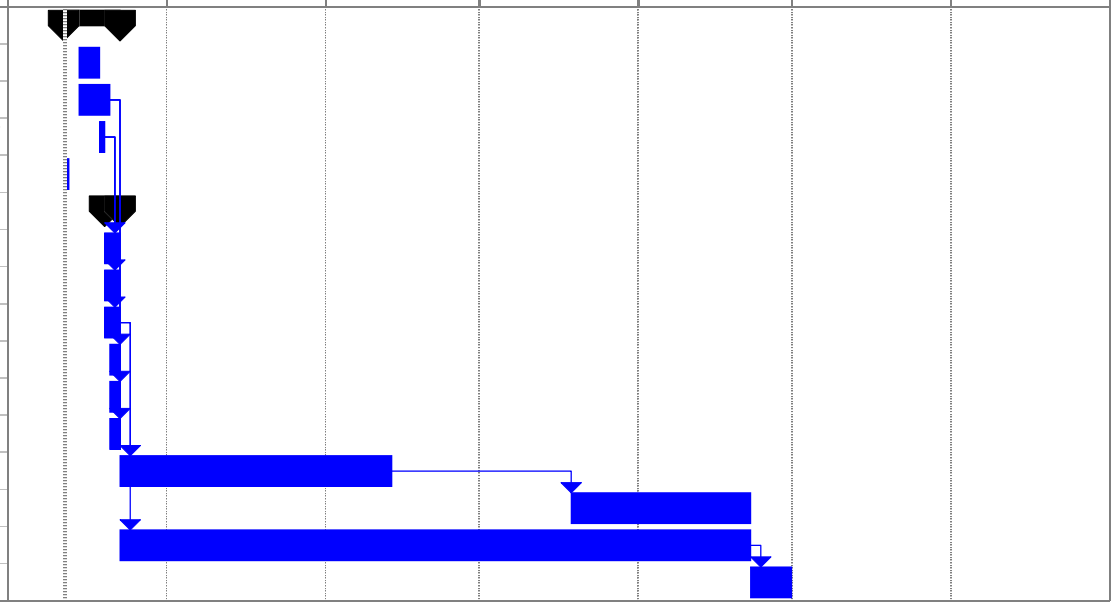
Project: Schedule 2011_Ceresco revd
Date: Tue 7/12/11

Task		Milestone		External Tasks	
Split		Summary		External Milestone	
Progress		Project Summary		Deadline	

US EPA ARCHIVE DOCUMENT

Kalamazoo River Dam/Battle Creek Culverts
Dredging Project

ID		Task Name	Duration
1		**Mobilization and Setup**	**10 days?**
2		Siting	3 days
3		Pad Construction	5 days
4		WTP Equipment delivery	1 day
5		Tube order ??	1 day?
6		**Install Equipment**	**3 days**
7		Multi Bags bag filter	3 days
8		Oil Absorbers	3 days
9		Carbon Vessels	3 days
10		Tube delivery deployment	2 days
11		Header system install	2 days
12		Polymer system & polymer	2 days
13		**Dredging**	45 days
14		**Load out - T & D**	30 days?
15		**Water Treatment**	105 days
16		**Demobilization**	7 days?



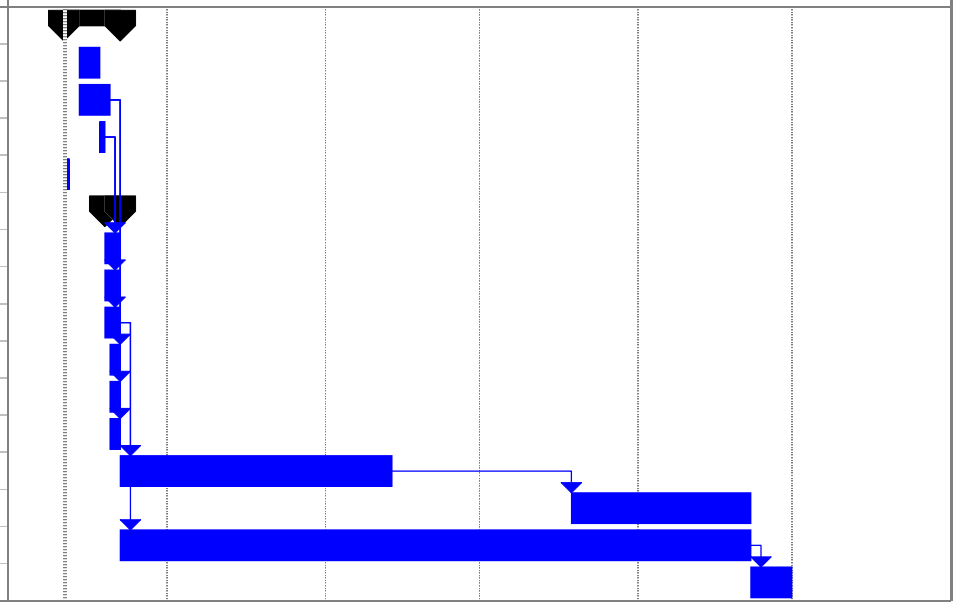
Project: Schedule 2011_Kzoo Dam
Date: Tue 7/12/11

Task		Milestone		External Tasks	
Split		Summary		External Milestone	
Progress		Project Summary		Deadline	

US EPA ARCHIVE DOCUMENT

Enbridge Morrow Lake Delta
Dredging Project

ID		Task Name	Duration	Predecessors
1		**Mobilization and Setup**	**10 days?**	
2		Siting	3 days	
3		Pad Construction	5 days	
4		WTP Equipment delivery	1 day	
5		Tube order ??	1 day?	
6		**Install Equipment**	**3 days**	
7		Multi Bags bag filter	3 days	4
8		Oil Absorbers	3 days	4
9		Carbon Vessels	3 days	4
10		Tube delivery deployment	2 days	3
11		Header system install	2 days	3
12		Polymer system & polymer	2 days	3
13		**Dredging**	45 days	9
14		**Load out - T & D**	30 days?	13FS+30 days
15		**Water Treatment**	105 days	9
16		**Demobilization**	7 days?	15



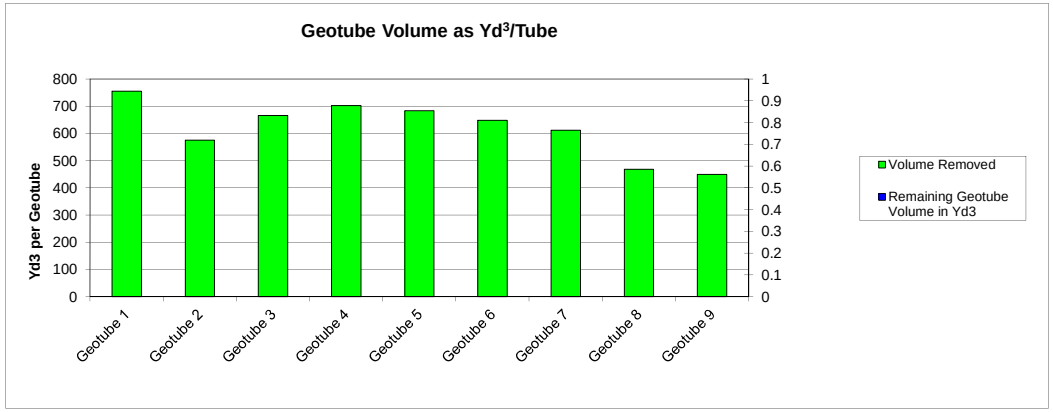
Project: Schedule 2011_Morrow revd
Date: Tue 7/12/11

Task		Milestone		External Tasks	
Split		Summary		External Milestone	
Progress		Project Summary		Deadline	

US EPA ARCHIVE DOCUMENT

Total Cubic Yards Removed to date

Removed in Yd3		Full Geotube Volume in Yd3	Remaining Geotube Volume in Yd3	Volume Estima	Notes:
756	Geotube 1	756	0	124	Geotube full/removal volume based on truck loads after completion of Geotube #1 loadout. Total Removed 756 Yd3 = 21 truck loads (with train) at 36 Yd3 per truck load.
576	Geotube 2	576	0	84	Geotube full/removal volume based on truck loads after completion of Geotube #2 loadout. Total Removed 576 Yd3 = 16 truck loads (with train) at 36 Yd3 per truck load.
666	Geotube 3	666	0	-6	Geotube full/removal volume based on truck loads after completion of Geotube #3 loadout. Total Removed 666 Yd3 = 18.5 truck loads (with train) at 36 Yd3 per truck load.
702	Geotube 4	702	0	-42	Geotube full/removal volume based on truck loads after completion of Geotube #4 loadout. Total Removed 702 Yd3 = 19.5 truck loads (with train) at 36 Yd3 per truck load.
684	Geotube 5	684	0	196	Geotube full/removal volume based on truck loads after completion of Geotube #5 loadout. Total Removed 684 Yd3 = 19 truck loads (with train) at 36 Yd3 per truck load.
648	Geotube 6	648	0	232	Geotube full/removal volume based on truck loads after completion of Geotube #6 loadout. Total Removed 648 Yd3 = 18 truck loads (with train) at 36 Yd3 per truck load.
612	Geotube 7	612	0	148	Geotube full/removal volume based on truck loads after completion of Geotube #7 loadout. Total Removed 612 Yd3 = 17 truck loads (with train) at 36 Yd3 per truck load.
468	Geotube 8	468	0	292	Geotube full/removal volume based on truck loads after completion of Geotube #8 loadout. Total Removed 468 Yd3 = 13 truck loads (with train) at 36 Yd3 per truck load.
450	Geotube 9	450	0	210	Geotube full/removal volume based on truck loads after completion of Geotube #9 loadout. Total Removed 450 Yd3 = 12.5 truck loads (with train) at 36 Yd3 per truck load.
5562			0 Cy/TOTAL as of	11/09/10	



US EPA ARCHIVE DOCUMENT

Volume per Geotube
Where each is tube is 200 ft long by 60 ft in circumference

6.1 cy/lf	theoretical volume at 6 ft fill height
3.7 cy/lf	theoretical volume at 4 ft fill height
2.9 cy/lf	theoretical volume at 3 ft fill height

working volume is approximately 90% of theoretical

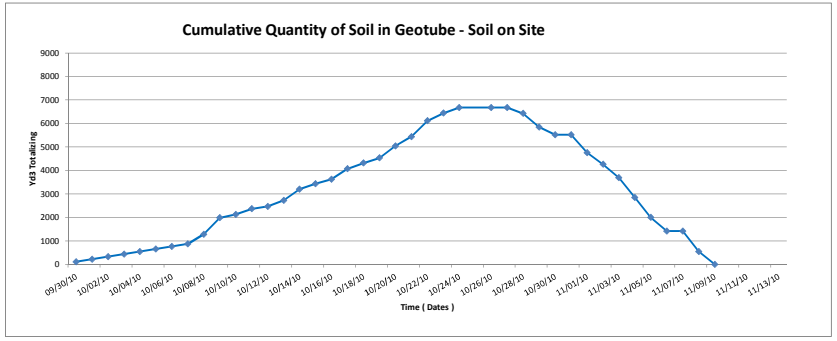
5.5 cy/lf	working volume at 6 ft fill height
3.3 cy/lf	working volume at 4 ft fill height
2.6 cy/lf	working volume at 3 ft fill height

5.5 x	200 =	1100	cy/geotube
3.3 x	200 =	660	cy/geotube
2.6 x	200 =	520	cy/geotube
2 x	200 =	400	cy/geotube
1 x	200 =	200	cy/geotube

Estimated cy/lf volume; Geotube fabricator did not have calculations for fill volumes below 3 ft in height

5.5 x	200 =	1100	Geotube 1
5.5 x	200 =	1100	Geotube 2
5.5 x	200 =	1100	Geotube 3
3.3 x	200 =	660	Geotube 4
3.3 x	200 =	660	Geotube 5
2.6 x	200 =	520	Geotube 6
2 x	200 =	400	Geotube 7
1 x	200 =	200	Geotube 8

				Geotube Fill Date	Quantity (Yd^3)		
09/30/10	straight line estimate			09/30/10	109.5		
10/01/10	straight line estimate			10/01/10	219		
10/02/10	straight line estimate			10/02/10	328.5		
10/03/10	straight line estimate			10/03/10	438		
10/04/10	straight line estimate			10/04/10	547.5		
10/05/10	straight line estimate			10/05/10	657		
10/06/10	straight line estimate			10/06/10	766.5		
10/07/10	3.5 x	200 =	700 Geotube 1	10/07/10	876		
	2.6 x	200 =	520 Geotube 2	10/08/10	1284.8		
10/08/10	5.5 x	200 =	1100 Geotube 1	10/09/10	1985.6		
	3.3 x	200 =	660 Geotube 2	10/10/10	2131.6		
10/09/10	5.5 x	200 =	1100 Geotube 1	10/11/10	2365.2		
	5.5 x	200 =	1100 Geotube 2	10/12/10	2467.4		
	2.6 x	200 =	520 Geotube 3	10/13/10	2934.6		
10/10/10	5.5 x	200 =	1100 Geotube 1	10/14/10	3328.8		
	5.5 x	200 =	1100 Geotube 2	10/15/10	3562.4		
	2.6 x	200 =	520 Geotube 3	10/16/10	3752.2		
	1 x	200 =	200 Geotube 4	10/17/10	4190.2		
10/11/10	5.5 x	200 =	1100 Geotube 1	10/18/10	4438.4		
	5.5 x	200 =	1100 Geotube 2	10/19/10	4657.4		
	2.6 x	200 =	520 Geotube 3	10/20/10	5168.4		
	2.6 x	200 =	520 Geotube 4	10/21/10	5562.6		
10/12/10	5.5 x	200 =	1100 Geotube 1	10/22/10	6234.2		
	5.5 x	200 =	1100 Geotube 2	10/23/10	6560	6560	
	3.3 x	200 =	660 Geotube 3	10/24/10	6800		
	2.6 x	200 =	520 Geotube 4		corrected for settlement	Corrected for Volume	Removed Error
10/13/10	5.5 x	200 =	1100 Geotube 1	09/30/10	150	110	110
	5.5 x	200 =	1100 Geotube 2	10/01/10	300	219	219
	5.5 x	200 =	1100 Geotube 3	10/02/10	450	329	329
	2.6 x	200 =	520 Geotube 4	10/03/10	600	438	438
	1 x	200 =	200 Geotube 5	10/04/10	750	548	548
10/14/10	5.5 x	200 =	1100 Geotube 1	10/05/10	900	657	657
	5.5 x	200 =	1100 Geotube 2	10/06/10	1050	767	767
	5.5 x	200 =	1100 Geotube 3	10/07/10	1200	876	876
	3.3 x	200 =	660 Geotube 4	10/08/10	1760	1285	1285
	2 x	200 =	400 Geotube 5	10/09/10	2720	1986	1986
	1 x	200 =	200 Geotube 6	10/10/10	2920	2132	2132
10/15/10	5.5 x	200 =	1100 Geotube 1	10/11/10	3240	2365	2365
	5.5 x	200 =	1100 Geotube 2	10/12/10	3380	2467	2467
	5.5 x	200 =	1100 Geotube 3	10/13/10	4020	2935	2727
	3.3 x	200 =	660 Geotube 4	10/14/10	4560	3329	3205
	2.6 x	200 =	520 Geotube 5	10/15/10	4880	3562	3438
	2 x	200 =	400 Geotube 6	10/16/10	5140	3752	3628
10/16/10	5.5 x	200 =	1100 Geotube 1	10/17/10	5740	4190	4066
	5.5 x	200 =	1100 Geotube 2	10/18/10	6080	4438	4314
	5.5 x	200 =	1100 Geotube 3	10/19/10	6380	4657	4533
	3.3 x	200 =	660 Geotube 4	10/20/10	7080	5168	5044
	3.3 x	200 =	660 Geotube 5	10/21/10	7620	5563	5439
	2.6 x	200 =	520 Geotube 6	10/22/10	8540	6234	6110
	0 x	200 =	0 Geotube 7	10/23/10	8980	6560	6436
	0 x	200 =	0 Geotube 8	10/24/2010		6800	6676
10/17/10	5.5 x	200 =	1100 Geotube 1	10/26/2010		6800	6676
	5.5 x	200 =	1100 Geotube 2	10/27/2010		6800	6676
	5.5 x	200 =	1100 Geotube 3	10/28/2010		6548	6424
	3.3 x	200 =	660 Geotube 4	10/29/2010		5972	5848
	3.3 x	200 =	660 Geotube 5	10/30/2010		5522	5522
	2.6 x	200 =	520 Geotube 6	10/31/2010		5522	5522
	2 x	200 =	400 Geotube 7	11/1/2010			4756
	1 x	200 =	200 Geotube 8	11/2/2010			4258
				11/3/2010			3688
				11/4/2010			2844
				11/5/2010			2000
				11/6/2010			1420
				11/7/2010			1420
				11/8/2010			552
				11/9/2010			0
				11/10/2010			
				11/11/2010			
				11/12/2010			
				11/13/2010			



US EPA ARCHIVE DOCUMENT

Attachment F

Oil Removal Field Activity Log

X - FILLING
T - TOPPING OFF

5.75 Northwest

Grid	Date Completed	Geotube 1	2	3	4	5	6	7	8	9	10	11	12
1.2	10/22/2010								X				
1.3	10/22/2010								X				
1.4	10/22/2010								X				
2.2	10/22/2010								X				
2.3	10/19/2010								X				
2.4	10/17/2010								X				
2.5	10/17/2010								X				
2.6	10/15/2010								X				

5.75 South

Grid	Date Completed	Geotube 1	2	3	4	5	6	7	8	9	10	11	12
5.3	10/17/2010				X	X	X	X					
6.2	10/17/2010				X	X	X	X					
6.3	10/17/2010				X	X	X	X					
6.4	10/16/2010				X	X	X						
6.5	10/16/2010				X	X	X						
7.1	10/17/2010				X	X	X	X					
7.2	10/17/2010				X	X	X	X					
7.3	10/16/2010				X	X	X						
7.4	10/16/2010				X	X	X						
7.5	10/16/2010				X	X	X						
7.6	10/16/2010				X	X	X						
7.7	10/14/2010			T	X	X	X						
8.1	10/18/2010				X	X	X	X					
8.2	10/16/2010				X	X	X						
8.3	10/16/2010				X	X	X						
8.4	10/16/2010				X	X	X						
8.5	10/16/2010			T	X	X	X						
8.6	10/16/2010			T	X	X	X						
8.7	10/15/2010			T	X	X	X						
8.8	10/14/2010			T	X	X	X						
8.9	10/14/2010			T	X	X	X						
9.2	10/13/2010			T	X	X							
9.3	10/13/2010			T	X	X							
9.4	10/15/2010	T	T	X	X	X	X						
9.5	10/15/2010	T	T	X	X	X	X						
9.6	10/15/2010	T	T	X	X	X	X						
9.7	10/14/2010	T	T	X	X	X	X						
9.8	10/14/2010	T	T	X	X	X	X						
9.9	10/10/2010	T	T	X	X								
9.10	10/10/2010	T	T	X	X								
9.11	10/10/2010	T	T	X	X								
10.5	10/13/2010	T	T	X	X	X							

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10.6	10/10/2010	T	T	X	X
10.7	10/11/2010	T	T	X	X
10.8	10/11/2010	T	T	X	X
10.9	10/9/2010	X	X	X	
10.10	10/9/2010	X	X	X	
10.11	10/9/2010	X	X	X	
10.12	10/9/2010	X	X	X	
11.7	10/9/2010	X	X	X	
11.8	10/9/2010	X	X	X	
11.9	10/9/2010	X	X	X	
11.10	10/8/2010	X	X	X	
11.11	10/8/2010	X	X	X	
11.12	10/8/2010	X	X	X	
11.13	10/6/2010	X	X		
11.14	10/6/2010	X	X		
12.8	10/7/2010	X	X		
12.9	10/7/2010	X	X		
12.10	10/6/2010	X	X		
12.11	10/6/2010	X	X		
12.12	10/6/2010	X	X		
12.13	10/5/2010	X	X		
12.14	10/2/2010	X	X		
12.15	10/2/2010	X	X		
12.16	10/2/2010	X	X		
12.17	10/2/2010	X	X		
13.10	10/4/2010	X	X		
13.11	10/3/2010	X	X		
13.12	10/3/2010	X	X		
13.13	10/3/2010	X	X		
13.14	10/2/2010	X	X		
13.15	10/2/2010	X	X		
13.16	10/2/2010	X	X		
13.17	10/2/2010	X	X		
13.18	10/2/2010	X	X		
14.16	10/2/2010	X	X		
14.17	10/2/2010	X	X		
14.18	10/2/2010	X	X		

5.63 South

Grid	Date Completed	Geotube 1	2	3	4	5	6	7	8	9	10	11	12
15.14	10/21/2010				X	X	X	X					
15.15	10/21/2010					T	X	X					
15.16	10/20/2010				X	X	X	X					
15.17	10/19/2010				X	X	X	X					
15.18	10/23/2010				X	X	X	X	X	X			
15.19	10/22/2010							T	X	X			
16.15	10/21/2010					T	X	X					
16.16	10/22/2010				X	X	X	X	X	X			
16.17	10/19/2010				X	X	X	X					
16.18	10/19/2010				X	X	X	X					
16.19	10/23/2010			T	X	X	X	X	X	X			

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17.16	10/19/2010					X	X	X		
17.17	10/19/2010			T	X	X	X	X		
17.18	10/19/2010			T	X	X	X	X		
17.19	10/14/2010	X	X	X	X	X	X			
17.20	10/11/2010	T	T	X	X					
18.17	10/23/2010								X	X
18.18	10/23/2010	T	T	X	X	X	X	X	X	X
18.19	10/12/2010	X	X	X	X					
18.20	10/23/2010	T	T	X	X	X	X	X	X	X
19.17	10/23/2010								X	X
19.18	10/24/2010					T	T	X	X	X
19.19	10/19/2010	X	X	X	X	X	X	X		
19.20	10/24/2010					T	X	X	X	X
20.20	10/24/2010								X	X

US EPA ARCHIVE DOCUMENT

US EPA ARCHIVE DOCUMENT

Attachment G

Legacy Site Tables and Figures

US EPA ARCHIVE DOCUMENT

Attachment G

Legacy Site Tables

Table 1. SW Monitoring Sediment PCB Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Location	C0048DCSEA	KRSE-001	KRSE-002	KRSE-003	KRSE-004	KRSE-005	KRSE-006	KRSE-007	KRSE-008	KRSE-009	KRSE-010	KRSE-011	KRSE-012	KRSE-013	KRSE-014	KRSE-015
	Date Collected	8/18/2010 1:00 PM	8/28/2010 11:55 AM	8/29/2010 12:12 PM	8/29/2010 2:18 PM	8/29/2010 3:08 PM	8/29/2010 3:41 PM	8/30/2010 11:20 AM	8/31/2010 12:10 PM	8/31/2010 1:40 PM	8/31/2010 2:55 PM	9/1/2010 1:45 PM	9/1/2010 3:20 PM	9/2/2010 3:35 PM	9/3/2010 11:20 AM	9/3/2010 2:50 PM	9/4/2010 12:40 PM
	Sample	SE08181300ARM1	SED08281155WPW1	SED08291212JPN1	SED08291418JPN1	SED08291508JPN1	SED08291541JPN1	SED08301120WPW1	SED08311210WPW1	SED08311340WPW1	SED08311455WPW1	SEC09011345WPW1	SEC09011520WPW1	SEC09021535WPW1	SEC09031120JPN1	SEC09031450JPN1	SEC09041240JPN1
	Depth	--	--	1 - 1.2 ft	2 - 2.5 ft	0.5 - 1 ft	1.5 - 2 ft	--	0 - 1 ft	1 - 2 ft	1 - 2 ft	1 - 2 ft	1 - 2 ft	1 - 2 ft	0 - 1 ft	0 - 1 ft	--
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
PCB																	
Aroclor 1016	ug/kg	< 1200	< 57	< 45	< 47	< 60	< 57	< 27	< 18	< 20	< 21	< 28	< 49	< 33	< 23	< 35	< 27
Aroclor 1221	ug/kg	< 1200	< 57	< 45	< 47	< 60	< 57	< 27	< 18	< 20	< 21	< 28	< 49	< 33	< 23	< 35	< 27
Aroclor 1232	ug/kg	< 1200	< 57	< 45	< 47	< 60	< 57	< 27	< 18	< 20	< 21	< 28	< 49	< 33	< 23	< 35	< 27
Aroclor 1242	ug/kg	< 1200	< 57	**20**	**22**	< 60	< 57	< 27	< 18	< 20	< 21	< 28	< 49	< 33	**180**	< 35	< 27
Aroclor 1248	ug/kg	< 1200	< 57	< 45	< 47	< 60	< 57	< 27	< 18	< 20	< 21	< 28	< 49	< 33	< 23	< 35	< 27
Aroclor 1254	ug/kg	< 1200	**32**	**26**	**31**	< 60	< 57	**110**	**8.7**	**16**	**12**	< 28	< 49	**27**	**65**	**100**	< 27
Aroclor 1260	ug/kg	< 1200	< 57	< 45	< 47	< 60	< 57	< 27	< 18	< 20	< 21	< 28	< 49	< 33	< 23	< 35	< 27
Polychlorinated biphenyls (PCBs), total	ug/kg	---	---	---	---	---	---	**110**	**8.7**	**16**	**12**	< 28	< 49	**27**	**240**	**100**	< 27

	Location	KRSE-016	KRSE-017	KRSE-018	KRSE-019	KRSE-020	KRSE-021	KRSE-022	KRSE-023	KRSE-024	KRSE-025	KRSE-026	KRSE-027	KRSE-028	KRSE-029	KRSE-030	KRSE-031
	Date Collected	9/4/2010 4:30 PM	9/5/2010 1:10 PM	9/5/2010 3:30 PM	9/5/2010 4:25 PM	9/6/2010 12:15 PM	9/6/2010 2:15 PM	9/6/2010 3:35 PM	9/7/2010 2:45 PM	9/8/2010 11:45 AM	9/9/2010 12:10 PM	9/10/2010 1:40 PM	9/10/2010 2:45 PM	9/12/2010 3:50 PM	9/14/2010 9:35 AM	9/14/2010 10:53 AM	9/14/2010 12:00 PM
	Sample	SEC09041630JPN1	SEE09051310WPW1	SEE09051530WPW1	SEE09051625WPW1	SEE09061215WPW1	SEE09061415WPW1	SEE09061535WPW1	SEE09071445WPW1	SEE09081145WPW1	SED09091210WPW1	SED09101340WPW1	SED09101445WPW1	SED09121550JPN1	SE0091409 35JPN1	SE0091410 53JPN1	SE0091412 00JPN1
	Depth	--	2 - 2 ft	1 - 1 ft	2.5 - 2.5 ft	3 - 3 ft	1 - 1 ft	1 - 1 ft	1 - 2 ft	1 - 2 ft	0 - 1 ft	1 - 1.5 ft	1 - 1 ft	1.5 ft	0 - 3.5 ft	0 - 6 ft	0 - 6 ft
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
PCB																	
Aroclor 1016	ug/kg	< 23	< 20	< 22	< 22	< 19	< 20	< 35	< 21	< 24	< 25	< 23	< 31	< 23	< 63	< 78	< 76
Aroclor 1221	ug/kg	< 23	< 20	< 22	< 22	< 19	< 20	< 35	< 21	< 24	< 25	< 23	< 31	< 23	< 63	< 78	< 76
Aroclor 1232	ug/kg	< 23	< 20	< 22	< 22	< 19	< 20	< 35	< 21	< 24	< 25	< 23	< 31	< 23	< 63	< 78	< 76
Aroclor 1242	ug/kg	< 23	< 20	< 22	< 22	< 19	< 20	< 35	< 21	< 24	< 25	< 23	< 31	< 23	< 63	< 78	< 76
Aroclor 1248	ug/kg	< 23	< 20	< 22	< 22	< 19	< 20	< 35	< 21	< 24	< 25	< 23	**190**	< 23	< 63	< 78	< 76
Aroclor 1254	ug/kg	< 23	< 20	< 22	< 22	**38**	< 20	**110**	**11**	**200**	**48**	**100**	**140**	**38**	**89**	**60**	**63**
Aroclor 1260	ug/kg	< 23	< 20	< 22	< 22	< 19	< 20	< 35	< 21	< 24	< 25	< 23	< 31	< 23	< 63	< 78	< 76
Polychlorinated biphenyls (PCBs), total	ug/kg	< 23	< 20	< 22	< 22	**38**	< 20	**110**	**11**	**200**	**48**	**100**	**330**	**38**	**89**	**60**	**63**

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	Location	KRSE-100	KRSE-309	KRSE-310	KRSE-311	KRSE-312	KRSE-313	KRSE-314	KRSE-101	KRSE-200	KRSE-201	KRSE-202	KRSE-203	KRSE-204	KRSE-205	KRSE-205	KRSE-206
	Date Collected	9/1/2010 11:10 AM	9/29/2010 1:00 PM	9/29/2010 2:15 PM	9/29/2010 3:05 PM	9/30/2010 10:45 AM	9/30/2010 11:35 AM	10/1/2010 11:15 AM	9/1/2010 3:10 PM	9/9/2010 3:57 PM	9/13/2010 2:02 PM	9/13/2010 2:34 PM	9/13/2010 3:42 PM	9/14/2010 2:48 PM	9/5/2010 2:31 PM	9/14/2010 3:26 PM	9/15/2010 3:30 PM
	Sample	SEE090111 10JRP1	SEE092913 00WPW1	SEE092914 15WPW1	SEE092915 05WPW1	SEE093010 45WPW1	SEE093011 35WPW1	SED100111 15WPW1	SEE090115 10JRP1	SEE090915 57KAP1	SEE091314 02TDF1	SEE091314 34TDF1	SEE091315 42TDF1	SEE091414 48TDF1	SEE090514 31JRP1	SEE091415 26TDF1	SEE091515 30TDF1
	Depth	1 - 2 ft	1 - 1.5 ft	0.5 - 1 ft	0.5 - 1 ft	1.5 - 2 ft	1.5 - 2 ft	1.5 - 2 ft	2 - 3 ft	0 - 1 ft	--	--	--	--	2 - 3 ft	--	0 - 0.166667 ft
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
PCB																	
Aroclor 1016	ug/kg	< 41	< 21	< 32	< 23	< 190	< 21	< 24	< 72	< 21	< 23	< 21	< 21	< 27	< 51	< 20	< 24
Aroclor 1221	ug/kg	< 41	< 21	< 32	< 23	< 190	< 21	< 24	< 72	< 21	< 23	< 21	< 21	< 27	< 51	< 20	< 24
Aroclor 1232	ug/kg	< 41	< 21	< 32	< 23	< 190	< 21	< 24	< 72	< 21	< 23	< 21	< 21	< 27	< 51	< 20	< 24
Aroclor 1242	ug/kg	< 41	< 21	< 32	< 23	< 190	< 21	< 24	< 72	< 21	< 23	< 21	< 21	< 27	< 51	< 20	< 24
Aroclor 1248	ug/kg	< 41	< 21	< 32	< 23	< 190	< 21	< 24	< 72	< 21	< 23	< 21	< 21	< 27	< 51	< 20	< 24
Aroclor 1254	ug/kg	**72**	**15**	**21**	**37**	**2100**	**23**	**170**	**160**	**28**	**18**	**8.3**	**16**	**40**	< 51	< 20	**19**
Aroclor 1260	ug/kg	< 41	< 21	< 32	< 23	< 190	< 21	< 24	< 72	< 21	< 23	< 21	< 21	< 27	< 51	< 20	< 24
Polychlorinated biphenyls (PCBs), total	ug/kg	**72**	**15**	**21**	**37**	**2100**	**23**	**170**	**160**	**28**	**18**	**8.3**	**16**	**40**	< 51	< 20	**19**

	Location	KRSE-300	KRSE-301	KRSE-302	KRSE-303	KRSE-304	KRSE-305	KRSE-306	KRSE-307	KRSE-308	ML-1	ML-1	ML-1	ML-1	ML-1	ML-1	ML-1
	Date Collected	9/23/2010 11:30 AM	9/23/2010 1:30 PM	9/27/2010 1:30 PM	9/27/2010 4:00 PM	9/28/2010 11:30 AM	9/28/2010 1:00 PM	9/28/2010 2:00 PM	9/28/2010 3:30 PM	9/29/2010 11:15 AM	8/27/2010 12:15 PM	9/1/2010 10:50 AM	9/4/2010 9:50 AM	9/9/2010 10:10 AM	9/12/2010 2:50 PM	9/21/2010 11:55 AM	9/27/2010 11:30 AM
	Sample	SEE092311 30WPW1	SEE092313 30WPW1	SEE092713 30WPW1	SEE092716 00WPW1	SEE092811 30WPW1	SEE092813 00WPW1	SEE092814 00WPW1	SEE092815 30WPW1	SEE092911 15WPW1	SEE082712 15PML1	SEE090110 50PML1	SEE090409 50PML1	SEE090910 10PML1	SEE091214 50PML1	SEE092111 55JDF1	SEE092711 30JDF1
	Depth	1 - 1.5 ft	2 - 2.5 ft	1 - 1.5 ft	2 - 2.5 ft	0.5 - 1 ft	1 - 1.5 ft	2 - 2.5 ft	3 - 3.5 ft	1.5 - 2 ft	0 - 5.75 ft	--	5 - 6 ft	5 - 6 ft	0 - 5 ft	0 - 5.7 ft	0 - 4.3 ft
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
PCB																	
Aroclor 1016	ug/kg	< 38	< 23	< 21	< 38	< 26	< 50	< 44	< 19	< 22	< 150	< 73	< 69	< 65	< 71	< 71	< 69
Aroclor 1221	ug/kg	< 38	< 23	< 21	< 38	< 26	< 50	< 44	< 19	< 22	< 150	< 73	< 69	< 65	< 71	< 71	< 69
Aroclor 1232	ug/kg	< 38	< 23	< 21	< 38	< 26	< 50	< 44	< 19	< 22	< 150	< 73	< 69	< 65	< 71	< 71	< 69
Aroclor 1242	ug/kg	< 38	< 23	< 21	< 38	< 26	< 50	< 44	< 19	< 22	< 150	< 73	< 69	< 65	< 71	< 71	< 69
Aroclor 1248	ug/kg	< 38	< 23	< 21	< 38	< 26	< 50	< 44	< 19	< 22	< 150	< 73	< 69	< 65	< 71	< 71	< 69
Aroclor 1254	ug/kg	**300**	**26**	**14**	**28**	**35**	**200**	**88**	< 19	< 22	< 150	**320**	**110**	**150**	**190**	**140**	**190**
Aroclor 1260	ug/kg	< 38	< 23	< 21	< 38	< 26	< 50	< 44	< 19	< 22	< 150	< 73	< 69	< 65	< 71	< 71	< 69
Polychlorinated biphenyls (PCBs), total	ug/kg	**300**	**26**	**14**	**28**	**35**	**200**	**88**	< 19	**5.5**	---	**320**	**110**	**150**	**190**	**140**	**190**

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	Location	ML-1	ML-1	ML-1	ML-1	ML-1	ML-1	ML-2	ML-2	ML-2	ML-2	ML-2	ML-2	ML-2	ML-2	ML-2	ML-2
	Date Collected	10/3/2010 2:25 PM	10/7/2010 11:01 AM	10/11/2010 11:25 AM	10/15/2010 9:45 AM	10/19/2010 10:05 AM	10/23/2010 10:15 AM	8/27/2010 3:00 PM	9/1/2010 11:45 AM	9/4/2010 1:50 PM	9/9/2010 2:10 PM	9/13/2010 9:40 AM	9/17/2010 9:45 AM	9/21/2010 3:30 PM	9/27/2010 3:15 PM	10/4/2010 9:45 AM	10/7/2010 12:05 PM
	Sample	SEE10031425JDF1	SEE10071101PML1	SEE10111125JDF1	SEE10150945JDF1	SEE10191005JDF1	SEE10231015PML1	SEE08271500PML1	SEE09011145PML1	SEE09041350PML1	SEE09091410PML1	SEE09130940PML1	SEE09170945PML1	SEE09211530JDF1	SEE09271515JDF1	SEE10040945JDF1	SEE10071205PML1
	Depth	0 - 2.4 ft	0 - 4.75 ft	0 - 5.45 ft	0 - 5 ft	--	--	0 - 3.9 ft	--	3 - 4 ft	3 - 4 ft	0 - 3.7 ft	0 - 3.8 ft	0 - 3.9 ft	0 - 3.7 ft	0 - 3.5 ft	0 - 3 ft
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
PCB																	
Aroclor 1016	ug/kg	< 68	< 72	< 68	< 71	< 210	< 210	< 140	< 59	< 70	< 64	< 64	< 66	< 65	< 61	< 56	< 62
Aroclor 1221	ug/kg	< 68	< 72	< 68	< 71	< 210	< 210	< 140	< 59	< 70	< 64	< 64	< 66	< 65	< 61	< 56	< 62
Aroclor 1232	ug/kg	< 68	< 72	< 68	< 71	< 210	< 210	< 140	< 59	< 70	< 64	< 64	< 66	< 65	< 61	< 56	< 62
Aroclor 1242	ug/kg	< 68	< 72	< 68	< 71	< 210	< 210	< 140	< 59	< 70	< 64	< 64	< 66	< 65	< 61	< 56	< 62
Aroclor 1248	ug/kg	< 68	< 72	< 68	< 71	< 210	< 210	< 140	< 59	< 70	< 64	< 64	< 66	< 65	< 61	< 56	< 62
Aroclor 1254	ug/kg	**100**	**200**	**100**	**91**	< 210	< 210	< 140	**110**	< 70	**130**	**52**	**42**	< 65	**140**	**130**	**190**
Aroclor 1260	ug/kg	< 68	< 72	< 68	**24**	< 210	< 210	< 140	< 59	< 70	< 64	< 64	< 66	< 65	< 61	< 56	< 62
Polychlorinated biphenyls (PCBs), total	ug/kg	**100**	**200**	**100**	**110**	---	---	---	**110**	< 70	**130**	**52**	**42**	< 65	**140**	**130**	**190**

	Location	ML-2	ML-2	ML-2	ML-2	ML-3	ML-3	ML-3	ML-3	ML-3	ML-3	ML-3	ML-3	ML-3	ML-3	ML-3	ML-3
	Date Collected	10/11/2010 10:11 AM	10/16/2010 10:55 AM	10/19/2010 11:00 AM	10/23/2010 11:25 AM	8/28/2010 12:15 PM	9/1/2010 12:55 PM	9/5/2010 10:15 AM	9/9/2010 11:45 AM	9/13/2010 11:25 AM	9/17/2010 11:25 AM	9/22/2010 11:05 AM	9/29/2010 9:25 AM	10/4/2010 10:50 AM	10/7/2010 3:40 PM	10/11/2010 1:50 PM	10/16/2010 2:15 PM
	Sample	SEE10111011JDF1	SEE10161055JDF1	SEE10191100JDF1	SEE10231125PML1	SEE08281215PML1	SEE09011255PML1	SEE09051015PML1	SEE09091145PML1	SEE09131125PML1	SEE09171125PML1	SEE09221105JDF1	SEE09290925JDF1	SEE10041050JDF1	SEE10071540PML1	SEE10111350JDF1	SEE10161415JDF1
	Depth	0 - 3.25 ft	0 - 3.5 ft	--	--	2 - 4 ft	--	4 - 5 ft	4 - 5 ft	0 - 4.7 ft	0 - 4 ft	0 - 4.7 ft	0 - 4 ft	0 - 4.1 ft	0 - 3.8 ft	0 - 3.66 ft	0 - 4.1 ft
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
PCB																	
Aroclor 1016	ug/kg	< 62	< 63	< 190	< 200	< 120	< 68	< 63	< 64	< 68	< 64	< 62	< 60	< 56	< 60	< 61	< 63
Aroclor 1221	ug/kg	< 62	< 63	< 190	< 200	< 120	< 68	< 63	< 64	< 68	< 64	< 62	< 60	< 56	< 60	< 61	< 63
Aroclor 1232	ug/kg	< 62	< 63	< 190	< 200	< 120	< 68	< 63	< 64	< 68	< 64	< 62	< 60	< 56	< 60	< 61	< 63
Aroclor 1242	ug/kg	< 62	< 63	< 190	< 200	< 120	< 68	< 63	< 64	< 68	< 64	< 62	< 60	< 56	< 60	< 61	< 63
Aroclor 1248	ug/kg	< 62	< 63	< 190	< 200	< 120	< 68	< 63	< 64	< 68	< 64	< 62	< 60	< 56	< 60	< 61	< 63
Aroclor 1254	ug/kg	**83**	**130**	< 190	< 200	< 120	**79**	**130**	**140**	**110**	**69**	**90**	**140**	**160**	**150**	**94**	< 63
Aroclor 1260	ug/kg	< 62	**41**	< 190	< 200	< 120	< 68	< 63	< 64	< 68	< 64	< 62	< 60	< 56	< 60	< 61	< 63
Polychlorinated biphenyls (PCBs), total	ug/kg	**83**	**180**	---	---	---	**79**	**130**	**140**	**110**	**69**	**90**	**140**	**160**	**150**	**94**	< 63

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	Location	ML-3	ML-3	ML-4	ML-4	ML-4	ML-4	ML-4	ML-4	ML-4	ML-4	ML-4	ML-4	ML-4	ML-4	ML-4	ML-4
	Date Collected	10/19/2010 11:55 AM	10/23/2010 2:35 PM	8/28/2010 3:05 PM	9/1/2010 3:45 PM	9/5/2010 11:30 AM	9/9/2010 3:15 PM	9/13/2010 3:05 PM	9/16/2010 10:45 AM	9/17/2010 2:15 PM	9/22/2010 2:40 PM	9/29/2010 10:35 AM	10/4/2010 11:50 AM	10/8/2010 12:31 PM	10/12/2010 9:30 AM	10/16/2010 3:30 PM	10/19/2010 2:15 PM
	Sample	SEE101911 55JDF1	SEE102314 35PML1	SEE082815 05PML1	SEE090115 45PML1	SEE090511 30PML1	SEE090915 15PML1	SEE091315 05PML1	SEE091610 45PML1	SEE091714 15PML1	SEE092214 40JDF1	SEE092910 35JDF1	SEE100411 50JDF1	SEE100812 31PML1	SEE101209 30JDF1	SEE101615 30JDF1	SEE101914 15JDF1
	Depth	--	--	3 - 4 ft	--	3 - 4 ft	3 - 4 ft	0 - 3.7 ft	--	0 - 3.9 ft	0 - 3.1 ft	0 - 2.5 ft	0 - 3.6 ft	--	0 - 4.33 ft	0 - 3.6 ft	--
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
PCB																	
Aroclor 1016	ug/kg	< 190	< 180	< 150	< 87	< 79	< 75	< 78	< 81	< 78	< 71	< 64	< 69	< 72	< 73	< 75	< 200
Aroclor 1221	ug/kg	< 190	< 180	< 150	< 87	< 79	< 75	< 78	< 81	< 78	< 71	< 64	< 69	< 72	< 73	< 75	< 200
Aroclor 1232	ug/kg	< 190	< 180	< 150	< 87	< 79	< 75	< 78	< 81	< 78	< 71	< 64	< 69	< 72	< 73	< 75	< 200
Aroclor 1242	ug/kg	< 190	< 180	< 150	< 87	< 79	< 75	< 78	< 81	< 78	< 71	< 64	< 69	< 72	< 73	< 75	< 200
Aroclor 1248	ug/kg	< 190	< 180	< 150	< 87	< 79	< 75	< 78	< 81	< 78	< 71	< 64	< 69	< 72	< 73	< 75	< 200
Aroclor 1254	ug/kg	< 190	< 180	< 150	**170**	**140**	**180**	**180**	**150**	**78**	**110**	**91**	**260**	**240**	**210**	**120**	< 200
Aroclor 1260	ug/kg	< 190	< 180	< 150	< 87	< 79	< 75	< 78	< 81	< 78	< 71	< 64	< 69	< 72	< 73	**40**	< 200
Polychlorinated biphenyls (PCBs), total	ug/kg	---	---	---	**170**	**140**	**180**	**180**	**150**	**78**	**110**	**91**	**260**	**240**	**210**	**160**	---

	Location	ML-5	ML-5	ML-5	ML-5	ML-5	ML-5	ML-5	ML-5	ML-5	ML-5	ML-5	ML-5	ML-6	ML-6	ML-6	ML-6
	Date Collected	8/29/2010 2:45 PM	9/1/2010 4:35 PM	9/5/2010 2:30 PM	9/9/2010 4:05 PM	9/13/2010 4:20 PM	9/17/2010 3:30 PM	9/22/2010 4:15 PM	9/29/2010 11:35 AM	10/4/2010 1:35 PM	10/12/2010 10:30 AM	10/17/2010 9:15 AM	10/19/2010 3:15 PM	8/29/2010 11:10 AM	9/2/2010 10:10 AM	9/6/2010 11:05 AM	9/10/2010 10:22 AM
	Sample	SEE082914 45PML1	SEE090116 35PML1	SEE090514 30PML1	SEE090916 05PML1	SEE091316 20PML1	SEE091715 30PML1	SEE092216 15JDF1	SEE092911 35JDF1	SEE100413 35JDF1	SEE101210 30JDF1	SEE101709 15JDF1	SEE101915 15JDF1	SEE082911 10PML1	SEE090210 10PML1	SEE090611 05PML1	SEE091010 22PML1
	Depth	--	--	3 - 4 ft	2 - 3 ft	0 - 2.8 ft	0 - 3.1 ft	0 - 3.3 ft	--	0 - 2.3 ft	0 - 2.83 ft	0 - 2.583 ft	--	--	8 - 9 ft	7 - 8 ft	1 - 8.6 ft
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
PCB																	
Aroclor 1016	ug/kg	< 57	< 60	< 61	< 69	< 67	< 62	< 59	< 48	< 58	< 58	< 46	< 220	< 120	< 80	< 76	< 87
Aroclor 1221	ug/kg	< 57	< 60	< 61	< 69	< 67	< 62	< 59	< 48	< 58	< 58	< 46	< 220	< 120	< 80	< 76	< 87
Aroclor 1232	ug/kg	< 57	< 60	< 61	< 69	< 67	< 62	< 59	< 48	< 58	< 58	< 46	< 220	< 120	< 80	< 76	< 87
Aroclor 1242	ug/kg	< 57	< 60	< 61	< 69	< 67	< 62	< 59	< 48	< 58	< 58	< 46	< 220	< 120	< 80	< 76	< 87
Aroclor 1248	ug/kg	< 57	< 60	< 61	< 69	< 67	< 62	< 59	< 48	< 58	< 58	< 46	< 220	< 120	< 80	< 76	< 87
Aroclor 1254	ug/kg	< 57	**190**	**200**	**94**	**87**	**66**	**59**	**72**	**220**	**160**	**160**	< 220	< 120	**280**	**200**	**63**
Aroclor 1260	ug/kg	< 57	< 60	< 61	< 69	< 67	< 62	< 59	< 48	< 58	< 58	< 46	< 220	< 120	< 80	< 76	< 87
Polychlorinated biphenyls (PCBs), total	ug/kg	---	**190**	**200**	**94**	**87**	**66**	**59**	**72**	**220**	**160**	**160**	---	---	**280**	**200**	**63**

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	Location	ML-6	ML-6	ML-6	ML-6	ML-6	ML-6	ML-6	ML-6	ML-6	ML-7	ML-7	ML-7	ML-7	ML-7	ML-7	ML-7
	Date Collected	9/14/2010 9:45 AM	9/18/2010 5:05 PM	9/23/2010 12:10 PM	9/29/2010 4:45 PM	10/4/2010 3:30 PM	10/8/2010 11:15 AM	10/12/2010 11:55 AM	10/17/2010 11:15 AM	10/20/2010 10:45 AM	8/30/2010 11:30 AM	9/2/2010 2:00 PM	9/6/2010 3:00 PM	9/10/2010 12:15 PM	9/14/2010 11:35 AM	9/18/2010 12:35 PM	9/23/2010 4:45 PM
	Sample	SEE091409 45PML1	SEE091817 05PML1	SEE092312 10JDF1	SEE092916 45JDF1	SEE100415 30JDF1	SEE100811 15PML1	SEE101211 55JDF1	SEE101711 15JDF1	SEE102010 45JDF1	SEE083011 30PML1	SEE090214 00PML1	SEE090615 00PML1	SEE091012 15PML1	SEE091411 35PML1	SEE091812 35PML1	SEE092316 45JDF1
	Depth	0 - 8.1 ft	--	0 - 7.2 ft	0 - 7.8 ft	0 - 7.5 ft	--	0 - 7.66 ft	0 - 8 ft	--	7 - 8 ft	8 - 9 ft	--	1 - 7.1 ft	0 - 7.1 ft	--	0 - 8.1 ft
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
PCB																	
Aroclor 1016	ug/kg	< 82	< 77	< 80	< 55	< 79	< 83	< 71	< 76	< 230	< 90	< 94	< 93	< 87	< 85	< 90	< 88
Aroclor 1221	ug/kg	< 82	< 77	< 80	< 55	< 79	< 83	< 71	< 76	< 230	< 90	< 94	< 93	< 87	< 85	< 90	< 88
Aroclor 1232	ug/kg	< 82	< 77	< 80	< 55	< 79	< 83	< 71	< 76	< 230	< 90	< 94	< 93	< 87	< 85	< 90	< 88
Aroclor 1242	ug/kg	< 82	< 77	< 80	< 55	< 79	< 83	< 71	< 76	< 230	< 90	< 94	< 93	< 87	< 85	< 90	< 88
Aroclor 1248	ug/kg	< 82	< 77	< 80	< 55	< 79	< 83	< 71	< 76	< 230	< 90	< 94	< 93	< 87	< 85	< 90	< 88
Aroclor 1254	ug/kg	**130**	**170**	**190**	**150**	**230**	**200**	**200**	**240**	< 230	**230**	**720**	**250**	**100**	**160**	**220**	**280**
Aroclor 1260	ug/kg	< 82	< 77	< 80	< 55	< 79	< 83	< 71	< 76	< 230	< 90	< 94	< 93	< 87	< 85	< 90	< 88
Polychlorinated biphenyls (PCBs), total	ug/kg	**130**	**170**	**190**	**150**	**230**	**200**	**200**	**240**	---	**230**	**720**	**250**	**100**	**160**	**220**	**280**

	Location	ML-7	ML-7	ML-7	ML-7	ML-7	ML-7	ML-8	ML-8	ML-8	ML-8	ML-8	ML-8	ML-8	ML-8	ML-8	ML-8
	Date Collected	9/30/2010 11:05 AM	10/5/2010 11:25 AM	10/9/2010 2:01 PM	10/13/2010 11:50 AM	10/17/2010 2:10 PM	10/20/2010 12:30 PM	8/30/2010 3:50 PM	9/3/2010 9:25 AM	9/7/2010 10:50 AM	9/10/2010 4:25 PM	9/14/2010 3:15 PM	9/19/2010 10:40 AM	9/25/2010 11:35 AM	9/30/2010 12:55 PM	10/5/2010 4:53 PM	10/9/2010 4:14 PM
	Sample	SEE093011 05JDF1	SEE100511 25PML1	SEE100914 01PML1	SEE101311 50JDF1	SEE101714 10JDF1	SEE102012 30JDF1	SEE083015 50PML1	SEE090309 25PML1	SEE090710 50PML1	SEE091016 25PML1	SEE091415 15PML1	SEE091910 40PML1	SEE092511 35JDF1	SEE093012 55JDF1	SEE100516 53PML1	SEE100916 14PML1
	Depth	0 - 7.1 ft	0 - 7.1 ft	0 - 6.75 ft	0 - 7.25 ft	0 - 7.583 ft	--	7 - 8 ft	--	8 - 9 ft	1 - 8 ft	0 - 8 ft	0 - 8.4 ft	0 - 8.1 ft	0 - 7.11 ft	0 - 7.4 ft	0 - 7.3 ft
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
PCB																	
Aroclor 1016	ug/kg	< 93	< 91	< 86	< 83	< 87	< 240	< 83	< 83	< 80	< 80	< 77	< 76	< 72	< 82	< 78	< 79
Aroclor 1221	ug/kg	< 93	< 91	< 86	< 83	< 87	< 240	< 83	< 83	< 80	< 80	< 77	< 76	< 72	< 82	< 78	< 79
Aroclor 1232	ug/kg	< 93	< 91	< 86	< 83	< 87	< 240	< 83	< 83	< 80	< 80	< 77	< 76	< 72	< 82	< 78	< 79
Aroclor 1242	ug/kg	< 93	< 91	< 86	< 83	< 87	< 240	< 83	< 83	< 80	< 80	< 77	< 76	< 72	< 82	< 78	< 79
Aroclor 1248	ug/kg	< 93	< 91	< 86	< 83	< 87	< 240	< 83	< 83	< 80	< 80	< 77	< 76	< 72	< 82	< 78	< 79
Aroclor 1254	ug/kg	**350**	**220**	**230**	**360**	**300**	< 240	**290**	**370**	**240**	**140**	**150**	**250**	**280**	**280**	**280**	**200**
Aroclor 1260	ug/kg	< 93	< 91	**83**	< 83	< 87	< 240	< 83	< 83	< 80	< 80	< 77	< 76	< 72	< 82	< 78	**65**
Polychlorinated biphenyls (PCBs), total	ug/kg	**350**	**220**	**310**	**360**	**300**	---	**290**	**370**	**240**	**140**	**150**	**250**	**280**	**280**	**280**	**260**

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	Location	ML-8	ML-8	ML-8	ML-9	ML-9	ML-9	ML-9	ML-9	ML-9	ML-9	ML-9	ML-9	ML-9	ML-9	ML-9	ML-9
	Date Collected	10/14/2010 10:15 AM	10/18/2010 10:35 AM	10/21/2010 10:35 AM	8/31/2010 10:45 AM	9/3/2010 11:00 AM	9/8/2010 10:10 AM	9/8/2010 12:05 PM	9/11/2010 10:15 AM	9/15/2010 10:15 AM	9/19/2010 3:30 PM	9/26/2010 12:15 PM	10/1/2010 11:20 AM	10/6/2010 12:05 PM	10/10/2010 10:10 AM	10/14/2010 11:50 AM	10/18/2010 12:10 PM
	Sample	SEE101410 15JDF1	SEE101810 35JDF1	SEE102110 35JDF1	SEE083110 45PML1	SEE090311 00PML1	SEE090810 10PML1	SEE090812 05PML1	SEE091110 15PML1	SEE091510 15PML1	SEE091915 30PML1	SEE092612 15JDF1	SEE100111 20JDF1	SEE100612 05PML1	SEE101010 10PML1	SEE101411 50JDF1	SEE101812 10JDF1
	Depth	0 - 7.33 ft	0 - 7.883 ft	--	--	--	7 - 8 ft	7 - 8 ft	0 - 7.4 ft	0 - 7.7 ft	0 - 7.6 ft	--	0 - 7.25 ft	0 - 6.9 ft	7.25 - 7.25 ft	0 - 7.08 ft	0 - 7 ft
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
PCB																	
Aroclor 1016	ug/kg	< 76	< 78	< 230	< 73	< 79	< 74	< 76	< 71	< 72	< 74	< 74	< 73	< 73	< 76	< 75	< 73
Aroclor 1221	ug/kg	< 76	< 78	< 230	< 73	< 79	< 74	< 76	< 71	< 72	< 74	< 74	< 73	< 73	< 76	< 75	< 73
Aroclor 1232	ug/kg	< 76	< 78	< 230	< 73	< 79	< 74	< 76	< 71	< 72	< 74	< 74	< 73	< 73	< 76	< 75	< 73
Aroclor 1242	ug/kg	< 76	< 78	< 230	< 73	< 79	< 74	< 76	< 71	< 72	< 74	< 74	< 73	< 73	< 76	< 75	< 73
Aroclor 1248	ug/kg	< 76	< 78	< 230	< 73	< 79	< 74	< 76	< 71	< 72	< 74	< 74	< 73	< 73	< 76	< 75	< 73
Aroclor 1254	ug/kg	**240**	**310**	< 230	**120**	**150**	**350**	**400**	**58**	**130**	**180**	**300**	**250**	**230**	**180**	**150**	**240**
Aroclor 1260	ug/kg	< 76	< 78	< 230	< 73	< 79	< 74	< 76	< 71	< 72	< 74	< 74	< 73	< 73	< 76	< 75	< 73
Polychlorinated biphenyls (PCBs), total	ug/kg	**240**	**310**	---	**120**	**150**	**350**	**400**	**58**	**130**	**180**	**300**	**250**	**230**	**180**	**150**	**240**

	Location	ML-9	ML-10	ML-10	ML-10	ML-10	ML-10	ML-10	ML-10	ML-10	ML-10	ML-10	ML-10	ML-10	MLSE-1	MLSE-2	MLSE-3
	Date Collected	10/21/2010 2:30 PM	8/31/2010 2:20 PM	9/3/2010 4:50 PM	9/12/2010 10:55 AM	9/15/2010 11:45 AM	9/20/2010 9:45 AM	9/26/2010 4:25 PM	10/3/2010 11:15 AM	10/6/2010 4:40 PM	10/10/2010 12:15 PM	10/14/2010 3:50 PM	10/18/2010 3:10 PM	10/22/2010 11:10 AM	8/27/2010 4:52 PM	8/27/2010 4:14 PM	8/27/2010 3:36 PM
	Sample	SEE102114 30JDF1	SEE083114 20PML1	SEE090316 50PML1	SEE091210 55PML1	SEE091511 45PML1	SEE092009 45PML1	SEE092616 25JDF1	SEE100311 15JDF1	SEE100616 40PML1	SEE101012 15PML1	SEE101415 50JDF1	SEE101815 10JDF1	SEE102211 10JDF1	SEE082716 52TWH1	SEE082716 14TWH1	SEE082715 36TWH1
	Depth	--	--	--	--	0 - 7 ft	--	--	0 - 6.25 ft	0 - 6.5 ft	6.66 - 6.66 ft	0 - 6.66 ft	0 - 6.883 ft	--	--	--	--
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
PCB																	
Aroclor 1016	ug/kg	< 200	< 85	< 76	< 73	< 74	< 78	< 76	< 79	< 68	< 77	< 75	< 77	< 200	< 53	< 58	< 46
Aroclor 1221	ug/kg	< 200	< 85	< 76	< 73	< 74	< 78	< 76	< 79	< 68	< 77	< 75	< 77	< 200	< 53	< 58	< 46
Aroclor 1232	ug/kg	< 200	< 85	< 76	< 73	< 74	< 78	< 76	< 79	< 68	< 77	< 75	< 77	< 200	< 53	< 58	< 46
Aroclor 1242	ug/kg	< 200	< 85	< 76	< 73	< 74	< 78	< 76	< 79	< 68	< 77	< 75	< 77	< 200	< 53	< 58	< 46
Aroclor 1248	ug/kg	< 200	< 85	< 76	< 73	< 74	< 78	< 76	< 79	< 68	< 77	< 75	< 77	< 200	< 53	< 58	< 46
Aroclor 1254	ug/kg	< 200	**210**	**220**	**290**	**200**	**180**	**190**	**160**	**170**	**140**	**150**	**230**	< 200	**43**	**80**	< 46
Aroclor 1260	ug/kg	< 200	< 85	< 76	< 73	< 74	< 78	< 76	< 79	< 68	< 77	< 75	< 77	< 200	< 53	< 58	< 46
Polychlorinated biphenyls (PCBs), total	ug/kg	---	**210**	**220**	**290**	**200**	**180**	**190**	**160**	**170**	**140**	**150**	**230**	---	---	---	---

US EPA ARCHIVE DOCUMENT

	Location	MLSE-4	MLSE-5	MLSE-6	MLSE-7	MLSE-8	MLSE-9	MLSE-11	MLSE-12	MLSE-13	MLSE-15	MLE-14	MLSE-10	SW-002	SW-002	SW-002	SW-002	SW-002
	Date Collected	8/28/2010 2:20 PM	8/28/2010 3:10 PM	8/28/2010 4:07 PM	8/29/2010 1:54 PM	8/29/2010 2:21 PM	8/29/2010 3:50 PM	8/30/2010 10:15 AM	8/30/2010 11:00 AM	8/30/2010 2:10 PM	8/30/2010 3:20 PM	8/30/2010 2:45 PM	8/30/2010 9:20 AM	9/20/2010 10:49 AM	9/23/2010 10:59 AM	9/27/2010 10:54 AM	9/30/2010 8:25 AM	10/4/2010 10:21 AM
	Sample	SEE082814 20TWH1	SEE082815 10TWH1	SEE082816 07TWH1	SEE082913 54KAP1	SEE082914 21KAP1	SEE082915 50KAP1	SEE083010 15JRP1	SEE08301 100JRP1	SEE08301 410JRP1	SEE08301 520JRP1	SEE08301 445JRP1	SEE08300 920JRP1	SEC09201 049RRD1	SEC09231 059JLS1	SEC09271 054JLS1	SEC09300 825JLS1	SEC10041 021JLS1
	Depth	--	--	--	--	--	--	5 - 6 ft	3 - 4 ft	3 - 4 ft	6 - 7 ft	7 - 8 ft	5 - 6 ft	--	0 - 0.2 ft	0 - 0.4 ft	0 - 0.25 ft	0 - 0.25 ft
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
PCB																		
Aroclor 1016	ug/kg	< 120	< 110	< 170	< 69	< 110	< 86	< 64	< 22	< 25	< 140	< 64	< 41	< 21	< 20	< 21	< 21	< 20
Aroclor 1221	ug/kg	< 120	< 110	< 170	< 69	< 110	< 86	< 64	< 22	< 25	< 140	< 64	< 41	< 21	< 20	< 21	< 21	< 20
Aroclor 1232	ug/kg	< 120	< 110	< 170	< 69	< 110	< 86	< 64	< 22	< 25	< 140	< 64	< 41	< 21	< 20	< 21	< 21	< 20
Aroclor 1242	ug/kg	< 120	< 110	< 170	< 69	< 110	< 86	< 64	< 22	< 25	< 140	< 64	< 41	< 21	< 20	< 21	< 21	< 20
Aroclor 1248	ug/kg	< 120	< 110	< 170	< 69	< 110	< 86	< 64	< 22	< 25	< 140	< 64	< 41	< 21	< 20	< 21	< 21	< 20
Aroclor 1254	ug/kg	**98**	**58**	< 170	< 69	**250**	**75**	**960**	< 22	**130**	**2000**	**1100**	**270**	< 21	< 20	< 21	< 21	< 20
Aroclor 1260	ug/kg	< 120	< 110	< 170	< 69	< 110	< 86	< 64	< 22	< 25	< 140	< 64	< 41	< 21	< 20	< 21	< 21	< 20
Polychlorinated biphenyls (PCBs), total	ug/kg	---	---	---	---	---	---	**960**	< 22	**130**	**2000**	**1100**	**270**	< 21	< 20	< 21	< 21	< 20

	Location	SW-002	SW-002	SW-002	SW-002	SW-003	SW-003	SW-003	SW-003	SW-003	SW-003	SW-003	SW-005	SW-100	SW-100	SW-100	SW-100	SW-100
	Date Collected	10/7/2010 9:25 AM	10/11/2010 8:50 AM	10/14/2010 2:45 PM	10/18/2010 11:55 AM	8/27/2010 2:45 PM	8/31/2010 4:37 PM	9/10/2010 1:49 PM	9/13/2010 4:11 PM	9/17/2010 4:33 PM	9/20/2010 2:05 PM	9/23/2010 2:23 PM	10/21/2010 11:25 AM	9/15/2010 9:15 AM	9/17/2010 11:30 AM	9/20/2010 11:15 AM	9/22/2010 11:55 AM	9/29/2010 8:45 AM
	Sample	SEC100709 25JLS1	SEB101108 50PDS1	SEC101414 45JLS1	SEC101811 55JLS1	SEC082714 45JLS1	SEC083116 37JLS1	SEC091013 49SKS1	SEC09131 611JLS1	SEC09171 633TDF1	SEC09201 405RRD1	SEC09231 423JLS1	SEE10211 125NAC1	SEB09150 915PMB1	SEB09171 130PMB1	SEB09201 115PMB1	SEB09221 155SDD1	SEB09290 845PMB1
	Depth	0 - 3 ft	0 - 3 ft	0 - 0.25 ft	0.167 - 0.25 ft	--	0 - 1 ft	0.3 - 0.75 ft	0 - 0.2 ft	--	--	0 - 0.2 ft	--	0 - 0.5 ft	0 - 6 ft	--	0 - 0.5 ft	0 - 0.5 ft
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
PCB																		
Aroclor 1016	ug/kg	< 20	< 19	< 20	< 20	< 48	< 28	< 23	< 26	< 21	< 22	< 23	< 57	< 31	< 29	< 30	< 26	< 35
Aroclor 1221	ug/kg	< 20	< 19	< 20	< 20	< 48	< 28	< 23	< 26	< 21	< 22	< 23	< 57	< 31	< 29	< 30	< 26	< 35
Aroclor 1232	ug/kg	< 20	< 19	< 20	< 20	< 48	< 28	< 23	< 26	< 21	< 22	< 23	< 57	< 31	< 29	< 30	< 26	< 35
Aroclor 1242	ug/kg	< 20	< 19	< 20	< 20	< 48	< 28	< 23	< 26	< 21	< 22	< 23	< 57	< 31	< 29	< 30	< 26	< 35
Aroclor 1248	ug/kg	< 20	< 19	< 20	< 20	< 48	< 28	**120**	< 26	< 21	< 22	**130**	< 57	< 31	< 29	< 30	< 26	< 35
Aroclor 1254	ug/kg	< 20	< 19	< 20	< 20	< 48	**47**	**43**	**66**	**46**	**58**	< 23	< 57	**25**	**27**	**20**	**18**	**26**
Aroclor 1260	ug/kg	< 20	< 19	< 20	< 20	< 48	< 28	< 23	< 26	< 21	< 22	< 23	< 57	< 31	< 29	< 30	< 26	< 35
Polychlorinated biphenyls (PCBs), total	ug/kg	< 20	< 19	< 20	< 20	---	**47**	**170**	**66**	**46**	**58**	**130**	---	**25**	**27**	**20**	**18**	**26**

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	Location	SW-100	SW-100	SW-100	SW-100	SW-100	SW-100	SW-100	SW-101	SW-101	SW-101	SW-101	SW-104	SW-104	SW-104	SW-104	SW-104	SW-104	SW-104
	Date Collected	10/2/2010 9:15 AM	10/4/2010 1:45 PM	10/7/2010 8:45 AM	10/11/2010 8:55 AM	10/14/2010 9:25 AM	10/18/2010 8:45 AM	10/21/2010 8:35 AM	8/28/2010 3:54 PM	9/1/2010 1:38 PM	9/4/2010 10:53 AM	9/8/2010 11:11 AM	9/20/2010 12:15 PM	9/22/2010 12:55 PM	9/27/2010 12:45 PM	9/30/2010 12:00 PM	10/4/2010 11:45 AM	10/7/2010 11:00 AM	10/11/2010 11:35 AM
	Sample	SEB10020 915PMB1	SEB10041 345PMB1	SEB10070 845PMB1	SEB10110 855RTV1	SEB10140 925CKC1	SEB10180 845PMB1	SEB10210 835PMB1	SEC08281 554JLS1	SEC09011 338JLS1	SEC09041 053SKS1	SEC09081 111SKS1	SEB09201 215PMB1	SEB09221 255SDD1	SEB09271 245PMB1	SEB09301 200PMB1	SEB10041 145PMB1	SEB10071 100PMB1	SEB101111 35RTV1
	Depth	0 - 0.5 ft	0 - 0.5 ft	0 - 0.5 ft	--	--	0 - 0.5 ft	--	0 - 1 ft	--	2 - 3 ft	2 - 3 ft	--	0 - 0.5 ft	0 - 0.5 ft	0 - 0.5 ft	0 - 0.5 ft	0 - 0.5 ft	--
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
PCB																			
Aroclor 1016	ug/kg	< 35	< 38	< 43	< 36	< 59	< 40	< 140	< 110	< 43	< 34	< 38	< 22	< 21	< 20	< 22	< 21	< 20	< 22
Aroclor 1221	ug/kg	< 35	< 38	< 43	< 36	< 59	< 40	< 140	< 110	< 43	< 34	< 38	< 22	< 21	< 20	< 22	< 21	< 20	< 22
Aroclor 1232	ug/kg	< 35	< 38	< 43	< 36	< 59	< 40	< 140	< 110	< 43	< 34	< 38	< 22	< 21	< 20	< 22	< 21	< 20	< 22
Aroclor 1242	ug/kg	< 35	< 38	< 43	< 36	< 59	< 40	< 140	< 110	< 43	< 34	< 38	< 22	< 21	< 20	< 22	< 21	< 20	< 22
Aroclor 1248	ug/kg	< 35	< 38	< 43	< 36	< 59	< 40	< 140	< 110	< 43	< 34	< 38	< 22	< 21	< 20	< 22	< 21	< 20	< 22
Aroclor 1254	ug/kg	**45**	**52**	**58**	**27**	< 59	**64**	< 140	< 110	**34**	< 34	**180**	< 22	< 21	< 20	< 22	< 21	< 20	< 22
Aroclor 1260	ug/kg	< 35	< 38	< 43	< 36	< 59	< 40	< 140	< 110	< 43	< 34	< 38	< 22	< 21	< 20	< 22	< 21	< 20	< 22
Polychlorinated biphenyls (PCBs), total	ug/kg	**45**	**52**	**58**	**27**	< 59	**64**	---	---	**34**	< 34	**180**	< 22	< 21	< 20	< 22	< 21	< 20	< 22

	Location	SW-104	SW-104	SW-104	SW-105	SW-105	SW-105	SW-105	SW-105	SW-105	SW-107	SW-107	SW-107	SW-107	SW-107	SW-107	SW-108	SW-108	SW-108
	Date Collected	10/14/2010 2:20 PM	10/18/2010 10:50 AM	10/21/2010 10:55 AM	8/28/2010 12:05 PM	8/30/2010 12:00 PM	9/1/2010 12:20 PM	9/2/2010 12:00 PM	9/4/2010 11:15 AM	9/8/2010 10:00 AM	9/9/2010 11:15 AM	9/13/2010 11:30 AM	9/15/2010 12:00 PM	9/20/2010 2:00 PM	9/22/2010 3:30 PM	9/27/2010 11:15 AM	10/15/2010 1:30 PM	10/19/2010 1:55 PM	10/22/2010 2:15 PM
	Sample	SEB10141 420CKC1	SEB10181 050PMB1	SEB10211 055PMB1	SEB08281 205PDS1	SE008301 200PDS1	SEB09011 220PDS1	SE009021 200PDS1	SEB09041 115PMB1	SEB09081 000PMB1	SE009091 115PMB1	SE009131 130PMB1	SE009151 200PMB1	SE009201 400PMB1	SE009221 530SDD1	SE009271 115PMB1	SEE10151 330PMB1	SEE10191 355NAC1	SEE102214 15MAE1
	Depth	--	0 - 0.5 ft	--	0 - 1 ft	0 - 1 ft	0 - 3 ft	0 - 1 ft	0 - 1 ft	--	0 - 1 ft	0 - 0.5 ft	--	--	0 - 0.5 ft	0 - 0.5 ft	0 - 0.5 ft	--	--
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
PCB																			
Aroclor 1016	ug/kg	< 23	< 22	< 57	< 45	< 20	< 21	< 21	< 21	< 21	< 33	< 28	< 27	< 35	< 70	< 26	< 26	< 64	< 56
Aroclor 1221	ug/kg	< 23	< 22	< 57	< 45	< 20	< 21	< 21	< 21	< 21	< 33	< 28	< 27	< 35	< 70	< 26	< 26	< 64	< 56
Aroclor 1232	ug/kg	< 23	< 22	< 57	< 45	< 20	< 21	< 21	< 21	< 21	< 33	< 28	< 27	< 35	< 70	< 26	< 26	< 64	< 56
Aroclor 1242	ug/kg	< 23	< 22	< 57	< 45	< 20	< 21	< 21	< 21	< 21	< 33	< 28	< 27	< 35	< 70	< 26	< 26	< 64	< 56
Aroclor 1248	ug/kg	< 23	< 22	< 57	< 45	< 20	< 21	< 21	< 21	< 21	< 33	< 28	< 27	< 35	< 70	< 26	< 26	< 64	< 56
Aroclor 1254	ug/kg	< 23	< 22	< 57	< 45	< 20	< 21	**12**	< 21	**13**	< 33	< 28	< 27	< 35	< 70	< 26	< 26	< 64	< 56
Aroclor 1260	ug/kg	< 23	< 22	< 57	< 45	< 20	< 21	< 21	< 21	< 21	< 33	< 28	< 27	< 35	< 70	< 26	< 26	< 64	< 56
Polychlorinated biphenyls (PCBs), total	ug/kg	< 23	< 22	---	---	< 20	< 21	**12**	< 21	**13**	< 33	< 28	< 27	< 35	< 70	< 26	< 26	---	---

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	Location	SW-109	SW-109	SW-109	SW-109	SW-109	SW-109	SW-109	SW-110	SW-110	SW-110	SW-110	SW-110	SW-110	SW-111	SW-111	SW-111	SW-111
	Date Collected	8/26/2010 2:20 PM	8/30/2010 11:45 AM	9/3/2010 11:40 AM	9/6/2010 11:30 AM	9/9/2010 10:05 AM	9/13/2010 10:26 AM	9/20/2010 11:15 AM	10/2/2010 11:50 AM	10/8/2010 12:00 PM	10/13/2010 1:15 PM	10/15/2010 10:50 AM	10/19/2010 11:15 AM	10/22/2010 11:45 AM	8/28/2010 3:40 PM	9/1/2010 3:15 PM	9/5/2010 3:00 PM	9/8/2010 9:30 AM
	Sample	SEE08261 420RCM1	SEE08301 145MHS1	SEE09031 140MHS1	SEE09061 130MHS1	SEE09091 005RCM1	SEE09131 026RCM1	SEE09201 115RCM1	SEE10021 150RTV1	SEE10081 200PMB1	SEE10131 315RTV1	SEE10151 050CKC1	SEE10191 115PMB1	SEE102211 45PMB1	SEE08281 540JRP1	SEE09011 515JAW1	SEE09051 500JAW1	SEE09080 930JRP1
	Depth	9 - 10 ft	7 - 8 ft	8 - 9 ft	8 - 9 ft	8 - 9 ft	0 - 9 ft	--	--	0 - 0.5 ft	--	--	--	--	0 - 1 ft	--	0 - 1 ft	0 - 1 ft
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
PCB																		
Aroclor 1016	ug/kg	< 150	< 75	< 73	< 69	< 71	< 81	< 69	< 22	< 25	< 20	< 22	< 53	< 53	< 43	< 21	< 21	< 21
Aroclor 1221	ug/kg	< 150	< 75	< 73	< 69	< 71	< 81	< 69	< 22	< 25	< 20	< 22	< 53	< 53	< 43	< 21	< 21	< 21
Aroclor 1232	ug/kg	< 150	< 75	< 73	< 69	< 71	< 81	< 69	< 22	< 25	< 20	< 22	< 53	< 53	< 43	< 21	< 21	< 21
Aroclor 1242	ug/kg	< 150	< 75	< 73	< 69	< 71	< 81	< 69	< 22	< 25	< 20	< 22	< 53	< 53	< 43	< 21	< 21	< 21
Aroclor 1248	ug/kg	< 150	< 75	< 73	< 69	< 71	< 81	< 69	< 22	< 25	< 20	< 22	< 53	< 53	< 43	< 21	< 21	< 21
Aroclor 1254	ug/kg	< 150	**210**	**340**	**570**	**330**	**300**	**250**	**15**	**19**	< 20	< 22	< 53	< 53	< 43	**26**	**29**	< 21
Aroclor 1260	ug/kg	< 150	< 75	< 73	< 69	< 71	< 81	< 69	< 22	< 25	< 20	< 22	< 53	< 53	< 43	< 21	< 21	< 21
Polychlorinated biphenyls (PCBs), total	ug/kg	---	**210**	**340**	**570**	**330**	**300**	**250**	**15**	**19**	< 20	< 22	---	---	---	**26**	**29**	< 21

	Location	SW-111	SW-111	SW-115	SW-115	SW-115	SW-115	SW-116	SW-116	SW-117	SW-117	SW-117	SW-117	SW-117	SW-117	SW-117	SW-117	SW-117
	Date Collected	9/15/2010 9:15 AM	9/22/2010 10:45 AM	9/1/2010 11:55 AM	9/15/2010 12:23 PM	9/25/2010 3:45 PM	9/29/2010 11:45 AM	10/20/2010 12:25 PM	10/23/2010 12:30 PM	8/27/2010 6:25 PM	8/31/2010 11:27 AM	9/3/2010 10:31 AM	9/7/2010 10:50 AM	9/10/2010 10:29 AM	9/14/2010 10:56 AM	9/17/2010 10:25 AM	9/21/2010 10:15 AM	9/24/2010 4:45 PM
	Sample	SEE09150 915JRP1	SEE09221 045ARM1	SEE09011 155JAH1	SEE09151 223JAH1	SEE09251 545CKC1	SEE09291 145TDF1	SED10201 225NAC1	SED10231 230MAE1	SEC08271 825JLS1	SEC08311 127JLS1	SEC09031 031SKS1	SEC09071 050SKS1	SEC091010 29SKS1	SEC09141 056JLS1	SEC09171 025TDF1	SEC09211 015PMB1	SEC09241 645JLS1
	Depth	--	--	1 - 2 ft	--	--	0 - 0.1 ft	--	--	--	0 - 1 ft	2 - 3 ft	0 - 1 ft	2 - 2.2 ft	0 - 0.166667 ft	0 - 3.7 ft	--	0 - 2 ft
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
PCB																		
Aroclor 1016	ug/kg	< 22	< 21	< 32	< 23	< 52	< 49	< 54	< 62	< 45	< 22	< 21	< 22	< 21	< 20	< 23	< 22	< 21
Aroclor 1221	ug/kg	< 22	< 21	< 32	< 23	< 52	< 49	< 54	< 62	< 45	< 22	< 21	< 22	< 21	< 20	< 23	< 22	< 21
Aroclor 1232	ug/kg	< 22	< 21	< 32	< 23	< 52	< 49	< 54	< 62	< 45	< 22	< 21	< 22	< 21	< 20	< 23	< 22	< 21
Aroclor 1242	ug/kg	< 22	< 21	< 32	< 23	< 52	< 49	< 54	< 62	< 45	< 22	< 21	< 22	< 21	< 20	< 23	< 22	< 21
Aroclor 1248	ug/kg	< 22	< 21	< 32	< 23	< 52	< 49	< 54	< 62	< 45	< 22	< 21	< 22	< 21	< 20	< 23	< 22	< 21
Aroclor 1254	ug/kg	**21**	< 21	**180**	< 23	**140**	**110**	< 54	< 62	< 45	< 22	< 21	< 22	< 21	< 20	< 23	< 22	< 21
Aroclor 1260	ug/kg	< 22	< 21	< 32	< 23	< 52	< 49	< 54	< 62	< 45	< 22	< 21	< 22	< 21	< 20	< 23	< 22	< 21
Polychlorinated biphenyls (PCBs), total	ug/kg	**21**	< 21	**180**	< 23	**140**	**110**	---	---	---	< 22	< 21	< 22	< 21	< 20	< 23	< 22	< 21

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	Location	SW-117	SW-117	SW-117	SW-117	SW-117	SW-127	SW-127	SW-127	SW-127	SW-127	SW-127	SW-127	SW-127	SW-127	SW-127	SW-127	SW-933	SW-933
	Date Collected	9/28/2010 11:15 AM	10/1/2010 10:15 AM	10/5/2010 10:15 AM	10/8/2010 10:45 AM	10/12/2010 11:59 AM	9/16/2010 9:00 AM	9/20/2010 3:30 PM	9/22/2010 4:45 PM	9/27/2010 9:45 AM	9/30/2010 9:30 AM	10/4/2010 9:00 AM	10/7/2010 2:00 PM	10/11/2010 2:45 PM	10/14/2010 6:20 PM	10/18/2010 1:55 PM	10/21/2010 1:45 PM	9/3/2010 4:45 PM	9/6/2010 3:25 PM
	Sample	SEC09281 115JLS1	SEC10011 015JLS1	SEC10051 015JLS1	SEC10081 045JLS1	SEC10121 159JLS1	SE009160 900PMB1	SE009201 530PMB1	SE009221 645SDD1	SE009270 945PMB1	SE009300 930PMB1	SE010040 900PMB1	SE010071 400PMB1	SE010111 445RTV1	SE010141 820CKC1	SE010181 355PMB1	SEO10211 345PMB1	SEE09031 645MHS1	SEE09061 525MHS1
	Depth	0 - 0.4 ft	0 - 0.25 ft	0 - 0.25 ft	0 - 0.25 ft	--	--	--	0 - 0.5 ft	0 - 0.5 ft	0 - 0.5 ft	0 - 0.5 ft	0 - 0.5 ft	--	--	0 - 0.5 ft	--	9 - 10 ft	10 - 11 ft
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
PCB																			
Aroclor 1016	ug/kg	< 21	< 21	< 21	< 22	< 21	< 86	< 47	< 62	< 57	< 46	< 57	< 52	< 55	< 52	< 53	< 130	< 86	< 82
Aroclor 1221	ug/kg	< 21	< 21	< 21	< 22	< 21	< 86	< 47	< 62	< 57	< 46	< 57	< 52	< 55	< 52	< 53	< 130	< 86	< 82
Aroclor 1232	ug/kg	< 21	< 21	< 21	< 22	< 21	< 86	< 47	< 62	< 57	< 46	< 57	< 52	< 55	< 52	< 53	< 130	< 86	< 82
Aroclor 1242	ug/kg	< 21	< 21	< 21	< 22	< 21	< 86	< 47	< 62	< 57	< 46	< 57	< 52	< 55	< 52	< 53	< 130	< 86	< 82
Aroclor 1248	ug/kg	< 21	< 21	< 21	< 22	< 21	< 86	< 47	< 62	< 57	< 46	< 57	< 52	< 55	< 52	< 53	< 130	< 86	< 82
Aroclor 1254	ug/kg	< 21	< 21	< 21	< 22	< 21	< 86	**36**	< 62	**50**	< 46	< 57	< 52	**69**	< 52	< 53	< 130	**240**	**250**
Aroclor 1260	ug/kg	< 21	< 21	< 21	< 22	< 21	< 86	< 47	< 62	< 57	< 46	**41**	**37**	< 55	**63**	< 53	< 130	< 86	< 82
Polychlorinated biphenyls (PCBs), total	ug/kg	< 21	< 21	< 21	< 22	< 21	< 86	**36**	< 62	**50**	< 46	**41**	**37**	**69**	**63**	< 53	---	**240**	**250**

	Location	SW-933	SW-933	SW-933	SW-933	SW-933	SW-933	SW-933	SW-934	SW-934	SW-934	SW-934	SW-934	SW-934	SW-934	SW-934	SW-934	SW-934	MP-26.75
	Date Collected	9/9/2010 2:10 PM	9/12/2010 11:05 AM	9/13/2010 2:45 PM	9/17/2010 2:45 PM	9/21/2010 11:12 AM	9/23/2010 12:05 PM	10/4/2010 11:38 AM	8/26/2010 2:45 PM	8/30/2010 3:30 PM	9/3/2010 11:15 AM	9/9/2010 10:25 AM	9/13/2010 9:55 AM	9/20/2010 4:45 PM	9/23/2010 11:30 AM	9/27/2010 10:25 AM	9/30/2010 12:55 PM	10/4/2010 1:55 PM	9/21/2010 3:20 PM
	Sample	SEE09091 410RCM1	SEE09121 105RCM1	SEE09131 445RCM1	SEE09171 445RCM1	SEE09211 112RCM1	SEE09231 205RCM1	SEE10041 138RCM1	SEE08261 445JRP1	SEE08301 530JAW1	SEE09031 115JAW1	SEE09091 025JRP1	SEE09130 955JRP1	SEE09201 645ARM1	SEE09231 130ARM1	SEE09271 025ARM1	SEE09301 255MAE1	SEE10041 355ARM1	SEE09211 520PMH1
	Depth	9 - 10 ft	--	0 - 9 ft	0 - 9 ft	--	--	0 - 9 ft	--	--	--	3 - 4 ft	4 - 5 ft	--	--	--	--	0 - 3.5 ft	0 - 1.5 ft
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
PCB																			
Aroclor 1016	ug/kg	< 81	< 86	< 77	< 72	< 60	< 23	< 76	< 66	< 63	< 62	< 61	< 56	< 62	< 59	< 59	< 59	< 50	< 20
Aroclor 1221	ug/kg	< 81	< 86	< 77	< 72	< 60	< 23	< 76	< 66	< 63	< 62	< 61	< 56	< 62	< 59	< 59	< 59	< 50	< 20
Aroclor 1232	ug/kg	< 81	< 86	< 77	< 72	< 60	< 23	< 76	< 66	< 63	< 62	< 61	< 56	< 62	< 59	< 59	< 59	< 50	< 20
Aroclor 1242	ug/kg	< 81	< 86	< 77	< 72	< 60	< 23	< 76	< 66	< 63	< 62	< 61	< 56	< 62	< 59	< 59	< 59	< 50	< 20
Aroclor 1248	ug/kg	< 81	< 86	< 77	< 72	< 60	< 23	< 76	**260**	< 63	< 62	< 61	< 56	< 62	< 59	< 59	< 59	< 50	< 20
Aroclor 1254	ug/kg	**260**	**78**	**200**	**110**	< 60	**20**	**400**	< 66	**170**	**130**	**110**	**36**	**180**	**170**	**220**	**210**	**180**	**7.9**
Aroclor 1260	ug/kg	< 81	< 86	< 77	< 72	< 60	< 23	< 76	< 66	< 63	< 62	< 61	< 56	< 62	< 59	< 59	< 59	< 50	< 20
Polychlorinated biphenyls (PCBs), total	ug/kg	**260**	**78**	**200**	**110**	< 60	**20**	**400**	**260**	**170**	**130**	**110**	**36**	**180**	**170**	**220**	**210**	**180**	**7.9**

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	Location	MP-27.0	MP-27.5	MP-27.5	MP28.5	MP-32.0	MSE-16	SW-001	SW-001	SW-001	SW-001	SW-001	SW-001	SW-001	SW-001	SW-001	SW-001	SW-001	SW-001
	Date Collected	9/21/2010 11:33 AM	9/21/2010 10:40 AM	9/21/2010 2:40 PM	9/17/2010 2:58 PM	9/17/2010 10:42 AM	8/31/2010 10:10 AM	8/27/2010 4:30 PM	8/31/2010 11:30 AM	9/3/2010 10:15 AM	9/7/2010 11:30 AM	9/10/2010 10:25 AM	9/14/2010 10:30 AM	9/17/2010 10:00 AM	9/21/2010 11:40 AM	9/23/2010 10:15 AM	9/28/2010 11:15 AM	10/1/2010 11:15 AM	10/5/2010 9:15 AM
	Sample	SEE09211133PMH1	SEE09211040PMH1	SEE09211440PMH1	SEE09171458PMH1	SEE09171042PMH1	SEE08311010JRP1	SEC08271630PDS1	SEC08311130PDS1	SEC09031015PDS1	SEC09071130PMB1	SEC09101025PMB1	SEC09141030PMB1	SEC09171000PMB1	SEC09211140SDD1	SEC09231015PMB1	SEC09281115PMB1	SEC10011115PMB1	SEC10050915PMB1
	Depth	0 - 1 ft	0 - 1 ft	0 - 1 ft	0 - 1.7 ft	0 - 2 ft	9 - 10 ft	--	0 - 1 ft	0 - 1 ft	0 - 6 ft	0 - 6 ft	0 - 6 ft	0 - 6 ft	--	0 - 6 ft	--	0 - 0.5 ft	0 - 0.5 ft
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
PCB																			
Aroclor 1016	ug/kg	< 23	< 30	< 32	< 57	< 25	< 97	< 160	< 98	< 27	< 24	< 26	< 32	< 25	< 25	< 25	< 24	< 42	< 39
Aroclor 1221	ug/kg	< 23	< 30	< 32	< 57	< 25	< 97	< 160	< 98	< 27	< 24	< 26	< 32	< 25	< 25	< 25	< 24	< 42	< 39
Aroclor 1232	ug/kg	< 23	< 30	< 32	< 57	< 25	< 97	< 160	< 98	< 27	< 24	< 26	< 32	< 25	< 25	< 25	< 24	< 42	< 39
Aroclor 1242	ug/kg	< 23	< 30	< 32	< 57	< 25	< 97	< 160	< 98	< 27	< 24	< 26	< 32	< 25	< 25	< 25	< 24	< 42	< 39
Aroclor 1248	ug/kg	< 23	< 30	< 32	< 57	< 25	< 97	< 160	< 98	< 27	< 24	< 26	< 32	< 25	< 25	< 25	< 24	< 42	< 39
Aroclor 1254	ug/kg	**31**	**32**	**40**	**98**	< 25	**1400**	< 160	< 98	< 27	**21**	< 26	**14**	< 25	< 25	< 25	< 24	< 42	< 39
Aroclor 1260	ug/kg	< 23	< 30	< 32	< 57	< 25	< 97	< 160	< 98	< 27	< 24	< 26	< 32	< 25	< 25	< 25	< 24	< 42	< 39
Polychlorinated biphenyls (PCBs), total	ug/kg	**31**	**32**	**40**	**98**	< 25	**1400**	---	< 98	< 27	**21**	< 26	**14**	< 25	< 25	< 25	< 24	< 42	< 39

	Location	SW-001	SW-001	SW-001	SW-001	SW-001	SW-002	SW-002	SW-002	SW-002	SW-002	SW-002	SW-003	SW-003	SW-003	SW-003	SW-003	SW-003	SW-003
	Date Collected	10/8/2010 9:00 AM	10/12/2010 2:50 PM	10/15/2010 1:20 PM	10/19/2010 9:15 AM	10/22/2010 1:20 PM	8/30/2010 11:11 AM	9/2/2010 4:00 PM	9/6/2010 1:10 PM	9/9/2010 12:15 PM	9/13/2010 12:38 PM	9/16/2010 11:59 AM	9/27/2010 2:21 PM	9/30/2010 1:35 PM	10/4/2010 1:21 PM	10/7/2010 11:59 AM	10/11/2010 11:15 AM	10/15/2010 11:59 AM	10/18/2010 1:59 PM
	Sample	SEC10080900PMB1	SEC10121450RTV1	SEC10151320CKC1	SEC10190915PMB1	SEC10221320PMB1	SEC08301111JLS1	SEC09021600JLS1	SEC09061310SKS1	SEC09091215SKS1	SEC09131238JLS1	SEC09161159JLS1	SEC09271421JLS1	SEC09301335JLS1	SEC10041321JLS1	SEC10071159JLS1	SEC10111115PDS1	SEC10151159JLS1	SEC10181359JLS1
	Depth	0 - 0.5 ft	--	--	--	--	0 - 1 ft	0 - 1 ft	0 - 1 ft	0 - 1 ft	0.1 - 0.2 ft	--	0 - 0.4 ft	0 - 0.25 ft	0 - 0.25 ft	0 - 3 ft	0 - 3 ft	0 - 0.25 ft	0.167 - 0.25 ft
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
PCB																			
Aroclor 1016	ug/kg	< 34	< 29	< 43	< 120	< 82	< 27	< 24	< 19	< 21	< 21	< 20	< 22	< 21	< 26	< 24	< 21	< 22	< 20
Aroclor 1221	ug/kg	< 34	< 29	< 43	< 120	< 82	< 27	< 24	< 19	< 21	< 21	< 20	< 22	< 21	< 26	< 24	< 21	< 22	< 20
Aroclor 1232	ug/kg	< 34	< 29	< 43	< 120	< 82	< 27	< 24	< 19	< 21	< 21	< 20	< 22	< 21	< 26	< 24	< 21	< 22	< 20
Aroclor 1242	ug/kg	< 34	< 29	< 43	< 120	< 82	< 27	< 24	< 19	< 21	< 21	< 20	< 22	< 21	< 26	< 24	< 21	< 22	< 20
Aroclor 1248	ug/kg	< 34	< 29	< 43	< 120	< 82	< 27	< 24	< 19	< 21	< 21	< 20	**110**	**220**	< 26	< 24	**210**	< 22	< 20
Aroclor 1254	ug/kg	< 34	< 29	< 43	< 120	< 82	< 27	**160**	< 19	**350**	< 21	< 20	< 22	**81**	< 26	**31**	< 21	< 22	**67**
Aroclor 1260	ug/kg	< 34	< 29	< 43	< 120	< 82	< 27	< 24	< 19	< 21	< 21	< 20	< 22	< 21	**33**	< 24	< 21	< 22	< 20
Polychlorinated biphenyls (PCBs), total	ug/kg	< 34	< 29	< 43	---	---	< 27	**160**	< 19	**350**	< 21	< 20	**110**	**300**	**33**	**31**	**210**	< 22	**67**

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	Location	SW-003	SW-004	SW-004	SW-004	SW-004	SW-004	SW-004	SW-004	SW-004	SW-004	SW-004	SW-004	SW-004	SW-004	SW-005	SW-005	SW-005
	Date Collected	10/21/2010 3:59 PM	9/6/2010 5:20 PM	9/10/2010 3:25 PM	9/14/2010 2:00 PM	9/21/2010 1:15 PM	9/24/2010 10:18 AM	9/28/2010 3:59 PM	10/1/2010 1:19 PM	10/5/2010 1:21 PM	10/8/2010 1:35 PM	10/12/2010 3:35 PM	10/15/2010 2:55 PM	10/19/2010 2:25 PM	10/22/2010 2:31 PM	9/23/2010 11:55 AM	9/27/2010 2:30 PM	9/30/2010 4:30 PM
	Sample	SEC10211 559JLS1	SED09061 720SWA1	SED09101 525SKS1	SED09141 400JLS1	SED09211 315PMB1	SED09241 018JLS1	SED09281 559JLS1	SED10011 319JLS1	SED10051 321JLS1	SED10081 335JLS1	SED10121 535JLS1	SED10151 455JLS1	SED10191 425JLS1	SED10221431J LS1	SEE09231 155CKC1	SEE09271 430TDF1	SEE09301 630TDF1
	Depth	--	0 - 1 ft	0 - 0.5 ft	0 - 0.166667 ft	--	0 - 0.1 ft	0 - 0.4 ft	0 - 0.25 ft	0 - 0.25 ft	0 - 0.25 ft	--	0 - 0.25 ft	--	--	--	0 - 0.1 ft	0 - 0.166667 ft
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
PCB																		
Aroclor 1016	ug/kg	< 55	< 20	< 20	< 43	< 22	< 21	< 21	< 21	< 21	< 22	< 20	< 22	< 52	< 50	< 24	< 25	< 22
Aroclor 1221	ug/kg	< 55	< 20	< 20	< 43	< 22	< 21	< 21	< 21	< 21	< 22	< 20	< 22	< 52	< 50	< 24	< 25	< 22
Aroclor 1232	ug/kg	< 55	< 20	< 20	< 43	< 22	< 21	< 21	< 21	< 21	< 22	< 20	< 22	< 52	< 50	< 24	< 25	< 22
Aroclor 1242	ug/kg	< 55	< 20	< 20	< 43	< 22	< 21	< 21	< 21	< 21	< 22	< 20	< 22	< 52	< 50	< 24	< 25	< 22
Aroclor 1248	ug/kg	< 55	< 20	< 20	< 43	< 22	< 21	< 21	< 21	< 21	< 22	< 20	< 22	< 52	< 50	< 24	< 25	< 22
Aroclor 1254	ug/kg	**110**	**14**	**22**	< 43	**39**	< 21	**21**	**21**	< 21	**26**	**20**	**28**	< 52	< 50	**33**	**31**	**19**
Aroclor 1260	ug/kg	< 55	< 20	< 20	< 43	< 22	< 21	< 21	< 21	< 21	< 22	< 20	< 22	< 52	< 50	< 24	< 25	< 22
Polychlorinated biphenyls (PCBs), total	ug/kg	---	**14**	**22**	< 43	**39**	< 21	**21**	**21**	< 21	**26**	**20**	**28**	---	---	**33**	**31**	**19**

	Location	SW-005	SW-005	SW-005	SW-005	SW-005	SW-100	SW-100	SW-100	SW-100	SW-100	SW-101	SW-101	SW-101	SW-101	SW-101	SW-101	SW-101
	Date Collected	10/4/2010 3:40 PM	10/7/2010 12:50 PM	10/11/2010 2:15 PM	10/14/2010 2:45 PM	10/18/2010 1:45 PM	8/28/2010 10:05 AM	9/1/2010 9:50 AM	9/4/2010 9:32 AM	9/8/2010 12:00 PM	9/11/2010 9:15 AM	9/11/2010 10:30 AM	9/15/2010 3:34 PM	9/19/2010 1:05 PM	9/22/2010 2:39 PM	9/25/2010 2:35 PM	9/29/2010 3:21 PM	10/2/2010 2:59 PM
	Sample	SEE10041 540TDF1	SEE10071 250TDF1	SEE10111 415PMB1	SEE10141 445WPW1	SEE10181 345NAC1	SEB08281 005PDS1	SEC09010 950PDS1	SEC09040 932PMB1	SEB09081 200PMB1	SEB09110 915PMB1	SEC09111 030SKS1	SEC09151 534JLS1	SEC09191 305TDF1	SEC09221439J LS1	SEC09251 435JLS1	SEC09291 521JLS1	SEC10021 459JLS1
	Depth	0 - 0.167 ft	0 - 2 ft	0 - 0.5 ft	0.5 - 1 ft	--	0 - 1 ft	0 - 3 ft	0 - 1 ft	--	0 - 6 ft	0 - 0.5 ft	--	0 - 2 ft	0 - 1.75 ft	0 - 0.4 ft	0 - 0.4 ft	--
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
PCB																		
Aroclor 1016	ug/kg	< 21	< 21	< 19	< 22	< 23	< 51	< 55	< 42	< 55	< 27	< 43	< 43	< 50	< 43	< 44	< 41	< 49
Aroclor 1221	ug/kg	< 21	< 21	< 19	< 22	< 23	< 51	< 55	< 42	< 55	< 27	< 43	< 43	< 50	< 43	< 44	< 41	< 49
Aroclor 1232	ug/kg	< 21	< 21	< 19	< 22	< 23	< 51	< 55	< 42	< 55	< 27	< 43	< 43	< 50	< 43	< 44	< 41	< 49
Aroclor 1242	ug/kg	< 21	< 21	< 19	< 22	< 23	< 51	< 55	< 42	< 55	< 27	< 43	< 43	< 50	< 43	< 44	< 41	< 49
Aroclor 1248	ug/kg	< 21	< 21	< 19	< 22	< 23	< 51	< 55	< 42	< 55	< 27	< 43	< 43	< 50	< 43	< 44	< 41	< 49
Aroclor 1254	ug/kg	**19**	**47**	**8.5**	**19**	**33**	< 51	**140**	**63**	**84**	**21**	**61**	**21**	< 50	**42**	**46**	**57**	**56**
Aroclor 1260	ug/kg	< 21	< 21	< 19	< 22	< 23	< 51	< 55	< 42	< 55	< 27	< 43	< 43	< 50	< 43	< 44	< 41	< 49
Polychlorinated biphenyls (PCBs), total	ug/kg	**19**	**47**	**8.5**	**19**	**33**	---	**140**	**63**	**84**	**21**	**61**	**21**	< 50	**42**	**46**	**57**	**56**

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	Location	SW-101	SW-101	SW-101	SW-101	SW-101	SW-101	SW-103	SW-103	SW-103	SW-103	SW-103	SW-103	SW-103	SW-103	SW-103	SW-103	SW-103
	Date Collected	10/6/2010 1:21 PM	10/9/2010 1:10 PM	10/14/2010 9:59 AM	10/16/2010 3:15 PM	10/20/2010 3:59 PM	10/23/2010 12:45 PM	9/4/2010 2:25 PM	9/8/2010 1:39 PM	9/12/2010 1:11 PM	9/15/2010 11:51 AM	9/19/2010 10:16 AM	9/19/2010 10:16 AM	9/22/2010 12:00 PM	9/25/2010 12:31 PM	9/29/2010 12:25 PM	10/2/2010 11:59 AM	10/6/2010 11:32 AM
	Sample	SEC10061 321JLS1	SEC10091 310PDS1	SEC10140 959JLS1	SEC10161 515JLS1	SEC102015 59JLS1	SEB1023124 5JLS1	SEB09041 425SKS1	SEB09081 339SKS1	SEB09121 311SKS1	SEB09151 151JLS1	SEB09191 016TDF1	SEB09191 016TDF2	SEB09221 200JLS1	SEB09251 231JLS1	SEB09291 225JLS1	SEB10021 159JLS1	SEB10061 132JLS1
	Depth	0 - 0.25 ft	0 - 0.25 ft	0 - 0.25 ft	0 - 0.25 ft	--	--	2 - 3 ft	0 - 1 ft	--	--	--	--	0 - 1.75 ft	0 - 0.4 ft	0 - 0.4 ft	--	0 - 0.25 ft
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
PCB																		
Aroclor 1016	ug/kg	< 39	< 43	< 32	< 31	< 98	< 93	< 20	< 25	< 27	< 21	< 21	< 21	< 21	< 22	< 21	< 22	< 20
Aroclor 1221	ug/kg	< 39	< 43	< 32	< 31	< 98	< 93	< 20	< 25	< 27	< 21	< 21	< 21	< 21	< 22	< 21	< 22	< 20
Aroclor 1232	ug/kg	< 39	< 43	< 32	< 31	< 98	< 93	< 20	< 25	< 27	< 21	< 21	< 21	< 21	< 22	< 21	< 22	< 20
Aroclor 1242	ug/kg	< 39	< 43	< 32	< 31	< 98	< 93	< 20	< 25	< 27	< 21	< 21	< 21	< 21	< 22	< 21	< 22	< 20
Aroclor 1248	ug/kg	< 39	< 43	< 32	< 31	< 98	< 93	< 20	< 25	< 27	< 21	< 21	< 21	< 21	< 22	< 21	< 22	< 20
Aroclor 1254	ug/kg	< 39	< 43	**27**	**15**	< 98	< 93	< 20	< 25	< 27	< 21	< 21	< 21	< 21	< 22	< 21	< 22	< 20
Aroclor 1260	ug/kg	< 39	< 43	< 32	< 31	< 98	< 93	< 20	< 25	< 27	< 21	< 21	< 21	< 21	< 22	< 21	< 22	< 20
Polychlorinated biphenyls (PCBs), total	ug/kg	< 39	< 43	**27**	**15**	---	---	< 20	< 25	< 27	< 21	< 21	< 21	< 21	< 22	< 21	< 22	< 20

	Location	SW-103	SW-103	SW-103	SW-103	SW-103	SW-104	SW-104	SW-104	SW-104	SW-104	SW-104	SW-105	SW-105	SW-105	SW-105	SW-105	SW-105
	Date Collected	10/9/2010 11:00 AM	10/13/2010 11:05 AM	10/16/2010 12:15 PM	10/20/2010 12:35 PM	10/23/2010 10:55 AM	8/26/2010 2:20 PM	9/6/2010 12:45 PM	9/9/2010 12:45 PM	9/13/2010 1:00 PM	9/16/2010 10:30 AM	9/17/2010 2:32 PM	9/11/2010 10:45 AM	9/15/2010 10:45 AM	9/17/2010 1:00 PM	9/21/2010 9:45 AM	9/23/2010 12:15 PM	9/29/2010 10:45 AM
	Sample	SEB10091 100PDS1	SEB10131 105JLS1	SEB10161 215JLS1	SEB10201 235JLS1	SEB102310 55JLS1	SEC0826142 0PDS1	SEB09061 245PMB1	SEB09091 245PMB1	SEB09131 300PMB1	SEB09161 030PMB1	SED09171 432TDF1	SEB09111 045PMB1	SEB09151 045PMB1	SEB09171 300PMB1	SEB09210 945SDD1	SEB09231 215PMB1	SEB09291 045PMB1
	Depth	0 - 0.25 ft	0 - 0.25 ft	0 - 0.25 ft	--	--	0 - 0.5 ft	--	0 - 1 ft	0 - 0.5 ft	0 - 6 ft	--	0 - 6 ft	--	0 - 6 ft	--	0 - 6 ft	0 - 0.5 ft
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
PCB																		
Aroclor 1016	ug/kg	< 24	< 21	< 21	< 59	< 53	< 25	< 20	< 22	< 19	< 21	< 20	< 21	< 20	< 20	< 21	< 20	< 20
Aroclor 1221	ug/kg	< 24	< 21	< 21	< 59	< 53	< 25	< 20	< 22	< 19	< 21	< 20	< 21	< 20	< 20	< 21	< 20	< 20
Aroclor 1232	ug/kg	< 24	< 21	< 21	< 59	< 53	< 25	< 20	< 22	< 19	< 21	< 20	< 21	< 20	< 20	< 21	< 20	< 20
Aroclor 1242	ug/kg	< 24	< 21	< 21	< 59	< 53	< 25	< 20	< 22	< 19	< 21	< 20	< 21	< 20	< 20	< 21	< 20	< 20
Aroclor 1248	ug/kg	< 24	< 21	< 21	< 59	< 53	< 25	< 20	< 22	< 19	< 21	< 20	< 21	< 20	< 20	< 21	< 20	< 20
Aroclor 1254	ug/kg	< 24	< 21	< 21	< 59	< 53	< 25	< 20	< 22	< 19	< 21	**15**	**16**	< 20	< 20	**56**	< 20	< 20
Aroclor 1260	ug/kg	< 24	< 21	< 21	< 59	< 53	< 25	< 20	< 22	< 19	< 21	< 20	< 21	< 20	< 20	< 21	< 20	< 20
Polychlorinated biphenyls (PCBs), total	ug/kg	< 24	< 21	< 21	---	---	< 25	< 20	< 22	< 19	< 21	**15**	**16**	< 20	< 20	**56**	< 20	< 20

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	Location	SW-105	SW-105	SW-105	SW-105	SW-105	SW-105	SW-105	SW-107	SW-107	SW-107	SW-107	SW-107	SW-107	SW-107	SW-107	SW-107	SW-107
	Date Collected	10/2/2010 10:45 AM	10/4/2010 2:15 PM	10/7/2010 10:15 AM	10/11/2010 10:45 AM	10/14/2010 11:35 AM	10/18/2010 10:00 AM	10/21/2010 10:00 AM	8/26/2010 12:10 PM	9/2/2010 10:45 AM	9/6/2010 11:15 AM	9/30/2010 10:45 AM	10/4/2010 10:15 AM	10/7/2010 12:00 PM	10/11/2010 12:55 PM	10/14/2010 4:20 PM	10/18/2010 11:55 AM	10/21/2010 11:25 AM
	Sample	SEB10021 045PMB1	SEB10041 415PMB1	SEB10071 015PMB1	SEB10111 045RTV1	SEB10141 135CKC1	SEB101810 00PMB1	SEB1021100 0PMB1	SE0082612 10PDS1	SE00902104 5PDS1	SE009061 115PMB1	SE009301 045PMB1	SE010041 015PMB1	SE010071 200PMB1	SE010111 255RTV1	SE010141 620CKC1	SE010181 155PMB1	SEO10211 125PMB1
	Depth	0 - 0.5 ft	0 - 0.5 ft	0 - 0.5 ft	--	--	0 - 0.5 ft	--	0 - 0.5 ft	0 - 1 ft	0 - 1 ft	0 - 0.5 ft	0 - 0.5 ft	0 - 0.5 ft	--	--	0 - 0.5 ft	--
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
PCB																		
Aroclor 1016	ug/kg	< 21	< 21	< 22	< 25	< 24	< 23	< 66	< 40	< 37	< 34	< 29	< 25	< 29	< 32	< 54	< 33	< 80
Aroclor 1221	ug/kg	< 21	< 21	< 22	< 25	< 24	< 23	< 66	< 40	< 37	< 34	< 29	< 25	< 29	< 32	< 54	< 33	< 80
Aroclor 1232	ug/kg	< 21	< 21	< 22	< 25	< 24	< 23	< 66	< 40	< 37	< 34	< 29	< 25	< 29	< 32	< 54	< 33	< 80
Aroclor 1242	ug/kg	< 21	< 21	< 22	< 25	< 24	< 23	< 66	< 40	< 37	< 34	< 29	< 25	< 29	< 32	< 54	< 33	< 80
Aroclor 1248	ug/kg	< 21	< 21	< 22	< 25	< 24	< 23	< 66	< 40	< 37	< 34	< 29	< 25	< 29	< 32	< 54	< 33	< 80
Aroclor 1254	ug/kg	< 21	< 21	< 22	**11**	< 24	< 23	< 66	< 40	< 37	< 34	< 29	< 25	< 29	< 32	< 54	< 33	< 80
Aroclor 1260	ug/kg	< 21	< 21	< 22	< 25	< 24	< 23	< 66	< 40	< 37	< 34	< 29	< 25	< 29	< 32	< 54	< 33	< 80
Polychlorinated biphenyls (PCBs), total	ug/kg	< 21	< 21	< 22	**11**	< 24	< 23	---	< 40	< 37	< 34	< 29	< 25	< 29	< 32	< 54	< 33	---

	Location	SW-108	SW-108	SW-108	SW-108	SW-108	SW-108	SW-108	SW-108	SW-108	SW-108	SW-108	SW-108	SW-109	SW-109	SW-109	SW-109	SW-109
	Date Collected	9/3/2010 10:35 AM	9/7/2010 11:42 AM	9/10/2010 1:30 PM	9/14/2010 12:45 PM	9/16/2010 11:45 AM	9/20/2010 10:00 AM	9/22/2010 10:30 AM	9/28/2010 9:45 AM	10/1/2010 9:00 AM	10/5/2010 4:41 PM	10/8/2010 4:20 PM	10/12/2010 9:00 AM	9/23/2010 9:55 AM	9/30/2010 12:05 PM	10/7/2010 10:42 AM	10/14/2010 3:55 PM	10/18/2010 2:30 PM
	Sample	SEE09031 035SWA1	SEE09071 142SWA3	SEE09101 330PMB1	SEE09141 245PMB1	SEE09161 145PMB1	SEE092010 00PMB1	SEE0922103 0SDD1	SEE092809 45PMB1	SEE100109 00PMB1	SEE10051 641TDF1	SEE10081 620TDF1	SEE10120 900PMB1	SEE09230 955RCM1	SEE09301 205RCM1	SEE10071 042RCM1	SEE10141 555ARM1	SEE10181 430JWP1
	Depth	0 - 1 ft	0 - 1 ft	0 - 6 ft	0 - 6 ft	--	--	0 - 0.5 ft	--	0 - 0.5 ft	0 - 0.167 ft	0 - 0.1 ft	0 - 0.5 ft	--	0 - 0.75 ft	0 - 9 ft	0 - 8.417 ft	8 - 8 ft
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
PCB																		
Aroclor 1016	ug/kg	< 38	< 24	< 26	< 23	< 27	< 26	< 22	< 26	< 26	< 30	< 39	< 23	< 74	< 69	< 71	< 76	< 140
Aroclor 1221	ug/kg	< 38	< 24	< 26	< 23	< 27	< 26	< 22	< 26	< 26	< 30	< 39	< 23	< 74	< 69	< 71	< 76	< 140
Aroclor 1232	ug/kg	< 38	< 24	< 26	< 23	< 27	< 26	< 22	< 26	< 26	< 30	< 39	< 23	< 74	< 69	< 71	< 76	< 140
Aroclor 1242	ug/kg	< 38	< 24	< 26	< 23	< 27	< 26	< 22	< 26	< 26	< 30	< 39	< 23	< 74	< 69	< 71	< 76	< 140
Aroclor 1248	ug/kg	< 38	< 24	< 26	< 23	< 27	< 26	< 22	< 26	< 26	< 30	< 39	< 23	< 74	< 69	< 71	< 76	< 140
Aroclor 1254	ug/kg	< 38	**10**	< 26	< 23	< 27	< 26	< 22	**11**	< 26	< 30	< 39	< 23	**340**	**500**	**470**	**1100**	**2200**
Aroclor 1260	ug/kg	< 38	< 24	< 26	< 23	< 27	< 26	< 22	< 26	< 26	< 30	< 39	< 23	< 74	< 69	< 71	< 76	< 140
Polychlorinated biphenyls (PCBs), total	ug/kg	< 38	**10**	< 26	< 23	< 27	< 26	< 22	**11**	< 26	< 30	< 39	< 23	**340**	**500**	**470**	**1100**	**2200**

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	Location	SW-109	SW-110	SW-110	SW-110	SW-110	SW-110	SW-110	SW-110	SW-110	SW-110	SW-110	SW-111	SW-111	SW-111	SW-111	SW-111	SW-111
	Date Collected	10/21/2010 10:10 AM	8/28/2010 4:45 PM	9/1/2010 10:25 AM	9/4/2010 10:25 AM	9/8/2010 11:45 AM	9/11/2010 11:30 AM	9/14/2010 9:20 AM	9/19/2010 11:40 AM	9/22/2010 2:40 PM	9/25/2010 3:00 PM	9/29/2010 11:30 AM	9/25/2010 12:35 PM	9/29/2010 9:15 AM	10/6/2010 11:35 AM	10/9/2010 12:00 PM	10/12/2010 10:40 AM	10/17/2010 3:35 PM
	Sample	SEE102110 10JWP1	SEE08281 645CKC1	SEE09011 025RTV1	SEE09041 025RTV1	SEE09081 145RTV1	SEE09111 130RTV1	SEE09140 920RTV1	SEE09191 140JPN1	SEE09221 440JPN1	SEE09251 500SDD1	SEE09291 130RTV1	SEE09251 235ARM1	SEE09290 915MAE1	SEE10061 135ARM1	SEE10091 200ARM1	SEE10121 040ARM1	SEE10171 535ARM1
	Depth	--	--	--	--	--	--	--	0 - 1.5 ft	0 - 1.5 ft	0 - 1 ft	--	--	--	0 - 1.5 ft	0 - 1.5 ft	--	0 - 1 ft
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
PCB																		
Aroclor 1016	ug/kg	< 180	< 37	< 23	< 24	< 24	< 34	< 140	< 29	< 30	< 39	< 20	< 22	< 24	< 21	< 160	< 20	< 28
Aroclor 1221	ug/kg	< 180	< 37	< 23	< 24	< 24	< 34	< 140	< 29	< 30	< 39	< 20	< 22	< 24	< 21	< 160	< 20	< 28
Aroclor 1232	ug/kg	< 180	< 37	< 23	< 24	< 24	< 34	< 140	< 29	< 30	< 39	< 20	< 22	< 24	< 21	< 160	< 20	< 28
Aroclor 1242	ug/kg	< 180	< 37	< 23	< 24	< 24	< 34	< 140	< 29	< 30	< 39	< 20	< 22	< 24	< 21	< 160	< 20	< 28
Aroclor 1248	ug/kg	< 180	< 37	< 23	< 24	< 24	< 34	< 140	< 29	< 30	< 39	< 20	< 22	< 24	< 21	< 160	< 20	< 28
Aroclor 1254	ug/kg	**560**	< 37	**16**	**28**	**62**	**60**	**62**	**25**	**25**	**60**	**8.8**	**20**	**47**	**44**	**1700**	**18**	**250**
Aroclor 1260	ug/kg	< 180	< 37	< 23	< 24	< 24	< 34	< 140	< 29	< 30	< 39	< 20	< 22	< 24	< 21	< 160	< 20	< 28
Polychlorinated biphenyls (PCBs), total	ug/kg	---	---	**16**	**28**	**62**	**60**	**62**	**25**	**25**	**60**	**8.8**	**20**	**47**	**44**	**1700**	**18**	**250**

	Location	SW-111	SW-111	SW-112	SW-112	SW-112	SW-112	SW-112	SW-112	SW-112	SW-112	SW-113	SW-113	SW-115	SW-115	SW-115	SW-115	SW-115
	Date Collected	10/19/2010 11:15 AM	10/22/2010 2:50 PM	9/28/2010 11:39 AM	10/1/2010 10:45 AM	10/5/2010 12:06 PM	10/8/2010 11:08 AM	10/12/2010 11:30 AM	10/15/2010 10:30 AM	10/19/2010 11:35 AM	10/22/2010 10:50 AM	8/28/2010 2:00 PM	9/1/2010 11:43 AM	8/28/2010 12:21 PM	10/2/2010 11:35 AM	10/6/2010 11:21 AM	10/9/2010 11:29 AM	10/13/2010 10:25 AM
	Sample	SEE101911 15JWP1	SEE10221 450DWS1	SEF09281 139TDF1	SEF10011 045TDF1	SEF10051 206TDF3	SEF10081 108TDF3	SEF10121 130PMB3	SEF10151 030PMB3	SEF10191 135NAC3	SEF10221 050MAE3	SEB08281 400JLS1	SEB09011 143JLS1	SE082812 21JAH1	SEE10021 135TDF1	SEE10061 121TDF1	SEE10091 129TDF1	SEE10131 025PDS1
	Depth	--	--	0 - 0.1 ft	0 - 0.1 ft	0 - 0.167 ft	0 - 0.1 ft	0 - 0.5 ft	0 - 0.5 ft	--	--	0 - 1 ft	0 - 1 ft	0 - 1 ft	0 - 0.167 ft	0 - 0.2 ft	0 - 0.1 ft	0 - 3 ft
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
PCB																		
Aroclor 1016	ug/kg	< 52	< 81	< 19	< 23	< 21	< 23	< 22	< 21	< 58	< 59	< 44	< 22	< 91	< 31	< 40	< 49	< 29
Aroclor 1221	ug/kg	< 52	< 81	< 19	< 23	< 21	< 23	< 22	< 21	< 58	< 59	< 44	< 22	< 91	< 31	< 40	< 49	< 29
Aroclor 1232	ug/kg	< 52	< 81	< 19	< 23	< 21	< 23	< 22	< 21	< 58	< 59	< 44	< 22	< 91	< 31	< 40	< 49	< 29
Aroclor 1242	ug/kg	< 52	< 81	< 19	< 23	< 21	< 23	< 22	< 21	< 58	< 59	< 44	< 22	< 91	< 31	< 40	< 49	< 29
Aroclor 1248	ug/kg	< 52	< 81	< 19	< 23	< 21	< 23	< 22	< 21	< 58	< 59	< 44	< 22	< 91	< 31	< 40	< 49	< 29
Aroclor 1254	ug/kg	< 52	**210**	**6.1**	**16**	< 21	< 23	< 22	**7.6**	< 58	< 59	< 44	< 22	< 91	**42**	**110**	**72**	**98**
Aroclor 1260	ug/kg	< 52	< 81	< 19	< 23	< 21	< 23	< 22	< 21	< 58	< 59	< 44	< 22	< 91	< 31	< 40	**31**	< 29
Polychlorinated biphenyls (PCBs), total	ug/kg	---	---	**6.1**	**16**	< 21	< 23	< 22	**7.6**	---	---	---	< 22	---	**42**	**110**	**100**	**98**

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	Location	SW-115	SW-115	SW-115	SW-116	SW-116	SW-116	SW-116	SW-116	SW-116	SW-116	SW-116	SW-116	SW-117	SW-117	SW-117	SW-118	SW-118
	Date Collected	10/16/2010 11:45 AM	10/20/2010 9:35 AM	10/23/2010 10:05 AM	8/27/2010 5:30 PM	9/3/2010 4:40 PM	9/7/2010 4:02 PM	9/29/2010 3:30 PM	10/2/2010 3:34 PM	10/6/2010 3:41 PM	10/9/2010 3:40 PM	10/13/2010 12:30 PM	10/16/2010 9:30 AM	10/15/2010 9:45 AM	10/19/2010 9:59 AM	10/22/2010 10:21 AM	8/27/2010 11:55 AM	8/31/2010 10:25 AM
	Sample	SED101611 45PMB1	SEE10200935NAC1	SEE10231005MAE1	SED082717 30SWA1	SED090316 40SWA3	SED090716 02SWA1	SED092915 30TDF1	SED100215 34TDF1	SED100615 41TDF1	SED100915 40TDF1	SED101312 30PDS1	SEE101609 30PMB1	SEC101509 45JLS1	SEC101909 59JLS1	SEC10221021JLS1	SEC082711 55PDS3	SEC083110 25PDS3
	Depth	0.167 - 0.5 ft	--	--	0 - 0.3 ft	0 - 1 ft	0 - 1 ft	0 - 0.1 ft	0 - 0.167 ft	0 - 0.2 ft	0 - 0.1 ft	0 - 3 ft	0.167 - 0.5 ft	0 - 0.25 ft	--	--	--	0 - 1 ft
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
PCB																		
Aroclor 1016	ug/kg	< 20	< 65	< 86	< 49	< 20	< 20	< 25	< 19	< 23	< 19	< 25	< 31	< 23	< 58	< 52	< 92	< 25
Aroclor 1221	ug/kg	< 20	< 65	< 86	< 49	< 20	< 20	< 25	< 19	< 23	< 19	< 25	< 31	< 23	< 58	< 52	< 92	< 25
Aroclor 1232	ug/kg	< 20	< 65	< 86	< 49	< 20	< 20	< 25	< 19	< 23	< 19	< 25	< 31	< 23	< 58	< 52	< 92	< 25
Aroclor 1242	ug/kg	< 20	< 65	< 86	**47**	< 20	< 20	< 25	< 19	< 23	< 19	< 25	< 31	< 23	< 58	< 52	< 92	< 25
Aroclor 1248	ug/kg	< 20	< 65	< 86	< 49	< 20	< 20	< 25	< 19	< 23	< 19	< 25	< 31	< 23	< 58	< 52	< 92	< 25
Aroclor 1254	ug/kg	< 20	< 65	< 86	**70**	< 20	**9.7**	**26**	< 19	**98**	< 19	< 25	**65**	< 23	< 58	< 52	< 92	< 25
Aroclor 1260	ug/kg	< 20	< 65	< 86	< 49	< 20	< 20	< 25	< 19	< 23	< 19	< 25	**25**	< 23	< 58	< 52	< 92	< 25
Polychlorinated biphenyls (PCBs), total	ug/kg	< 20	---	---	---	< 20	**9.7**	**26**	< 19	**98**	< 19	< 25	**90**	< 23	---	---	---	< 25

	Location	SW-118	SW-118	SW-118	SW-118	SW-118	SW-118	SW-118	SW-118	SW-118	SW-118	SW-118	SW-118	SW-118	SW-118	SW-118	SW-120	SW-120
	Date Collected	9/3/2010 9:15 AM	9/7/2010 10:50 AM	9/10/2010 9:45 AM	9/14/2010 9:30 AM	9/17/2010 9:45 AM	9/21/2010 1:30 PM	9/23/2010 9:45 AM	9/28/2010 12:30 PM	10/1/2010 12:30 PM	10/5/2010 8:45 AM	10/8/2010 8:45 AM	10/12/2010 2:20 PM	10/15/2010 12:30 PM	10/19/2010 8:55 AM	10/22/2010 2:00 PM	9/23/2010 3:30 PM	9/30/2010 11:54 AM
	Sample	SEC090309 15PDS3	SEC09071050PMB3	SEC09100945PMB3	SEC091409 30PMB3	SEC091709 45PMB3	SEC092113 30SDD3	SEC092309 45PMB3	SEC092812 30PMB3	SEC100112 30PMB3	SEC100508 45PMB1	SEC100808 45PMB1	SEC101214 20RTV1	SEC101512 30CKC1	SEC101908 55PMB1	SEC10221400PMB1	SEE092315 30CKC1	SEE093011 54TDF3
	Depth	0 - 1 ft	0 - 6 ft	0 - 6 ft	0 - 6 ft	--	--	0 - 6 ft	--	0 - 0.5 ft	0 - 0.5 ft	0 - 0.5 ft	--	--	--	--	--	0 - 0.166667 ft
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
PCB																		
Aroclor 1016	ug/kg	< 21	< 23	< 24	< 26	< 24	< 32	< 31	< 24	< 26	< 39	< 41	< 28	< 36	< 91	< 84	< 20	< 40
Aroclor 1221	ug/kg	< 21	< 23	< 24	< 26	< 24	< 32	< 31	< 24	< 26	< 39	< 41	< 28	< 36	< 91	< 84	< 20	< 40
Aroclor 1232	ug/kg	< 21	< 23	< 24	< 26	< 24	< 32	< 31	< 24	< 26	< 39	< 41	< 28	< 36	< 91	< 84	< 20	< 40
Aroclor 1242	ug/kg	< 21	< 23	< 24	< 26	< 24	< 32	< 31	< 24	< 26	< 39	< 41	< 28	< 36	< 91	< 84	< 20	< 40
Aroclor 1248	ug/kg	< 21	< 23	< 24	< 26	< 24	< 32	< 31	< 24	< 26	< 39	< 41	< 28	< 36	< 91	< 84	< 20	< 40
Aroclor 1254	ug/kg	< 21	**11**	< 24	< 26	< 24	< 32	< 31	< 24	< 26	< 39	< 41	**32**	< 36	< 91	< 84	**12**	< 40
Aroclor 1260	ug/kg	< 21	< 23	< 24	< 26	< 24	< 32	< 31	< 24	< 26	< 39	< 41	< 28	< 36	< 91	< 84	< 20	< 40
Polychlorinated biphenyls (PCBs), total	ug/kg	< 21	**11**	< 24	< 26	< 24	< 32	< 31	< 24	< 26	< 39	< 41	**32**	< 36	---	---	**12**	< 40

US EPA ARCHIVE DOCUMENT

	Location	SW-120	SW-120	SW-120	SW-120	SW-120	SW-120	SW-120	SW-127	SW-127	SW-127	SW-127	SW-127	SW-127	SW-931	SW-931	SW-931	SW-931	SW-931
	Date Collected	10/4/2010 11:45 AM	10/7/2010 5:11 PM	10/11/2010 11:45 AM	10/14/2010 11:00 AM	10/18/2010 10:45 AM	10/21/2010 10:31 AM	10/21/2010 11:59 AM	8/26/2010 10:15 AM	8/30/2010 10:05 AM	9/2/2010 9:05 AM	9/6/2010 9:00 AM	9/9/2010 9:45 AM	9/13/2010 9:15 AM	9/6/2010 4:10 PM	9/9/2010 9:00 AM	9/13/2010 9:15 AM	9/20/2010 11:10 AM	9/23/2010 10:35 AM
	Sample	SEE10041 145TDF3	SEE10071 711TDF3	SEE10111 145PMB1	SEE10141 100WPW1	SEE10181 045NAC1	SEE10211 031NAC1	SEC10211 159JLS1	SE008261 015PDS1	SE008301 005PDS1	SE009020 905PDS1	SE009060 900PMB1	SE009090 945PMB1	SE009130 915PMB1	SEE09061 610JAW1	SEE09090 900JRP1	SEE09130 915JRP1	SEE09201 110ARM1	SEE09231 035ARM1
	Depth	0 - 0.167 ft	0 - 2 ft	0 - 0.5 ft	0.5 - 1 ft	--	--	--	0 - 0.5 ft	0 - 1 ft	0 - 1 ft	0 - 1 ft	0 - 1 ft	0 - 0.5 ft	--	4 - 5 ft	5 - 6 ft	--	--
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
PCB																			
Aroclor 1016	ug/kg	< 27	< 34	< 18	< 43	< 43	< 110	< 45	< 70	< 72	< 62	< 56	< 72	< 55	< 30	< 93	< 33	< 25	< 22
Aroclor 1221	ug/kg	< 27	< 34	< 18	< 43	< 43	< 110	< 45	< 70	< 72	< 62	< 56	< 72	< 55	< 30	< 93	< 33	< 25	< 22
Aroclor 1232	ug/kg	< 27	< 34	< 18	< 43	< 43	< 110	< 45	< 70	< 72	< 62	< 56	< 72	< 55	< 30	< 93	< 33	< 25	< 22
Aroclor 1242	ug/kg	< 27	< 34	< 18	< 43	< 43	< 110	< 45	< 70	< 72	< 62	< 56	< 72	< 55	< 30	< 93	< 33	< 25	< 22
Aroclor 1248	ug/kg	< 27	< 34	< 18	< 43	< 43	< 110	< 45	< 70	< 72	< 62	< 56	< 72	< 55	< 30	< 93	< 33	< 25	< 22
Aroclor 1254	ug/kg	**120**	< 34	**13**	**94**	**100**	< 110	< 45	< 70	< 72	< 62	< 56	**85**	**37**	**95**	**1800**	**71**	**23**	**390**
Aroclor 1260	ug/kg	< 27	< 34	< 18	< 43	< 43	< 110	< 45	< 70	< 72	< 62	< 56	< 72	< 55	< 30	< 93	< 33	< 25	< 22
Polychlorinated biphenyls (PCBs), total	ug/kg	**120**	< 34	**13**	**94**	**100**	---	---	< 70	< 72	< 62	< 56	**85**	**37**	**95**	**1800**	**71**	**23**	**390**

	Location	SW-931	SW-931	SW-931	SW-931	SW-931	SW-931	SW-931	SW-932	SW-932	SW-932	SW-932	SW-932	SW-932	SW-932	SW-932	SW-932	SW-932	SW-932
	Date Collected	9/27/2010 3:00 PM	9/30/2010 10:25 AM	10/4/2010 10:45 AM	10/7/2010 10:45 AM	10/15/2010 1:55 PM	10/20/2010 9:25 AM	10/23/2010 11:45 AM	8/27/2010 11:45 AM	8/31/2010 1:48 PM	9/5/2010 3:00 PM	9/10/2010 9:45 AM	9/14/2010 1:12 PM	9/17/2010 9:35 AM	9/20/2010 9:11 AM	9/25/2010 9:05 AM	9/28/2010 2:45 PM	10/1/2010 10:43 AM	10/5/2010 11:45 AM
	Sample	SEE09271 500ARM1	SEE09301 025MAE1	SEE10041 045ARM1	SEE10071 045ARM1	SEE10151 355ARM1	SEE10200 925JWP1	SEE10231 145JWP1	SEE08271 145RCM1	SEE08311 348MHS1	SEE09051 500MHS1	SEE09100 945RCM1	SEE09141 312RCM1	SEE09170 935RCM1	SEE09200 911RCM1	SEE09250 905RCM1	SEE09281 445RCM1	SEE10011 043RCM1	SEE10051 145RCM1
	Depth	--	--	--	--	0 - 4.5 ft	--	--	5.5 ft	3 - 4 ft	4 - 5 ft	1 - 3.5 ft	--	0 - 2.5 ft	--	--	0 - 2.6 ft	0 - 2 ft	--
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
PCB																			
Aroclor 1016	ug/kg	< 23	< 21	< 21	< 22	< 96	< 60	< 61	< 130	< 47	< 38	< 26	< 55	< 22	< 23	< 68	< 22	< 21	< 21
Aroclor 1221	ug/kg	< 23	< 21	< 21	< 22	< 96	< 60	< 61	< 130	< 47	< 38	< 26	< 55	< 22	< 23	< 68	< 22	< 21	< 21
Aroclor 1232	ug/kg	< 23	< 21	< 21	< 22	< 96	< 60	< 61	< 130	< 47	< 38	< 26	< 55	< 22	< 23	< 68	< 22	< 21	< 21
Aroclor 1242	ug/kg	< 23	< 21	< 21	< 22	< 96	< 60	< 61	< 130	< 47	< 38	< 26	< 55	< 22	< 23	< 68	< 22	< 21	< 21
Aroclor 1248	ug/kg	< 23	< 21	< 21	< 22	< 96	< 60	< 61	< 130	< 47	< 38	< 26	< 55	< 22	< 23	< 68	< 22	< 21	< 21
Aroclor 1254	ug/kg	**19**	**11**	**25**	**57**	**1500**	**120**	**260**	< 130	**140**	**61**	**25**	**46**	**14**	**33**	**210**	**14**	**7**	< 21
Aroclor 1260	ug/kg	< 23	< 21	< 21	< 22	**220**	< 60	< 61	< 130	< 47	< 38	< 26	< 55	< 22	< 23	< 68	< 22	< 21	< 21
Polychlorinated biphenyls (PCBs), total	ug/kg	**19**	**11**	**25**	**57**	**1700**	---	---	---	**140**	**61**	**25**	**46**	**14**	**33**	**210**	**14**	**7**	< 21

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	Location	SW-932	SW-932	SW-932	SW-932	SW-933	SW-933	SW-934	SW-935	SW-935	SW-935	SW-935	SW-935	SW-935	SW-935	SW-935	SW-935	SW-935	SW-935
	Date Collected	10/7/2010 11:51 AM	10/14/2010 10:25 AM	10/18/2010 10:30 AM	10/21/2010 1:45 PM	8/26/2010 4:20 PM	8/30/2010 4:38 PM	10/7/2010 2:15 PM	8/28/2010 4:30 PM	9/1/2010 3:45 PM	9/5/2010 3:50 PM	9/12/2010 2:36 PM	9/17/2010 8:39 AM	9/19/2010 2:45 PM	9/22/2010 9:35 AM	9/26/2010 9:30 AM	9/29/2010 10:23 AM	10/6/2010 10:51 AM	10/8/2010 10:51 AM
	Sample	SEE10071 151RCM1	SEE10141 025ARM1	SEE10181 030JWP1	SEE10211 345JWP1	SEE08261 620RCM1	SEE08301 638MHS1	SEE10071 415ARM1	SEE08281 630RCM1	SEE09011 545MHS1	SEE09051 550MHS1	SEE09121 436RCM1	SEE09170 839RCM1	SEE09191 445RCM1	SEE09220 935RCM1	SEE09260 930RCM1	SEE09291 023RCM1	SEE10061 051RCM1	SEE10081 051RCM1
	Depth	0 - 2 ft	0 - 2 ft	1.4 - 1.4 ft	--	9 - 10 ft	9 - 10 ft	--	6 - 7 ft	6 - 7 ft	6 - 7 ft		0 - 7 ft	0 - 5.5 ft			0 - 6 ft	0 - 5.5 ft	0 - 0.333 ft
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
PCB																			
Aroclor 1016	ug/kg	< 43	< 35	< 20	< 87	< 180	< 79	< 93	< 170	< 87	< 83	< 80	< 75	< 75	< 77	< 74	< 81	< 75	< 76
Aroclor 1221	ug/kg	< 43	< 35	< 20	< 87	< 180	< 79	< 93	< 170	< 87	< 83	< 80	< 75	< 75	< 77	< 74	< 81	< 75	< 76
Aroclor 1232	ug/kg	< 43	< 35	< 20	< 87	< 180	< 79	< 93	< 170	< 87	< 83	< 80	< 75	< 75	< 77	< 74	< 81	< 75	< 76
Aroclor 1242	ug/kg	< 43	< 35	< 20	< 87	< 180	< 79	< 93	< 170	< 87	< 83	< 80	< 75	< 75	< 77	< 74	< 81	< 75	< 76
Aroclor 1248	ug/kg	< 43	< 35	< 20	< 87	< 180	< 79	< 93	< 170	< 87	< 83	< 80	< 75	< 75	< 77	< 74	< 81	< 75	< 76
Aroclor 1254	ug/kg	**130**	**260**	< 20	< 87	< 180	**290**	**1100**	< 170	**290**	**280**	**270**	**240**	**180**	**98**	**420**	**300**	**340**	**160**
Aroclor 1260	ug/kg	< 43	< 35	< 20	< 87	< 180	< 79	< 93	< 170	< 87	< 83	< 80	< 75	< 75	< 77	< 74	< 81	< 75	< 76
Polychlorinated biphenyls (PCBs), total	ug/kg	**130**	**260**	< 20	---	---	**290**	**1100**	---	**290**	**280**	**270**	**240**	**180**	**98**	**420**	**300**	**340**	**160**

	Location	SW-935	SW-935	SW-935	SW-935	SW-936	SW-936	SW-936	SW-936	SW-936	SW-936	SW-936	SW-936	SW-936	SW-936	SW-936	SW-936	UNKNOWN	WS-935
	Date Collected	10/12/2010 2:15 PM	10/15/2010 10:55 AM	10/19/2010 10:10 AM	10/22/2010 10:55 AM	9/7/2010 9:30 AM	9/10/2010 9:20 AM	9/14/2010 9:45 AM	9/17/2010 12:00 PM	9/21/2010 11:20 AM	10/1/2010 11:25 AM	10/5/2010 2:15 PM	10/8/2010 10:35 AM	10/13/2010 10:35 AM	10/16/2010 11:15 AM	10/20/2010 10:35 AM	10/23/2010 11:00 AM	9/4/2010 11:15 AM	9/8/2010 10:20 AM
	Sample	SEE10121 415ARM1	SEE10151 055ARM1	SEE10191 010JWP1	SEE10221 055DWS1	SEE09070 930JRP1	SEE09100 920JRP1	SEE09140 945JRP1	SEE09171 200ARM1	SEE09211 120ARM1	SEE10011 125ARM1	SEE10051 415ARM1	SEE10081 035ARM1	SEE10131 035ARM1	SEE10161 115ARM1	SEE10201 035JWP1	SEE10231 100JWP1	SEE09041 115JAW1	SEE09081 020RCM1
	Depth	0 - 6.5 ft	0 - 6.5 ft			3 - 4 ft	1 - 2 ft	0 - 3 ft	0 - 2 ft	--	--	--	--	--	0 - 8.5 ft	--	--	--	--
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
PCB																			
Aroclor 1016	ug/kg	< 120	< 120	< 180	< 170	< 21	< 21	< 23	< 24	< 24	< 25	< 29	< 24	< 20	< 70	< 54	< 53	< 57	< 83
Aroclor 1221	ug/kg	< 120	< 120	< 180	< 170	< 21	< 21	< 23	< 24	< 24	< 25	< 29	< 24	< 20	< 70	< 54	< 53	< 57	< 83
Aroclor 1232	ug/kg	< 120	< 120	< 180	< 170	< 21	< 21	< 23	< 24	< 24	< 25	< 29	< 24	< 20	< 70	< 54	< 53	< 57	< 83
Aroclor 1242	ug/kg	< 120	< 120	< 180	< 170	< 21	< 21	< 23	< 24	< 24	< 25	< 29	< 24	< 20	< 70	< 54	< 53	< 57	< 83
Aroclor 1248	ug/kg	< 120	< 120	< 180	< 170	< 21	< 21	< 23	< 24	< 24	< 25	< 29	< 24	< 20	< 70	< 54	< 53	< 57	< 83
Aroclor 1254	ug/kg	**2000**	**1300**	< 180	< 170	< 21	**11**	< 23	**16**	**14**	**11**	**150**	< 24	< 20	**450**	< 54	< 53	**140**	**340**
Aroclor 1260	ug/kg	**500**	**370**	< 180	< 170	< 21	< 21	< 23	< 24	< 24	< 25	< 29	< 24	< 20	**120**	< 54	< 53	< 57	< 83
Polychlorinated biphenyls (PCBs), total	ug/kg	**2500**	**1600**	---	---	< 21	**11**	< 23	**16**	**14**	**11**	**150**	< 24	< 20	**580**	---	---	**140**	**340**

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Notes:

Bold values are concentrations detected above the reporting limit.

[a] = Screening criteria listed for Aroclors are for Total PCBs, rather than individual Aroclors.

--- = not completed/not analyzed

ft = feet

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Table 2. SO Recovery Sediment PCB Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Location	SEKR3700C 01	SEKR3700C 01	SEKR3700C 01	SEKR3700C 01	SEKR3700C 02	SEKR3700C 02	SEKR3700C 02	SEKR3700C 02	SEKR3725C 01	SEKR3725C 01	SEKR3725C 01	SEKR3725C 01	SEKR3725C 02	SEKR3725C 02	SEKR3725C 02	SEKR3725C 03
	Date Collected	6/25/2011 9:33 AM	6/25/2011 9:33 AM	6/25/2011 9:33 AM	6/25/2011 9:33 AM	6/24/2011 2:29 PM	6/25/2011 10:55 AM	6/25/2011 10:55 AM	6/25/2011 10:55 AM	6/25/2011 8:20 AM	6/25/2011 8:20 AM	6/25/2011 8:20 AM	6/25/2011 8:20 AM	6/25/2011 11:45 AM	6/25/2011 11:45 AM	6/25/2011 11:45 AM	6/24/2011 3:37 PM
	Sample	SEKR3700C **01S** 062511D004	SEKR3700C **01S** 062511D004	SEKR3700C **01S** 062511D004	SEKR3700C **01S** 062511D004	SEKR3700C **01S** 062511D004	SEKR3700C **01S** 062511D004	SEKR3700C **01S** 062511D004	SEKR3700C **01S** 062511D004	SEKR3700C **01S** 062511D004	SEKR3700C **01S** 062511D004	SEKR3700C **01S** 062511D004	SEKR3700C **01S** 062511D004	SEKR3700C **01S** 062511D004	SEKR3700C **01S** 062511D004	SEKR3700C **01S** 062511D004	SEKR3700C **01S** 062511D004
	Depth	0 - 0.4 ft	0.4 - 1 ft	1 - 1.5 ft	1.5 - 2 ft	1.5 - 2 ft	0 - 0.5 ft	0.5 - 1 ft	1 - 1.5 ft	0 - 0.4 ft	0.4 - 0.9 ft	0.9 - 1.4 ft	1.4 - 1.6 ft	0 - 0.3 ft	0.3 - 1 ft	1 - 1.7 ft	0.4 - 0.9 ft
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Duplicate
PCB																	
Aroclor 1016	ug/kg	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330
Aroclor 1221	ug/kg	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330
Aroclor 1232	ug/kg	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330
Aroclor 1242	ug/kg	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330
Aroclor 1248	ug/kg	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330
Aroclor 1254	ug/kg	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	**400**	**1100**	< 330	< 330	< 330
Aroclor 1260	ug/kg	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330
Polychlorinated biphenyls (PCBs), total	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

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	Location	SEKR3725C03	SEKR3725C03	SEKR3800C04	SEKR3800C05	SEKR3800C05	SEKR3800C05	SEKR3800C05	SEKR3825C01	SEKR3825C01	SEKR3825C01	SEKR3825C01	SEKR3825C01	SEKR3825C02	SEKR3825C02	SEKR3825C02	SEKR3825C02
	Date Collected	6/24/2011 3:37 PM	6/24/2011 3:37 PM	6/24/2011 8:55 AM	6/24/2011 12:11 PM	6/24/2011 12:11 PM	6/24/2011 12:11 PM	6/24/2011 12:11 PM	6/24/2011 1:18 PM	6/24/2011 1:18 PM	6/24/2011 1:18 PM	6/24/2011 1:18 PM	6/24/2011 1:18 PM	6/24/2011 12:32 PM	6/24/2011 12:32 PM	6/24/2011 12:32 PM	6/24/2011 12:32 PM
	Sample	SEKR3700C **01S** 062511D004	SEKR3700C **01S** 062511D004	SEKR3700C **01S** 062511D004	SEKR3700C **01S** 062511D004	SEKR3700C **01S** 062511D004	SEKR3700C **01S** 062511D004	SEKR3700C **01S** 062511D004	SEKR3700C **01S** 062511D004	SEKR3700C **01S** 062511D004	SEKR3700C **01S** 062511D004	SEKR3700C **01S** 062511D004	SEKR3700C **01S** 062511D004	SEKR3700C **01S** 062511D004	SEKR3700C **01S** 062511D004	SEKR3700C **01S** 062511D004	SEKR3700C **01S** 062511D004
	Depth	0 - 0.4 ft	0.4 - 0.9 ft	0.8 - 1.5 ft	0 - 0.3 ft	0.3 - 0.7 ft	0.7 - 1.2 ft	1.2 - 1.7 ft	0.5 - 1 ft	0 - 0.5 ft	0.5 - 1 ft	1 - 1.5 ft	1.5 - 2 ft	0 - 0.4 ft	0.4 - 0.8 ft	0.8 - 1.1 ft	1.1 - 2 ft
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Duplicate	Result	Result	Result	Result	Result	Result	Result	Result
PCB																	
Aroclor 1016	ug/kg	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330
Aroclor 1221	ug/kg	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330
Aroclor 1232	ug/kg	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330
Aroclor 1242	ug/kg	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330
Aroclor 1248	ug/kg	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330
Aroclor 1254	ug/kg	< 330	< 330	< 330	< 330	< 330	< 330	< 330	**430**	< 330	**390**	< 330	< 330	< 330	< 330	**1300**	**620**
Aroclor 1260	ug/kg	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330
Polychlorinated biphenyls (PCBs), total	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

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Table 2. SO Recovery Sediment PCB Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Location	SEKR3825C03	SEKR3825C03	SEKR3825C03	SEKR3825C04	SEKR3825C04	SEKR3825C04	SEKR3725C03	SEKR3725C03	SEKR3725C04	SEKR3725C04	SEKR3725C04	SEKR3725C04	SEKR3725C05	SEKR3725C05	SEKR3725C05	SEKR3725C05	SEKR3725C05
	Date Collected	6/24/2011 11:10 AM	6/24/2011 11:10 AM	6/24/2011 11:10 AM	6/24/2011 9:50 AM	6/24/2011 9:50 AM	6/24/2011 9:50 AM	6/24/2011 3:37 PM	6/24/2011 3:37 PM	6/24/2011 2:29 PM	6/24/2011 2:29 PM	6/24/2011 2:29 PM	6/25/2011 3:41 PM	6/25/2011 2:20 PM	6/25/2011 2:20 PM	6/25/2011 2:20 PM	6/25/2011 2:20 PM	6/25/2011 2:20 PM
	Sample	SEKR3700C **01S** 062511D004	SEKR3700C **01S** 062511D004	SEKR3700C **01S** 062511D004	SEKR3700C **01S** 062511D004	SEKR3700C **01S** 062511D004	SEKR3700C **01S** 062511D004	SEKR3700C **01S** 062511D004	SEKR3700C **01S** 062511D004	SEKR3700C **01S** 062511D004	SEKR3700C **01S** 062511D004	SEKR3700C **01S** 062511D004	SEKR3700C **01S** 062511D004	SEKR3700C **01S** 062511D004	SEKR3700C **01S** 062511D004	SEKR3700C **01S** 062511D004	SEKR3700C **01S** 062511D004	SEKR3700C **01S** 062511D004
	Depth	0 - 0.7 ft	0.7 - 1.2 ft	1.2 - 2 ft	0 - 0.7 ft	0 - 0.7 ft	0.7 - 1.1 ft	0.9 - 1.4 ft	1.4 - 1.7 ft	0 - 0.7 ft	0.7 - 1.1 ft	1.1 - 1.5 ft	1.5 - 2 ft	0 - 0.4 ft	0 - 0.4 ft	0.4 - 0.7 ft	0.7 - 1.3 ft	1.3 - 2 ft
Analyte	Units	Result	Result	Result	Duplicate	Result	Result	Result	Result	Result	Result	Result	Result	Duplicate	Result	Result	Result	Result
PCB																		
Aroclor 1016	ug/kg	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330
Aroclor 1221	ug/kg	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330
Aroclor 1232	ug/kg	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330
Aroclor 1242	ug/kg	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330
Aroclor 1248	ug/kg	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330
Aroclor 1254	ug/kg	< 330	**590**	**530**	**350**	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330
Aroclor 1260	ug/kg	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330
Polychlorinated biphenyls (PCBs), total	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

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Table 2. SO Recovery Sediment PCB Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Location	SEKR3750 C01	SEKR3750 C01	SEKR3750 C01	SEKR3750 C01	SEKR3750 C02	SEKR3750 C02	SEKR3750 C02	SEKR3825 C04	SEKR3850 C01	SEKR3850 C01	SEKR3850 C01	SEKR3850 C01	SEKR3750 C02	SEKR3750 C03	SEKR3750 C03	SEKR3750 C03	SEKR3750 C03	SEKR3800 C01
	Date Collected	6/24/2011 2:26 PM	6/24/2011 2:26 PM	6/24/2011 2:26 PM	6/24/2011 2:26 PM	6/24/2011 1:33 PM	6/24/2011 1:33 PM	6/24/2011 1:33 PM	6/24/2011 9:50 AM	6/24/2011 11:40 AM	6/24/2011 11:40 AM	6/24/2011 11:40 AM	6/24/2011 11:40 AM	6/24/2011 1:33 PM	6/25/2011 1:30 PM	6/25/2011 1:30 PM	6/25/2011 1:30 PM	6/25/2011 1:30 PM	6/24/2011 9:20 AM
	Sample	SEKR3700C **01S** 062511D004	SEKR3700C **01S** 062511D004	SEKR3700C **01S** 062511D004	SEKR3700C **01S** 062511D004	SEKR3700C **01S** 062511D004	SEKR3700C **01S** 062511D004	SEKR3700C **01S** 062511D004	SEKR3700C **01S** 062511D004	SEKR3700C **01S** 062511D004	SEKR3700C **01S** 062511D004	SEKR3700C **01S** 062511D004	SEKR3700C **01S** 062511D004	SEKR3700C **01S** 062511D004	SEKR3700C **01S** 062511D004	SEKR3700C **01S** 062511D004	SEKR3700C **01S** 062511D004	SEKR3700C **01S** 062511D004	SEKR3700C **01S** 062511D004
	Depth	0 - 0.3 ft	0.3 - 0.7 ft	0.7 - 1.4 ft	1.4 - 2 ft	0 - 0.5 ft	0.5 - 0.9 ft	0.9 - 1.5 ft	1.1 - 2 ft	0 - 0.2 ft	0.2 - 1 ft	1 - 1.7 ft	1.7 - 2 ft	1.5 - 2 ft	0 - 0.5 ft	0 - 0.5 ft	0.5 - 1 ft	1 - 1.6 ft	0 - 0.5 ft
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Duplicate	Result	Result	Result	Result
PCB																			
Aroclor 1016	ug/kg	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330
Aroclor 1221	ug/kg	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330
Aroclor 1232	ug/kg	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330
Aroclor 1242	ug/kg	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330
Aroclor 1248	ug/kg	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330
Aroclor 1254	ug/kg	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330
Aroclor 1260	ug/kg	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330
Polychlorinated biphenyls (PCBs), total	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

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	Location	SEKR3800 C01	SEKR3800 C01	SEKR3800 C01	SEKR3800 C02	SEKR3800 C02	SEKR3800 C02	SEKR3800 C02	SEKR3800 C03	SEKR3800 C03	SEKR3800 C03	SEKR3800 C04	SEKR3800 C04
	Date Collected	6/24/2011 9:20 AM	6/24/2011 9:20 AM	6/24/2011 9:20 AM	6/24/2011 10:38 AM	6/24/2011 10:38 AM	6/24/2011 10:38 AM	6/24/2011 10:38 AM	6/24/2011 8:36 AM	6/24/2011 8:36 AM	6/24/2011 8:36 AM	6/24/2011 8:55 AM	6/24/2011 8:55 AM
	Sample	SEKR3700C **01S** 062511D004	SEKR3700C **01S** 062511D004	SEKR3700C **01S** 062511D004	SEKR3700C **01S** 062511D004	SEKR3700C **01S** 062511D004	SEKR3700C **01S** 062511D004	SEKR3700C **01S** 062511D004	SEKR3700C **01S** 062511D004	SEKR3700C **01S** 062511D004	SEKR3700C **01S** 062511D004	SEKR3700C **01S** 062511D004	SEKR3700C **01S** 062511D004
	Depth	0.5 - 0.9 ft	0.9 - 1.5 ft	1.5 - 2 ft	0 - 0.6 ft	0.6 - 0.9 ft	0.9 - 1.5 ft	1.5 - 2 ft	0 - 0.3 ft	0.3 - 0.9 ft	0.9 - 1.6 ft	0 - 0.4 ft	0.4 - 0.8 ft
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
PCB													
Aroclor 1016	ug/kg	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330
Aroclor 1221	ug/kg	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330
Aroclor 1232	ug/kg	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330
Aroclor 1242	ug/kg	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330
Aroclor 1248	ug/kg	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330
Aroclor 1254	ug/kg	**830**	< 330	**700**	**460**	**950**	< 330	**540**	< 330	< 330	< 330	< 330	< 330
Aroclor 1260	ug/kg	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330	< 330
Polychlorinated biphenyls (PCBs), total	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--

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Notes:

Bold values are concentrations detected above the reporting limit.

ug/kg = micrograms per kilogram

--- = not completed/not analyzed

ft = feet

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Table 3. U.S. EPA GLNPO Sediment PCB Analytical Data
Enbridge Line 6B MP 608 Marshall, MI Pipeline Release
Enbridge Energy, Limited Partnership

	Location	ML-01	ML-01	ML-01	ML-01	ML-01	ML-01	ML-01	ML-01	ML-01	ML-01
	Date Collected	7/30/2010 5:46 PM	8/1/2010 4:28 PM	8/5/2010 5:07 PM	8/10/2010 9:00 AM	8/12/2010 8:29 AM	8/14/2010 11:04 AM	8/16/2010 2:46 PM	8/16/2010 2:46 PM	8/19/2010 10:04 AM	8/21/2010 3:10 PM
	Sample	ML-01-S-073010	ML-01-S-080110	ML-01-S-080510	ML-01-S-081010	ML-01-S-081210	ML-01-S-081410	ML-01-S-081610	ML-01-S-081610-D	ML-01-S-081910	ML-01-S-082110
	Depth	--	--	0 - 3 in	0 - 3 in	0 - 3 in	0 - 3 in	3 -3 in	3 -3 in	3 -3 in	0 - 3 in
Analyte	Units	Result	Result	Result	Result	Result	Result	Result	Duplicate	Result	Result
PCB											
Aroclor 1016	ug/kg	< 0.42	< 0.45	< 0.47	< 0.47	< 0.47	< 0.44	< 0.49	< 0.44	--	< 0.43
Aroclor 1221	ug/kg	< 0.42	< 0.45	< 0.47	< 0.47	< 0.47	< 0.44	< 0.49	< 0.44	--	< 0.43
Aroclor 1232	ug/kg	< 0.42	< 0.45	< 0.47	< 0.47	< 0.47	< 0.44	< 0.49	< 0.44	--	< 0.43
Aroclor 1242	ug/kg	< 0.42	< 0.45	< 0.47	< 0.47	< 0.47	< 0.44	< 0.49	< 0.44	< 0.4	< 0.43
Aroclor 1248	ug/kg	< 0.42	< 0.45	**0.038**	< 0.47	< 0.47	< 0.44	< 0.49	< 0.44	--	< 0.43
Aroclor 1254	ug/kg	**0.17**	**0.078**	**0.12**	**0.098**	**0.088**	**0.085**	**0.058**	**0.052**	**0.056**	**0.051**
Aroclor 1260	ug/kg	< 0.42	< 0.45	< 0.47	< 0.47	< 0.47	< 0.44	< 0.49	< 0.44	< 0.4	< 0.43
Aroclor 1262	ug/kg	< 0.42	< 0.45	< 0.47	< 0.47	< 0.47	< 0.44	< 0.49	< 0.44	--	< 0.43
Aroclor 1268	ug/kg	< 0.42	< 0.45	< 0.47	< 0.47	< 0.47	< 0.44	< 0.49	< 0.44	--	< 0.43
Polychlorinated biphenyls (PCBs), total	ug/kg	--	--	--	--	--	--	--	--	--	--

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ML-01	ML-02	ML-02	ML-01	ML-02	ML-02	ML-02	ML-02	ML-02	ML-02	ML-02	ML-02	ML-03
8/25/2010 10:03 AM	7/30/2010 3:25 PM	8/2/2010 7:57 AM	8/5/2010 1:39 PM	8/10/2010 10:04 AM	8/12/2010 9:54 AM	8/15/2010 8:48 AM	8/17/2010 8:44 AM	8/20/2010 2:20 PM	8/20/2010 2:20 PM	8/23/2010 11:06 AM	8/25/2010 9:42 AM	7/30/2010 8:10:00 PM
ML-01-S-082510	ML-02-S-073010	ML-02-S-080210	ML-02-S-080510	ML-02-S-081010	ML-02-S-081210	ML-02-S-081510	ML-02-S-081710	ML-02-S-082010	ML-02-S-082010-D	ML-02-S-082310	ML-02-S-082510	ML-03-S-073010
0 - 3 in		0 - 0 in	0 - 3 in	0 - 3 in	0 - 3 in	0 - 3 in	0 - 3 in	0 - 3 in	--	0 - 3 in	0 - 3 in	--
Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
< 0.44	< 0.35	< 0.4	< 0.4	< 0.43	< 0.41	< 0.38	< 0.36	< 0.38	< 0.38	< 0.37	< 0.42	< 0.32
< 0.44	< 0.35	< 0.4	< 0.4	< 0.43	< 0.41	< 0.38	< 0.36	< 0.38	< 0.38	< 0.37	< 0.42	< 0.32
< 0.44	< 0.35	< 0.4	< 0.4	< 0.43	< 0.41	< 0.38	< 0.36	< 0.38	< 0.38	< 0.37	< 0.42	< 0.32
< 0.44	< 0.35	< 0.4	< 0.4	< 0.43	< 0.41	< 0.38	< 0.36	< 0.38	< 0.38	< 0.37	< 0.42	< 0.32
< 0.44	< 0.35	< 0.4	< 0.4	< 0.43	< 0.41	< 0.38	< 0.36	< 0.38	< 0.38	< 0.37	< 0.42	< 0.32
0.092	**0.082**	**0.094**	**0.069**	**0.14**	**0.062**	< 0.38	**0.058**	**0.049**	**0.051**	**0.064**	**0.061**	**0.093**
< 0.44	< 0.35	< 0.4	< 0.4	< 0.43	< 0.41	< 0.38	< 0.36	< 0.38	< 0.38	< 0.37	< 0.42	< 0.32
< 0.44	< 0.35	< 0.4	< 0.4	< 0.43	< 0.41	< 0.38	< 0.36	< 0.38	< 0.38	< 0.37	< 0.42	< 0.32
< 0.44	< 0.35	< 0.4	< 0.4	< 0.43	< 0.41	< 0.38	< 0.36	< 0.38	< 0.38	< 0.37	< 0.42	< 0.32
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ML-03	ML-03	ML-03	ML-03	ML-03	ML-03	ML-03	ML-03	ML-03	ML-03	ML-03	ML-04	ML-04
7/30/2010 8:10 PM	8/2/2010 9:08 AM	8/5/2010 4:47 PM	8/10/2010 10:56 AM	8/12/2010 10:44 AM	8/12/2010 10:44 AM	8/14/2010 11:49 AM	8/16/2010 3:44 PM	8/20/2010 10:13 AM	8/23/2010 4:30 PM	8/25/2010 9:19 AM	7/31/2010 12:22 PM	8/4/2010 1:37 PM
ML-03-S-073010-D	ML-03-S-080210	ML-03-S-080510	ML-03-S-081010	ML-03-S-081210	ML-03-S-081210-D	ML-03-S-081410	ML-03-S-081610	ML-03-S-082010	ML-03-S-082310	ML-03-S-082510	ML-04-S-073110	ML-04-S-080410
--	0 - 3 in	0 - 3 in	0 - 3 in	0 - 3 in	0 - 3 in	0 - 3 in	0 - 3 in	0 - 3 in	0 - 3 in	0 - 3 in	--	0 - 3 in
Duplicate	Result	Result	Result	Result	Duplicate	Result	Result	Result	Result	Result	Result	Result
< 0.33	< 0.39	< 0.39	< 0.41	< 0.42	< 0.39	< 0.35	< 0.37	< 0.38	< 0.37	< 0.39	< 0.45	< 0.45
< 0.33	< 0.39	< 0.39	< 0.41	< 0.42	< 0.39	< 0.35	< 0.37	< 0.38	< 0.37	< 0.39	< 0.45	< 0.45
< 0.33	< 0.39	< 0.39	< 0.41	< 0.42	< 0.39	< 0.35	< 0.37	< 0.38	< 0.37	< 0.39	< 0.45	< 0.45
< 0.33	< 0.39	< 0.39	< 0.41	< 0.42	< 0.39	< 0.35	< 0.37	< 0.38	< 0.37	< 0.39	< 0.45	< 0.45
< 0.33	< 0.39	**0.059**	< 0.41	< 0.42	< 0.39	< 0.35	< 0.37	< 0.38	< 0.37	< 0.39	< 0.45	< 0.45
0.083	**0.079**	**0.088**	**0.15**	**0.073**	**0.071**	**0.059**	**0.06**	**0.065**	**0.063**	**0.054**	**0.17**	**0.11**
< 0.33	< 0.39	< 0.39	< 0.41	< 0.42	< 0.39	< 0.35	< 0.37	< 0.38	< 0.37	< 0.39	< 0.45	< 0.45
< 0.33	< 0.39	< 0.39	< 0.41	< 0.42	< 0.39	< 0.35	< 0.37	< 0.38	< 0.37	< 0.39	< 0.45	< 0.45
< 0.33	< 0.39	< 0.39	< 0.41	< 0.42	< 0.39	< 0.35	< 0.37	< 0.38	< 0.37	< 0.39	< 0.45	< 0.45
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ML-04	ML-04	ML-04	ML-04	ML-04	ML-04	ML-04	ML-04	ML-04	ML-05	ML-05	ML-05	ML-05
8/4/2010 1:37 PM	8/5/2010 3:25 PM	8/10/2010 3:08 PM	8/13/2010 8:58 AM	8/15/2010 9:35 AM	8/17/2010 11:29 AM	8/20/2010 3:33 PM	8/24/2010 10:44 AM	8/26/2010 10:13 AM	7/31/2010 11:14 AM	8/2/2010 10:14 AM	8/2/2010 10:14 AM	8/5/2010 4:05 PM
ML-04-S-080410-D	ML-04-S-080510	ML-04-S-081010	ML-04-S-081310	ML-04-S-081510	ML-04-S-081710	ML-04-S-082010	ML-04-S-082410	ML-04-S-082610	ML-05-S-073110	ML-05-S-080210	ML-05-S-080210-D	ML-05-S-080510
0 - 3 in	0 - 3 in	0 - 3 in	0 - 3 in	0 - 2 ft	0 - 2 ft	0 - 2 ft	0 - 2 in	0 - 2 in	--	0 - 3 in	--	0 - 3 in
Duplicate	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Duplicate	Result
< 0.45	< 0.48	< 0.46	< 0.48	< 0.5	< 0.48	< 0.38	< 0.46	< 0.46	< 0.33	< 0.31	< 0.31	< 0.44
< 0.45	< 0.48	< 0.46	< 0.48	< 0.5	< 0.48	< 0.38	< 0.46	< 0.46	< 0.33	< 0.31	< 0.31	< 0.44
< 0.45	< 0.48	< 0.46	< 0.48	< 0.5	< 0.48	< 0.38	< 0.46	< 0.46	< 0.33	< 0.31	< 0.31	< 0.44
< 0.45	< 0.48	< 0.46	< 0.48	< 0.5	< 0.48	< 0.38	< 0.46	< 0.46	< 0.33	< 0.31	< 0.31	< 0.44
< 0.45	**0.088**	< 0.46	< 0.48	< 0.5	< 0.48	< 0.38	< 0.46	< 0.46	< 0.33	< 0.31	< 0.31	**0.54**
0.11	**0.15**	**0.17**	**0.094**	--	**0.086**	**0.057**	**0.089**	**0.11**	**0.12**	**0.049**	**0.045**	**0.47**
< 0.45	< 0.48	< 0.46	< 0.48	< 0.5	< 0.48	< 0.38	< 0.46	< 0.46	< 0.33	< 0.31	< 0.31	< 0.44
< 0.45	< 0.48	< 0.46	< 0.48	< 0.5	< 0.48	< 0.38	< 0.46	< 0.46	< 0.33	< 0.31	< 0.31	< 0.44
< 0.45	< 0.48	< 0.46	< 0.48	< 0.5	< 0.48	< 0.38	< 0.46	< 0.46	< 0.33	< 0.31	< 0.31	< 0.44
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ML-05	ML-05	ML-05	ML-05	ML-05	ML-05	ML-05	ML-06	ML-06	ML-06	ML-06	ML-06	ML-06
8/10/2010 3:56 PM	8/13/2010 9:53 AM	8/15/2010 10:32 AM	8/17/2010 9:46 AM	8/20/2010 3:33 PM	8/23/2010 5:23 PM	8/26/2010 10:13 AM	8/1/2010 9:28 AM	8/4/2010 3:15 PM	8/5/2010 8:10 AM	8/11/2010 8:13 AM	8/11/2010 8:13 AM	8/12/2010 1:45 PM
ML-05-S-081010	ML-05-S-081310	ML-05-S-081510	ML-05-S-081710	ML-05-S-082010	ML-05-S-082310	ML-05-S-082610	ML-06-S-080110	ML-06-S-080410	ML-06-S-080510	ML-06-S-081110	ML-06-S-081110-D	ML-06-S-081210
0 - 3 in	0 - 3 in	0 - 2 ft	0 - 2 ft	0 - 2 ft	0 - 2 in	0 - 2 in	--	0 - 3 in	0 - 3 in	0 - 3 in	0 - 3 in	0 - 3 in
Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Duplicate	Result
< 0.41	< 0.4	< 0.51	< 0.39	< 0.46	< 0.41	< 0.26	< 0.45	< 0.15	< 0.17	< 0.5	< 0.54	< 0.5
< 0.41	< 0.4	< 0.51	< 0.39	< 0.46	< 0.41	< 0.26	< 0.45	< 0.15	< 0.17	< 0.5	< 0.54	< 0.5
< 0.41	< 0.4	< 0.51	< 0.39	< 0.46	< 0.41	< 0.26	< 0.45	< 0.15	< 0.17	< 0.5	< 0.54	< 0.5
< 0.41	< 0.4	< 0.51	< 0.39	< 0.46	< 0.41	< 0.26	< 0.45	< 0.15	< 0.17	< 0.5	< 0.54	< 0.5
< 0.41	< 0.4	< 0.51	< 0.39	< 0.46	< 0.41	< 0.26	< 0.45	< 0.15	< 0.17	< 0.5	< 0.54	< 0.5
0.11	**0.071**	--	**0.09**	**0.052**	**0.062**	**0.06**	**0.21**	**0.015**	**0.031**	**0.14**	**0.13**	**0.11**
< 0.41	< 0.4	< 0.51	< 0.39	< 0.46	< 0.41	< 0.26	< 0.45	< 0.15	< 0.17	< 0.5	< 0.54	< 0.5
< 0.41	< 0.4	< 0.51	< 0.39	< 0.46	< 0.41	< 0.26	< 0.45	< 0.15	< 0.17	< 0.5	< 0.54	< 0.5
< 0.41	< 0.4	< 0.51	< 0.39	< 0.46	< 0.41	< 0.26	< 0.45	< 0.15	< 0.17	< 0.5	< 0.54	< 0.5
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ML-06	ML-06	ML-06	ML-06	ML-06	ML-07	ML-07	ML-07	ML-07	ML-07	ML-07	ML-07	ML-07	ML-07
8/15/2010 1:39 PM	8/17/2010 2:14 PM	8/20/2010 8:54 AM	8/23/2010 2:22 PM	8/25/2010 2:05 PM	8/1/2010 11:06 AM	8/4/2010 3:33 PM	8/6/2010 2:13 PM	8/11/2010 9:29 AM	8/13/2010 3:29 PM	8/16/2010 9:10 AM	8/18/2010 3:11 PM	8/21/2010 8:21 AM	8/24/2010 8:28 AM
ML-06-S-081510	ML-06-S-081710	ML-06-S-082010	ML-06-S-082310	ML-06-S-082510	ML-07-S-080110	ML-07-S-080410	ML-07-S-080610	ML-07-S-081110	ML-07-S-081310	ML-07-S-081610	ML-07-S-081810	ML-07-S-082110	ML-07-S-082410
0 - 3 in	0 - 3 in	0 - 3 in	0 - 3 in	0 - 3 in	--	0 - 3 in	0 - 3 in	0 - 3 in	0 - 3 in	0 - 3 in	0 - 3 in	0 - 3 in	0 - 3 in
Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
< 0.55	< 0.47	< 0.49	< 0.5	< 0.53	< 0.52	< 0.57	< 0.55	< 0.62	< 0.52	< 0.52	< 0.55	< 0.54	< 0.54
< 0.55	< 0.47	< 0.49	< 0.5	< 0.53	< 0.52	< 0.57	< 0.55	< 0.62	< 0.52	< 0.52	< 0.55	< 0.54	< 0.54
< 0.55	< 0.47	< 0.49	< 0.5	< 0.53	< 0.52	< 0.57	< 0.55	< 0.62	< 0.52	< 0.52	< 0.55	< 0.54	< 0.54
< 0.55	< 0.47	< 0.49	< 0.5	< 0.53	< 0.52	< 0.57	< 0.55	< 0.62	< 0.52	< 0.52	< 0.55	< 0.54	< 0.54
< 0.55	< 0.47	< 0.49	< 0.5	< 0.53	< 0.52	< 0.57	< 0.55	< 0.62	< 0.52	< 0.52	< 0.55	< 0.54	< 0.54
--	**0.083**	**0.082**	**0.079**	**0.1**	**0.12**	**0.17**	**0.088**	**0.18**	**0.17**	**0.074**	**0.1**	**0.13**	**0.067**
< 0.55	< 0.47	< 0.49	< 0.5	< 0.53	< 0.52	< 0.57	< 0.55	< 0.62	< 0.52	< 0.52	< 0.55	< 0.54	< 0.54
< 0.55	< 0.47	< 0.49	< 0.5	< 0.53	< 0.52	< 0.57	< 0.55	< 0.62	< 0.52	< 0.52	< 0.55	< 0.54	< 0.54
< 0.55	< 0.47	< 0.49	< 0.5	< 0.53	< 0.52	< 0.57	< 0.55	< 0.62	< 0.52	< 0.52	< 0.55	< 0.54	< 0.54
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ML-07	ML-08	ML-08	ML-08	ML-08	ML-08	ML-08	ML-08	ML-08	ML-08	ML-08	ML-09	ML-09
8/25/2010 11:06 AM	8/1/2010 12:48 PM	8/4/2010 2:56 PM	8/6/2010 3:31 PM	8/11/2010 3:05 PM	8/13/2010 11:13 AM	8/16/2010 10:10 AM	8/16/2010 10:10 AM	8/21/2010 10:53 AM	8/24/2010 9:31 AM	8/25/2010 3:56 PM	7/31/2010 4:07 PM	8/4/2010 2:35 PM
ML-07-S-082510	ML-08-S-080110	ML-08-S-080410	ML-08-S-080610	ML-08-S-081110	ML-08-S-081310	ML-08-S-081610	ML-08-S-081610-D	ML-08-S-082110	ML-08-S-082410	ML-08-S-082510	ML-09-S-073110	ML-09-S-080410
0 - 3 in	--	0 - 3 in	0 - 3 in	0 - 3 in	0 - 3 in	0 - 3 in	0 - 3 in	0 - 3 in	0 - 3 in	0 - 3 in	--	0 - 3 in
Result	Result	Result	Result	Result	Result	Result	Duplicate	Result	Result	Result	Result	Result
< 0.51	< 0.46	< 0.56	< 0.52	< 0.52	< 0.51	< 0.51	< 0.5	< 0.5	< 0.49	< 0.49	< 0.43	< 0.49
< 0.51	< 0.46	< 0.56	< 0.52	< 0.52	< 0.51	< 0.51	< 0.5	< 0.5	< 0.49	< 0.49	< 0.43	< 0.49
< 0.51	< 0.46	< 0.56	< 0.52	< 0.52	< 0.51	< 0.51	< 0.5	< 0.5	< 0.49	< 0.49	< 0.43	< 0.49
< 0.51	< 0.46	< 0.56	< 0.52	< 0.52	< 0.51	< 0.51	< 0.5	< 0.5	< 0.49	< 0.49	< 0.43	< 0.49
< 0.51	< 0.46	< 0.56	< 0.52	< 0.52	< 0.51	< 0.51	< 0.5	< 0.5	< 0.49	< 0.49	< 0.43	< 0.49
0.086	**0.25**	**0.14**	**0.093**	**0.13**	**0.13**	**0.12**	**0.046**	**0.071**	**0.14**	**0.06**	**0.15**	**0.14**
< 0.51	< 0.46	< 0.56	< 0.52	< 0.52	< 0.51	< 0.51	< 0.5	< 0.5	< 0.49	< 0.49	< 0.43	< 0.49
< 0.51	< 0.46	< 0.56	< 0.52	< 0.52	< 0.51	< 0.51	< 0.5	< 0.5	< 0.49	< 0.49	< 0.43	< 0.49
< 0.51	< 0.46	< 0.56	< 0.52	< 0.52	< 0.51	< 0.51	< 0.5	< 0.5	< 0.49	< 0.49	< 0.43	< 0.49
--	--	--	--	--	--	--	--	--	--	--	--	--

US EPA ARCHIVE DOCUMENT

ML-09	ML-09	ML-09	ML-09	ML-09	ML-09	ML-09	ML-09	ML-10	ML-10	ML-10	ML-10	ML-10
8/5/2010 9:41 AM	8/11/2010 3:43 PM	8/14/2010 8:38 AM	8/18/2010 1:38 PM	8/21/2010 9:51 AM	8/24/2010 3:34 PM	8/24/2010 3:34 PM	8/25/2010 3:03 PM	7/31/2010 5:46 PM	8/4/2010 2:16 PM	8/6/2010 5:02 PM	8/11/2010 4:41 PM	8/14/2010 9:39 AM
ML-09-S-080510	ML-09-S-081110	ML-09-S-081410	ML-09-S-081810	ML-09-S-082110	ML-09-S-082410	ML-09-S-082410-D	ML-09-S-082510	ML-10-S-073110	ML-10-S-080410	ML-10-S-080610	ML-10-S-081110	ML-10-S-081410
0 - 3 in	0 - 3 in	0 - 3 in	0 - 3 in	0 - 3 in	0 - 3 in	0 - 3 in	0 - 3 in	--	0 - 3 in	0 - 3 in	0 - 3 in	0 - 3 in
Result	Result	Result	Result	Result	Result	Duplicate	Result	Result	Result	Result	Result	Result
< 0.48	< 0.47	< 0.46	< 0.47	< 0.46	< 0.42	< 0.44	< 0.44	< 0.45	< 0.45	< 0.47	< 0.52	< 0.49
< 0.48	< 0.47	< 0.46	< 0.47	< 0.46	< 0.42	< 0.44	< 0.44	< 0.45	< 0.45	< 0.47	< 0.52	< 0.49
< 0.48	< 0.47	< 0.46	< 0.47	< 0.46	< 0.42	< 0.44	< 0.44	< 0.45	< 0.45	< 0.47	< 0.52	< 0.49
< 0.48	< 0.47	< 0.46	< 0.47	< 0.46	< 0.42	< 0.44	< 0.44	< 0.45	< 0.45	< 0.47	< 0.52	< 0.49
< 0.48	< 0.47	< 0.46	< 0.47	< 0.46	< 0.42	< 0.44	< 0.44	< 0.45	< 0.45	< 0.47	< 0.52	< 0.49
0.14	**0.12**	**0.08**	**0.061**	**0.078**	**0.1**	**0.086**	**0.044**	**0.13**	**0.15**	**0.14**	**0.097**	**0.1**
< 0.48	< 0.47	< 0.46	< 0.47	< 0.46	< 0.42	< 0.44	< 0.44	< 0.45	< 0.45	< 0.47	< 0.52	< 0.49
< 0.48	< 0.47	< 0.46	< 0.47	< 0.46	< 0.42	< 0.44	< 0.44	< 0.45	< 0.45	< 0.47	< 0.52	< 0.49
< 0.48	< 0.47	< 0.46	< 0.47	< 0.46	< 0.42	< 0.44	< 0.44	< 0.45	< 0.45	< 0.47	< 0.52	< 0.49
--	--	--	--	--	--	--	--	--	--	--	--	--

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ML-10	ML-10	ML-10	ML-10	ML-10	ML-10	ML-01
8/16/2010 11:24 AM	8/19/2010 8:52 AM	8/21/2010 1:57 PM	8/21/2010 1:57 PM	8/24/2010 2:03 PM	8/26/2010 8:26 AM	7/30/2010 5:46 PM
ML-10-S-081610	ML-10-S-081910	ML-10-S-082110	ML-10-S-082110-D	ML-10-S-082410	ML-10-S-082610	ML-01-W-A-073010
0 - 3 in	0 - 3 in	0 - 3 in	0 - 3 in	0 - 3 in	0 - 3 in	0 - 2 ft
Result	Result	Result	Duplicate	Result	Result	Result
< 0.46	--	< 0.44	< 0.43	< 0.45	< 0.45	< 0.2
< 0.46	< 0.46	< 0.44	< 0.43	< 0.45	< 0.45	< 0.2
< 0.46	--	< 0.44	< 0.43	< 0.45	< 0.45	< 0.2
< 0.46	--	< 0.44	< 0.43	< 0.45	< 0.45	< 0.2
< 0.46	--	< 0.44	< 0.43	< 0.45	< 0.45	< 0.2
0.076	**0.082**	**0.12**	**0.054**	**0.042**	**0.12**	< 0.2
< 0.46	--	< 0.44	< 0.43	< 0.45	< 0.45	< 0.2
< 0.46	--	< 0.44	< 0.43	< 0.45	< 0.45	< 0.2
< 0.46	--	< 0.44	< 0.43	< 0.45	< 0.45	< 0.2
--	--	--	--	--	--	--

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Notes:
Bold values are concentrations detected above the reporting limit.
ug/kg = micrograms per kilogram
--- = not completed/not analyzed
ft = feet

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Attachment G

Figures

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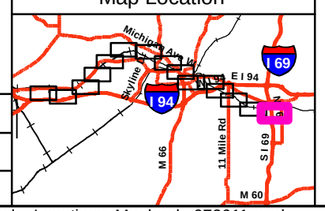
Map Location



Sampling Location

Quarter Mile Grid Segments

ML-9
14/13
400 ug/kg

Sample Location Name
Number of Samples Analyzed/Number of Samples Showing PCB Detection
Maximum PCB Detection Value

ML-9
14/13
400 ug/kg

Indicates Detection

ug/kg = micrograms per kilogram (sediment)

N

0 500 1,000 2,000

Scale in Feet

FIGURE 1
SEDIMENT SAMPLE LOCATIONS
ANALYZED FOR PCBs
Page 1 of 15
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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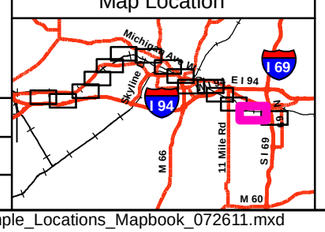
Map Location



Sampling Location

Quarter Mile Grid Segments

ML-9
14/13
400 ug/kg

Sample Location Name
Number of Samples Analyzed/Number of Samples Showing PCB Detection
Maximum PCB Detection Value

ML-9
14/13
400 ug/kg

Indicates Detection

ug/kg = micrograms per kilogram (sediment)

N

0 500 1,000 2,000

Scale in Feet

FIGURE 1
SEDIMENT SAMPLE LOCATIONS
ANALYZED FOR PCBs
Page 2 of 15
ENBRIDGE LINE 6B MP 608
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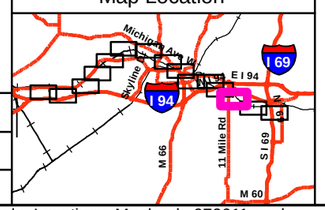
Map Location



Sampling Location

Quarter Mile Grid Segments

ML-9
14/13
400 ug/kg

Sample Location Name
Number of Samples Analyzed/Number of Samples Showing PCB Detection
Maximum PCB Detection Value

ML-9
14/13
400 ug/kg

Indicates Detection

ug/kg = micrograms per kilogram (sediment)

N

0 500 1,000 2,000

Scale in Feet

FIGURE 1
SEDIMENT SAMPLE LOCATIONS
ANALYZED FOR PCBs
Page 3 of 15
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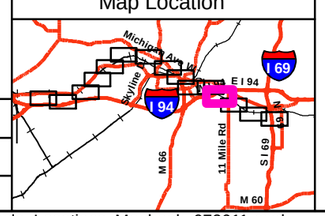
Map Location



Sampling Location

Quarter Mile Grid Segments

ML-9
14/13
400 ug/kg

Sample Location Name
Number of Samples Analyzed/Number of Samples Showing PCB Detection
Maximum PCB Detection Value

ML-9
14/13
400 ug/kg

Indicates Detection

ug/kg = micrograms per kilogram (sediment)

N

0 500 1,000 2,000

Scale in Feet

FIGURE 1
SEDIMENT SAMPLE LOCATIONS
ANALYZED FOR PCBs
Page 4 of 15
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
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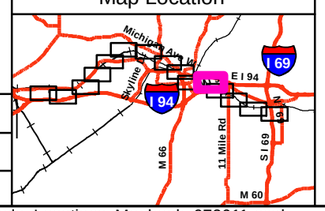

Sampling Location

Quarter Mile Grid Segments

ML-9
14/13
400 ug/kg

Sample Location Name
Number of Samples Analyzed/Number of Samples Showing PCB Detection
Maximum PCB Detection Value

ML-9
14/13
400 ug/kg

Indicates Detection

ug/kg = micrograms per kilogram (sediment)

N

0 500 1,000 2,000

Scale in Feet

FIGURE 1
SEDIMENT SAMPLE LOCATIONS
ANALYZED FOR PCBs
Page 5 of 15
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
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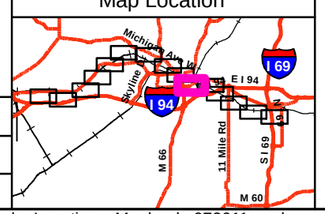
Map Location



Sampling Location

Quarter Mile Grid Segments

ML-9
14/13
400 ug/kg

Sample Location Name
Number of Samples Analyzed/Number of Samples Showing PCB Detection
Maximum PCB Detection Value

ML-9
14/13
400 ug/kg

Indicates Detection

ug/kg = micrograms per kilogram (sediment)

N

0 500 1,000 2,000

Scale in Feet

FIGURE 1
SEDIMENT SAMPLE LOCATIONS
ANALYZED FOR PCBs
Page 6 of 15
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
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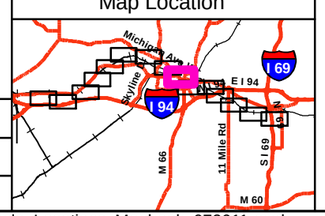
Map Location



Sampling Location

Quarter Mile Grid Segments

ML-9
14/13
400 ug/kg

Sample Location Name
Number of Samples Analyzed/Number of Samples Showing PCB Detection
Maximum PCB Detection Value

ML-9
14/13
400 ug/kg

Indicates Detection

ug/kg = micrograms per kilogram (sediment)

N

0 500 1,000 2,000

Scale in Feet

FIGURE 1
SEDIMENT SAMPLE LOCATIONS
ANALYZED FOR PCBs
Page 7 of 15
ENBRIDGE LINE 6B MP 608
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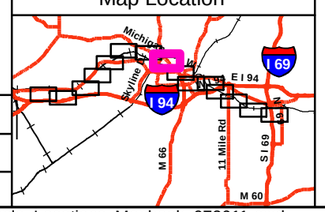
Map Location



Sampling Location

Quarter Mile Grid Segments

ML-9
14/13
400 ug/kg

Sample Location Name
Number of Samples Analyzed/Number of Samples Showing PCB Detection
Maximum PCB Detection Value

ML-9
14/13
400 ug/kg

Indicates Detection

ug/kg = micrograms per kilogram (sediment)

N

0 500 1,000 2,000

Scale in Feet

FIGURE 1
SEDIMENT SAMPLE LOCATIONS
ANALYZED FOR PCBs
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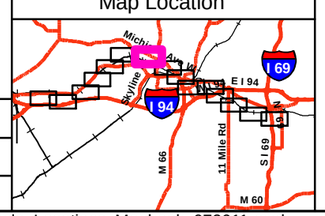
Map Location



Sampling Location

Quarter Mile Grid Segments

ML-9
14/13
400 ug/kg

Sample Location Name
Number of Samples Analyzed/Number of Samples Showing PCB Detection
Maximum PCB Detection Value

ML-9
14/13
400 ug/kg

Indicates Detection

ug/kg = micrograms per kilogram (sediment)

N

0 500 1,000 2,000

Scale in Feet

FIGURE 1
SEDIMENT SAMPLE LOCATIONS
ANALYZED FOR PCBs
Page 9 of 15
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
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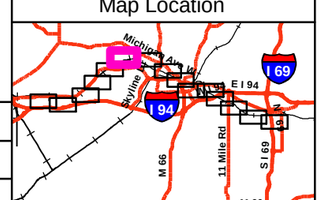
Map Location



Sampling Location

Quarter Mile Grid Segments

ML-9
14/13
400 ug/kg

Sample Location Name
Number of Samples Analyzed/Number of Samples Showing PCB Detection
Maximum PCB Detection Value

ML-9
14/13
400 ug/kg

Indicates Detection

ug/kg = micrograms per kilogram (sediment)

N

0 500 1,000 2,000

Scale in Feet

FIGURE 1
SEDIMENT SAMPLE LOCATIONS
ANALYZED FOR PCBs
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ENBRIDGE LINE 6B MP 608
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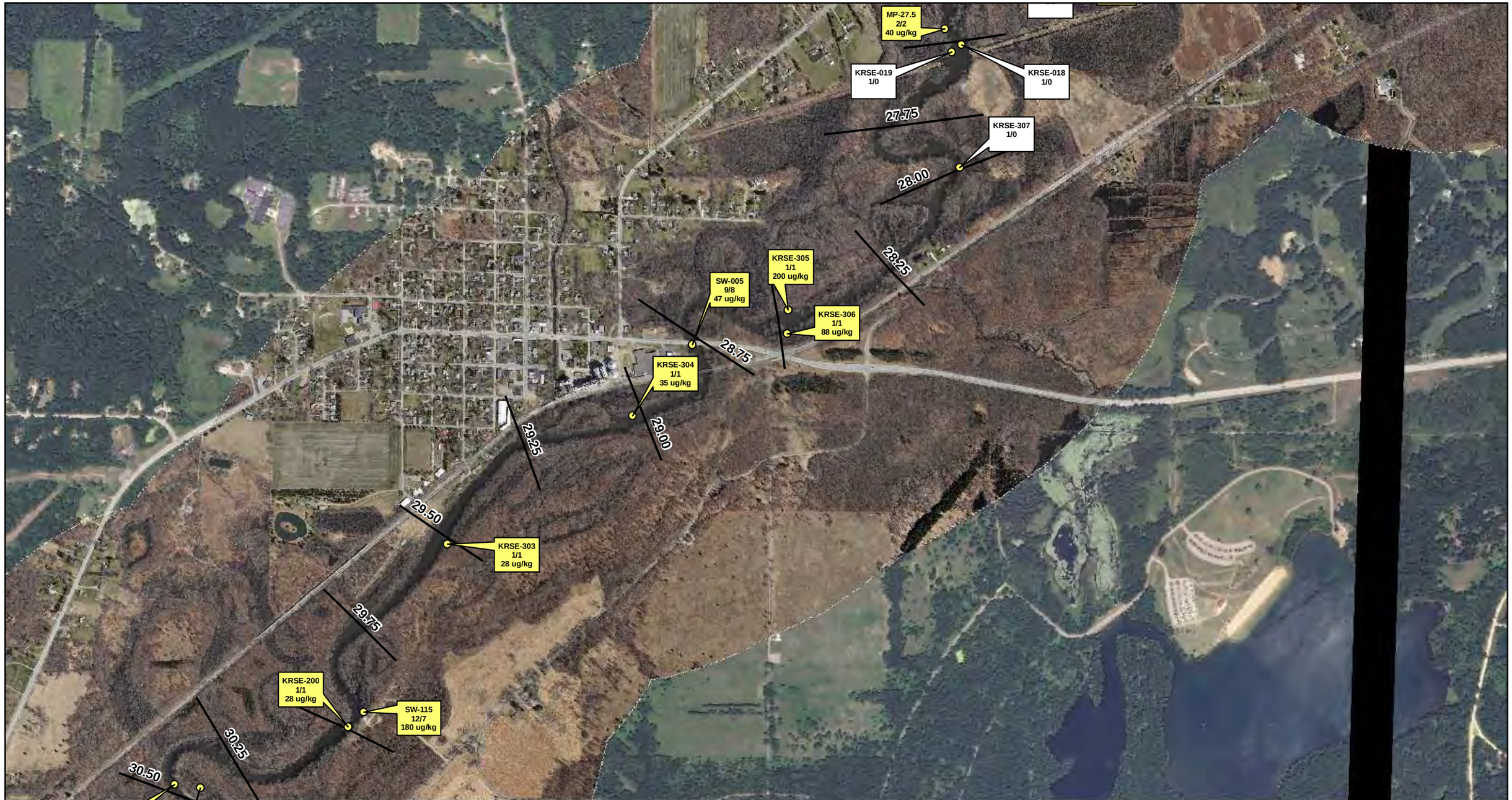

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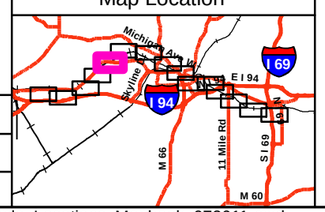
Map Location



Sampling Location

Quarter Mile Grid Segments

ML-9
14/13
400 ug/kg

Sample Location Name
Number of Samples Analyzed/Number of Samples Showing PCB Detection
Maximum PCB Detection Value

ML-9
14/13
400 ug/kg

Indicates Detection

ug/kg = micrograms per kilogram (sediment)

N

0 500 1,000 2,000

Scale in Feet

FIGURE 1
SEDIMENT SAMPLE LOCATIONS
ANALYZED FOR PCBs
Page 11 of 15
ENBRIDGE LINE 6B MP 608
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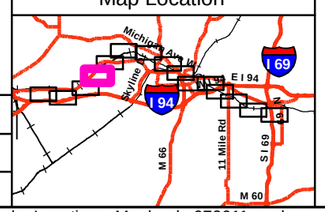
Map Location



Sampling Location

Quarter Mile Grid Segments

ML-9
14/13
400 ug/kg

Sample Location Name
Number of Samples Analyzed/Number of Samples Showing PCB Detection
Maximum PCB Detection Value

ML-9
14/13
400 ug/kg

Indicates Detection

ug/kg = micrograms per kilogram (sediment)

N

0 500 1,000 2,000

Scale in Feet

FIGURE 1
SEDIMENT SAMPLE LOCATIONS
ANALYZED FOR PCBs
Page 12 of 15
ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
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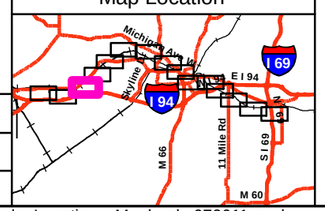
Map Location



Sampling Location

Quarter Mile Grid Segments

ML-9
14/13
400 ug/kg

Sample Location Name
Number of Samples Analyzed/Number of Samples Showing PCB Detection
Maximum PCB Detection Value

ML-9
14/13
400 ug/kg

Indicates Detection

ug/kg = micrograms per kilogram (sediment)

N

0 500 1,000 2,000

Scale in Feet

FIGURE 1
SEDIMENT SAMPLE LOCATIONS
ANALYZED FOR PCBs
Page 13 of 15
ENBRIDGE LINE 6B MP 608
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ENBRIDGE ENERGY, LIMITED PARTNERSHIP

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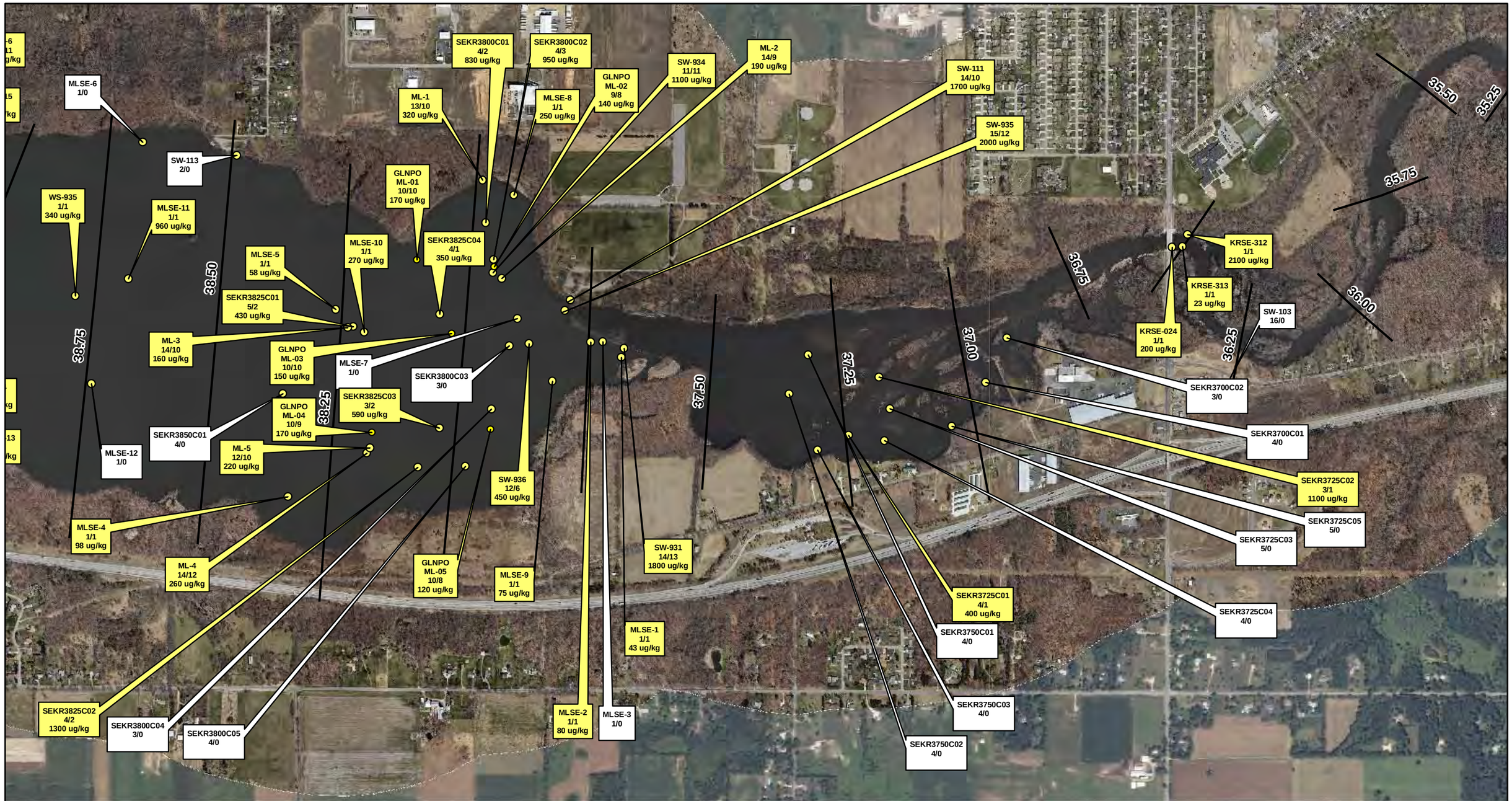

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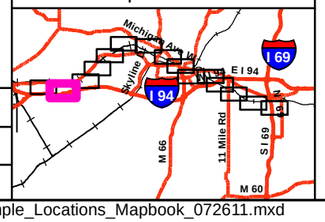
Map Location



Sampling Location

Quarter Mile Grid Segments

GLNPO = Great Lakes National Program Office (U.S. EPA)

ML-9
14/13
400 ug/kg

Sample Location Name
Number of Samples Analyzed/Number of Samples Showing PCB Detection
Maximum PCB Detection Value

ML-9
14/13
400 ug/kg

Indicates Detection

ug/kg = micrograms per kilogram (sediment)

N

0 500 1,000 2,000

Scale in Feet

FIGURE 1
SEDIMENT SAMPLE LOCATIONS
ANALYZED FOR PCBs
Page 14 of 15
ENBRIDGE LINE 6B MP 608
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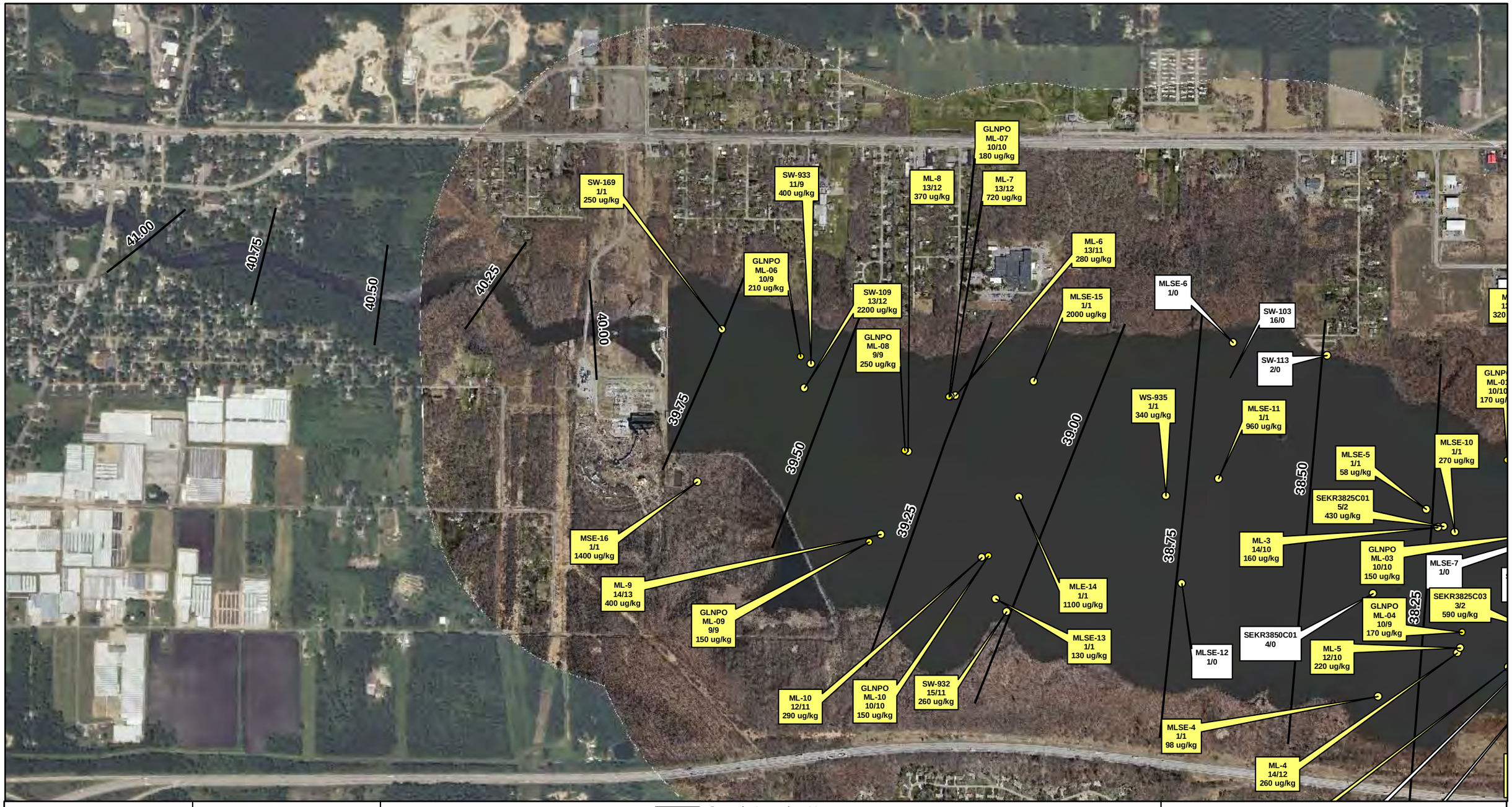

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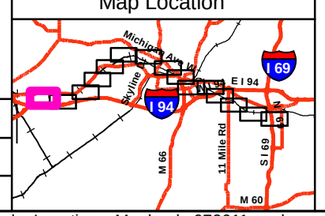
Project #:	60162778	

Map Location



Sampling Location

Quarter Mile Grid Segments

GLNPO = Great Lakes National Program Office (U.S. EPA)

ML-9 14/13 400 ug/kg — Sample Location Name; Number of Samples Analyzed/Number of Samples Showing PCB Detection; Maximum PCB Detection Value

ML-9 14/13 400 ug/kg — Indicates Detection

ug/kg = micrograms per kilogram (sediment)

N

0 500 1,000 2,000

Scale in Feet

FIGURE 1
SEDIMENT SAMPLE LOCATIONS
ANALYZED FOR PCBs
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ENBRIDGE LINE 6B MP 608
MARSHALL, MI PIPELINE RELEASE
ENBRIDGE ENERGY, LIMITED PARTNERSHIP

Z:\Work\GIS\Miscellaneous\PCBs_Sample_Locations_Mapbook_072611.mxd

Aerial Photography Date: April 2011 over 2010 County Aerial