

# **FENNER'S DITCH CASE STUDY**

## **Muskegon County, Michigan**

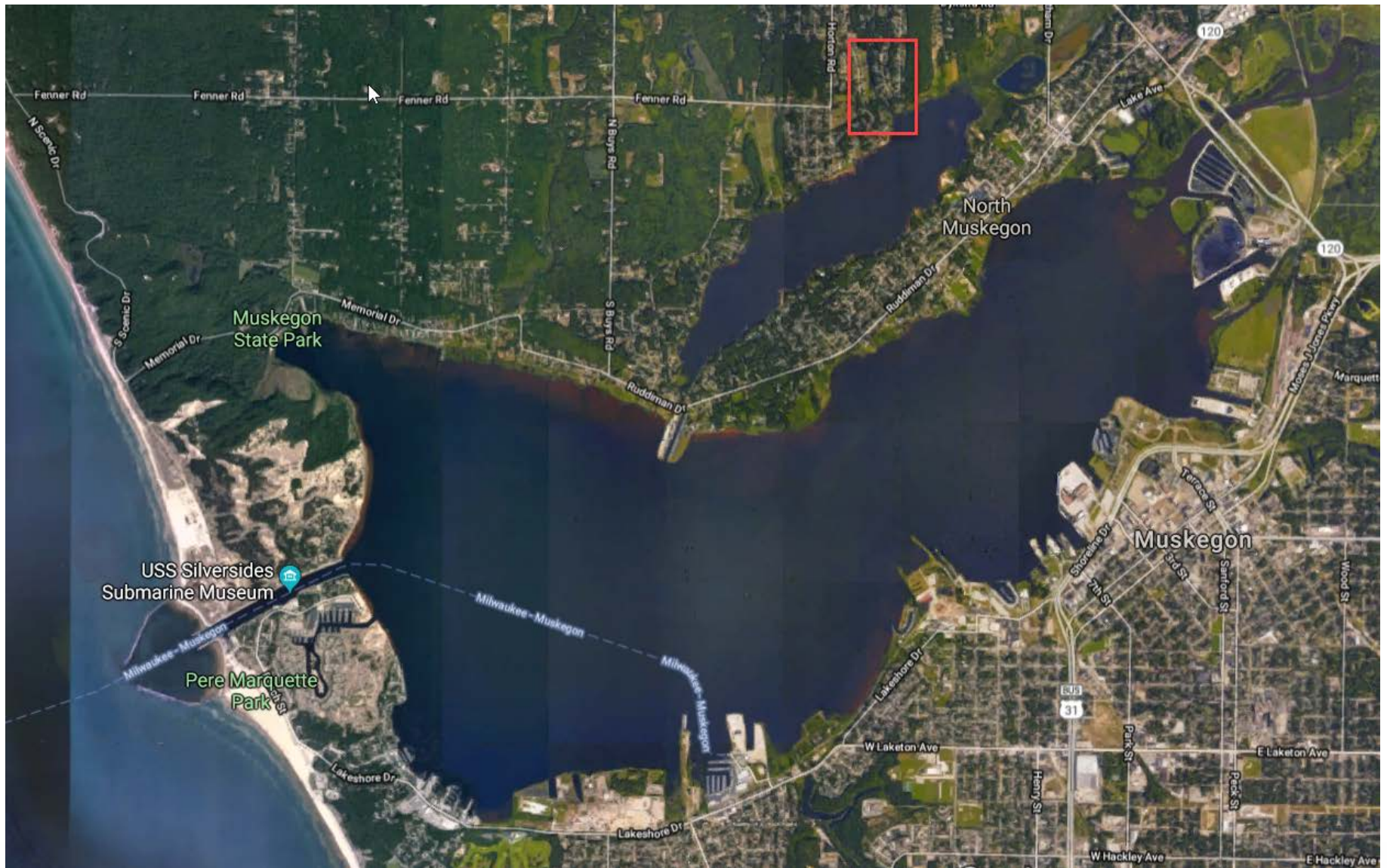
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April 18, 2018

David Bandlow, Assistant District Supervisor, MDEQ-RRD

Tricia Edwards, On-Scene Coordinator, USEPA







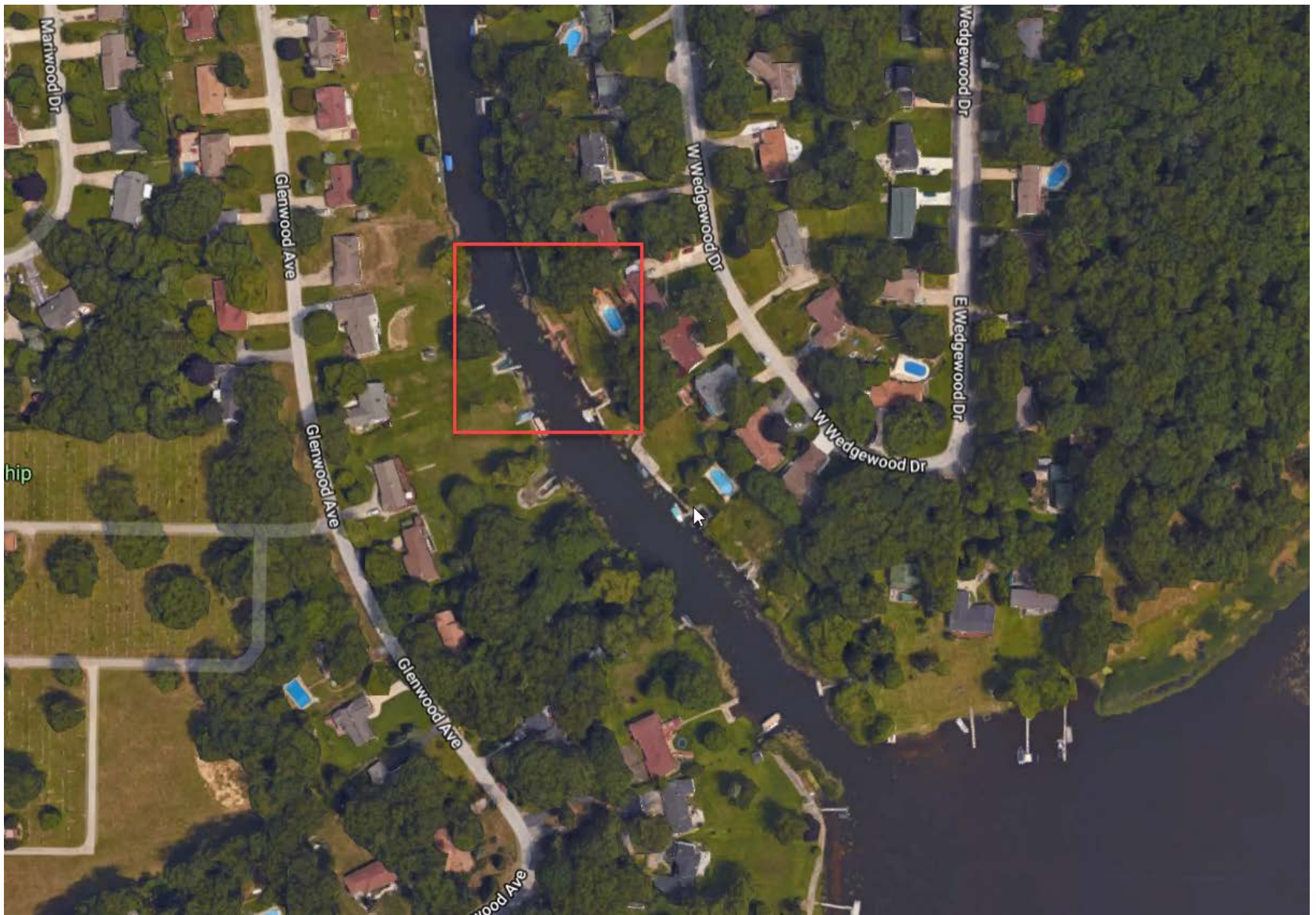


















Image Date: 1938



Image Scale: 1:6,000

720 360 0 Feet

RS&GIS

Imagery Archive: 517.355.3771

[www.rsgis.msu.edu/archive.htm](http://www.rsgis.msu.edu/archive.htm)

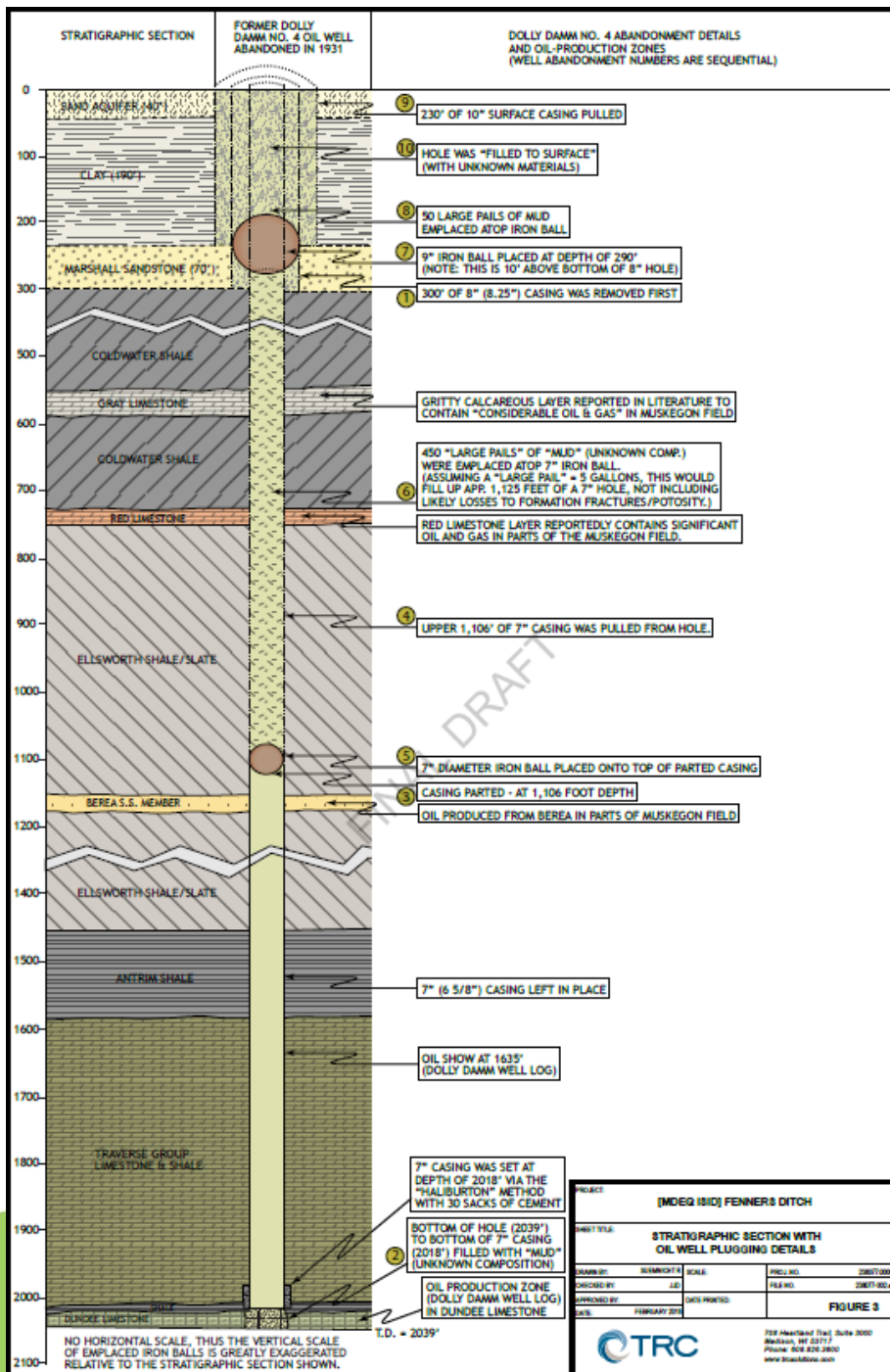
2012 Imagery Source: USDA APFO

Soils Source: NRCS

Wetlands Source: USFWS

Topography Source: USGS

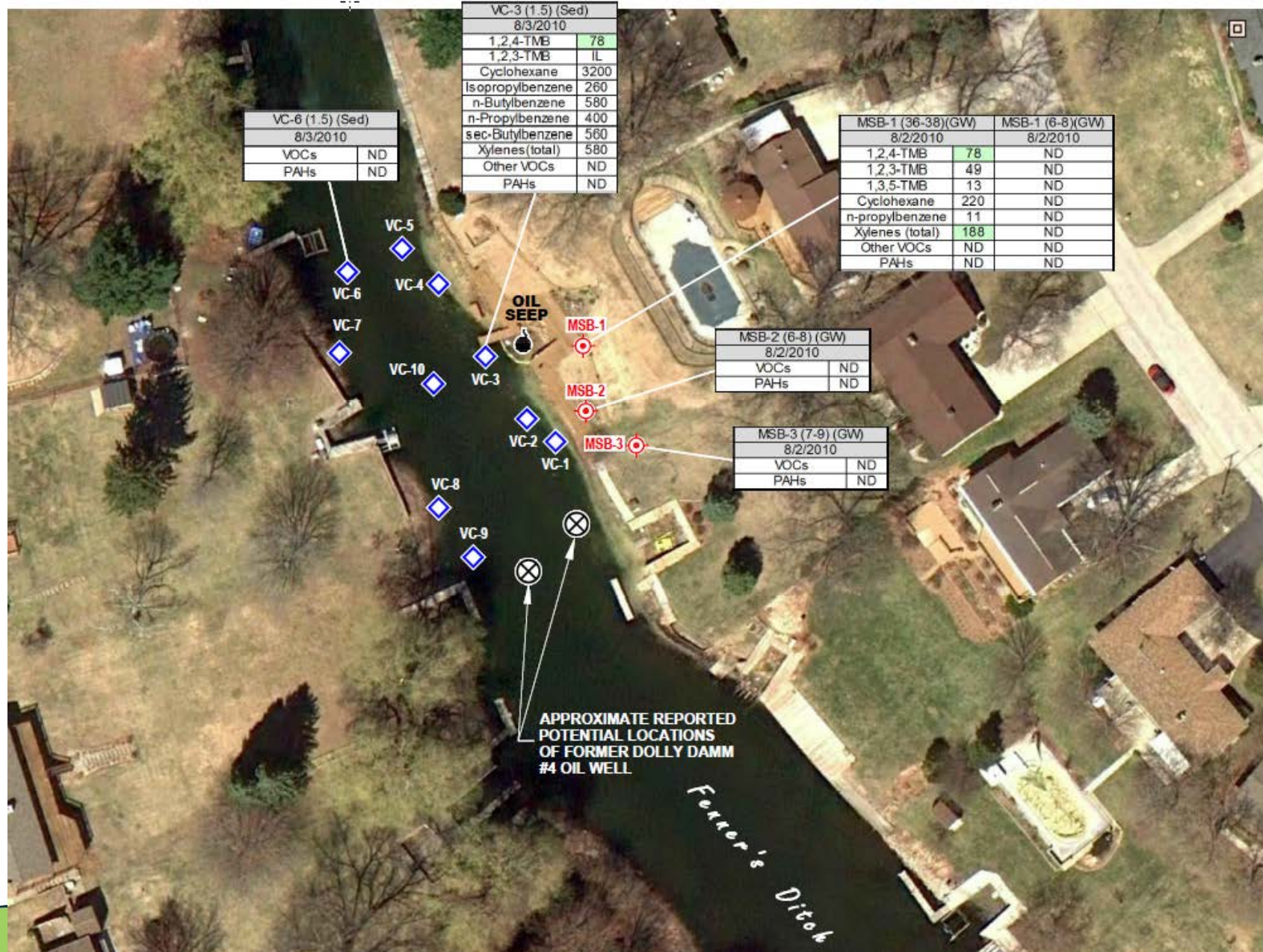




## KEY FINDINGS OF HISTORIC INFORMATION

1. Well was drilled in 1929 to a depth of 2,039 feet into the Dundee Limestone Formation.
2. Well was abandoned in 1931.
3. Hundreds of feet of upper casing was pulled from the borehole during abandonment.
4. The borehole was filled with drilling mud, and iron balls were placed at 290 feet and 1,106 feet.
5. In or around the 1950's, Fenner's Ditch was excavated and widened to support recreational boating, removing any surface impression of the former well.







# Feasibility Study Grant

- August 2015: MDEQ receives a grant from EPA-Great Lakes Restoration Initiative (GLRI) to perform a Focused Feasibility Study
  - Evaluate options/costs for identifying and/or locating the source of the oil seep
  - Evaluate options/costs for capturing, containing, or otherwise mitigating the venting oil.
  - \$41,400 awarded



# Feasibility Study Results

- Remedial Investigation
  - High resolution direct sensing to establish limits of free-phase product
  - Supplemental soil and groundwater sampling to provide definitive analytical data to support risk decisions
- Mitigation Approach
  - Several remedial options identified
  - Selection can not be made until the remedial investigation is conducted

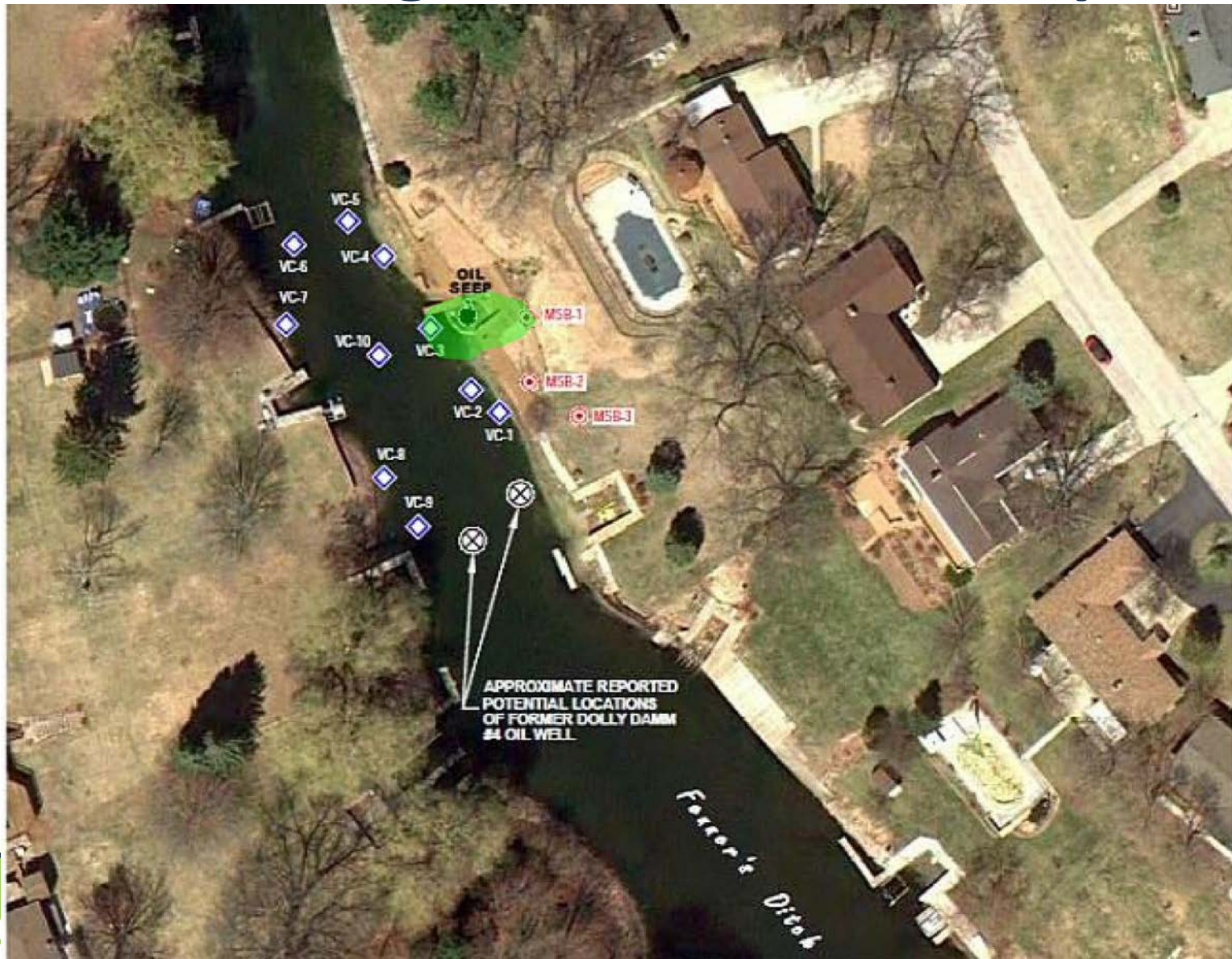


# Need Additional Funding

- DEQ needed a funding source to conduct the remedial investigation and determine/implement the mitigation strategy
- August 2016: EPA provided DEQ with a Pollution Removal Funding Authorization (PRFA) with a cap of \$697,000
  - Source of funding was the Oil Spill Liability Trust Fund, administered by US Coast Guard
- March 2018: additional \$250,000 was approved, bringing DEQ cap to \$947,000

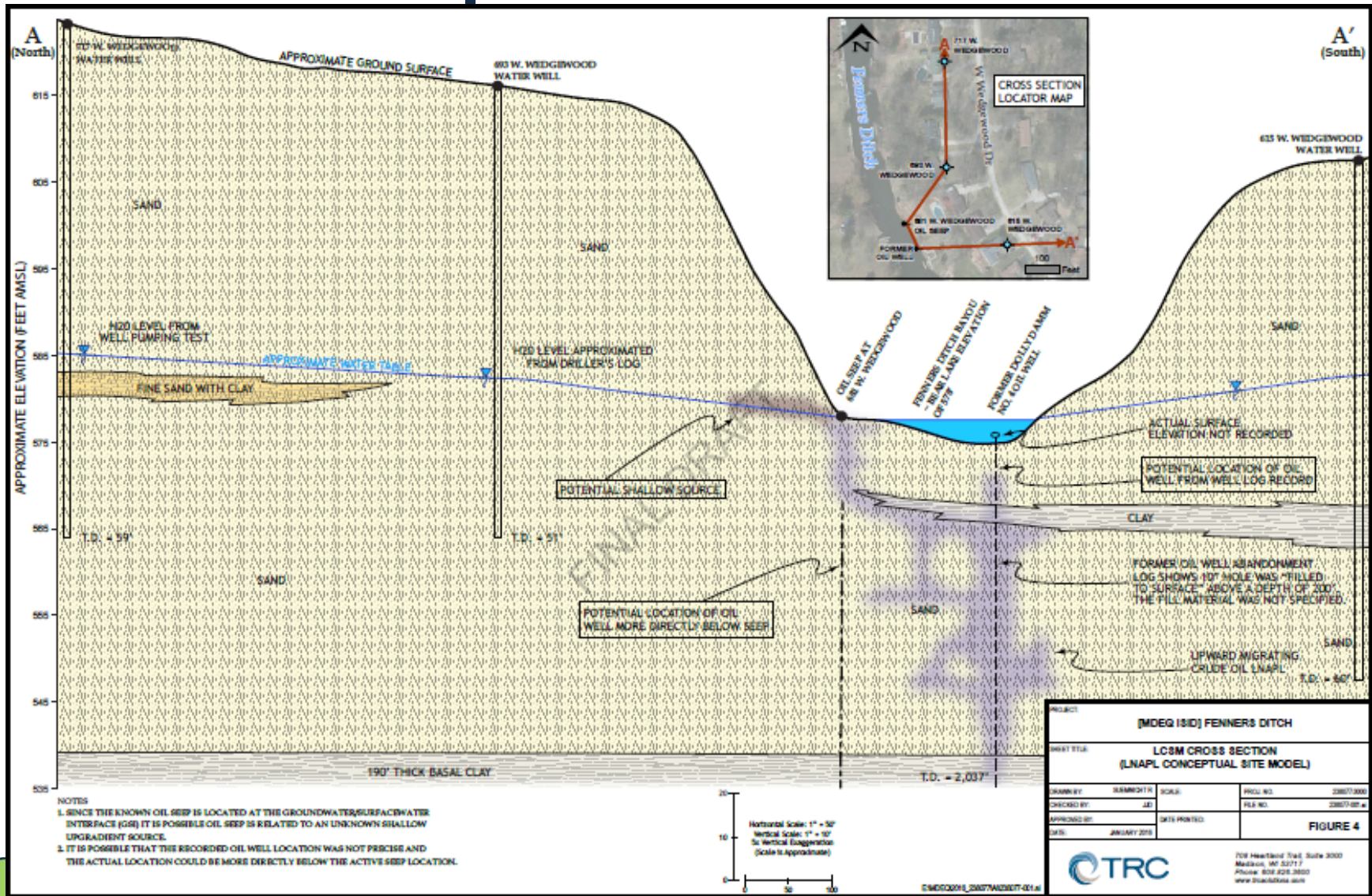


# 2010 Investigation – Area of Impact





# Conceptual Site Model

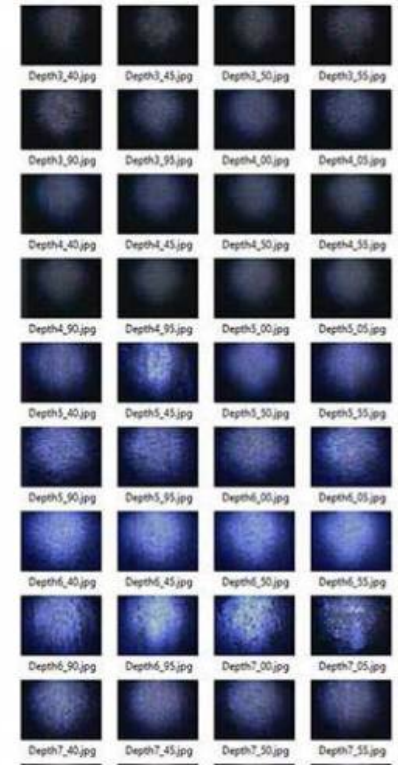
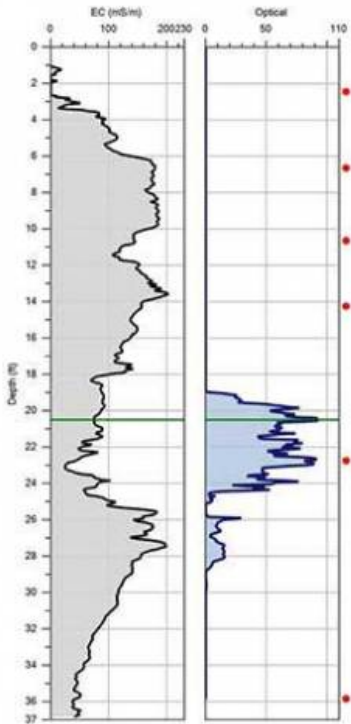








# GeoProbe® Optical Image Profiler Deployment





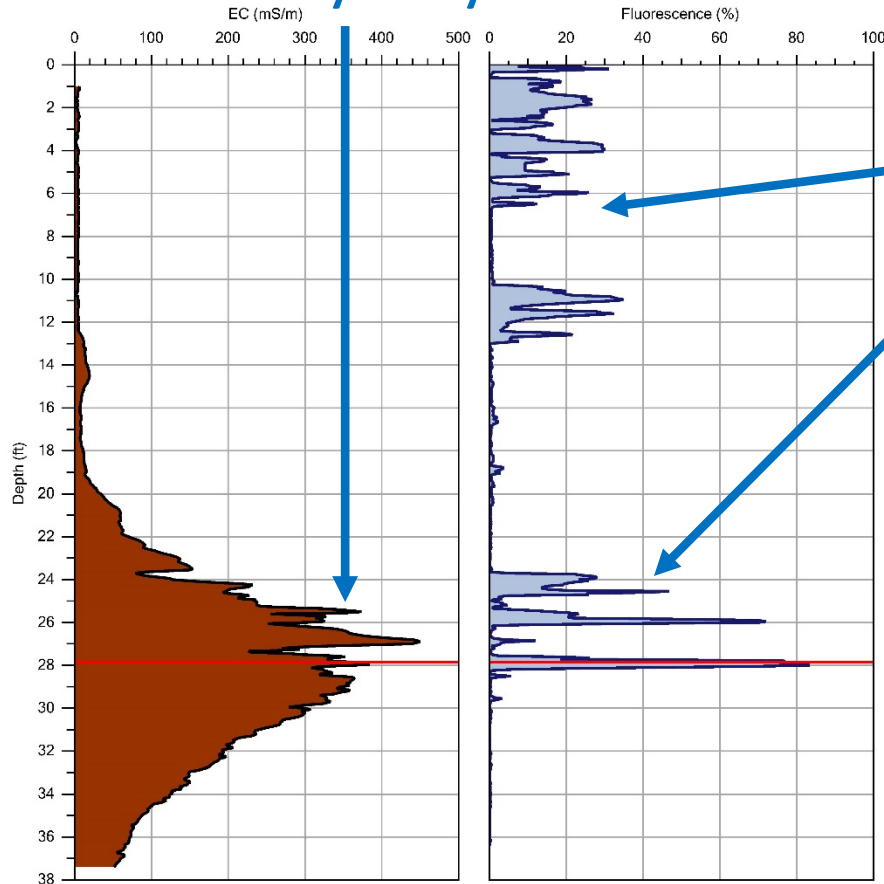
# Field Investigation Photos





# Representative OIP Log

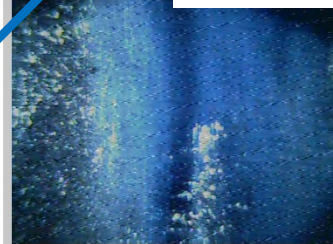
Basal silty clay



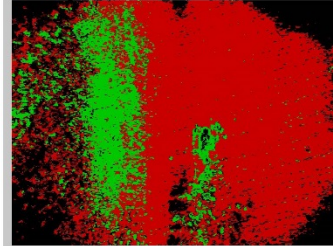
Two horizons of  
apparent oil  
saturation

DEPTH:  
27.85 ft  
TYPE:  
LIV Still  
% AREA:  
74.6

Captured

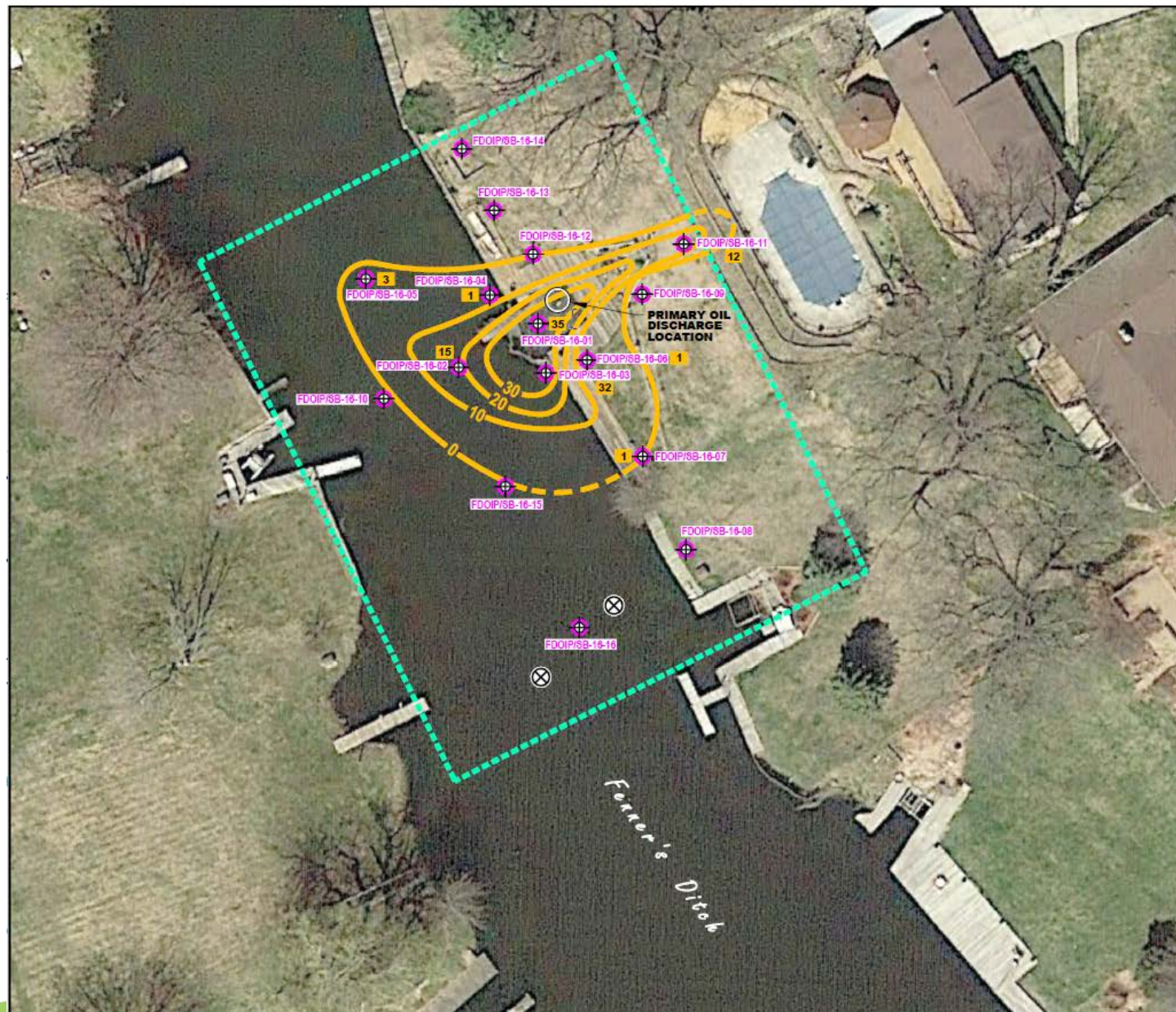


Analyzed

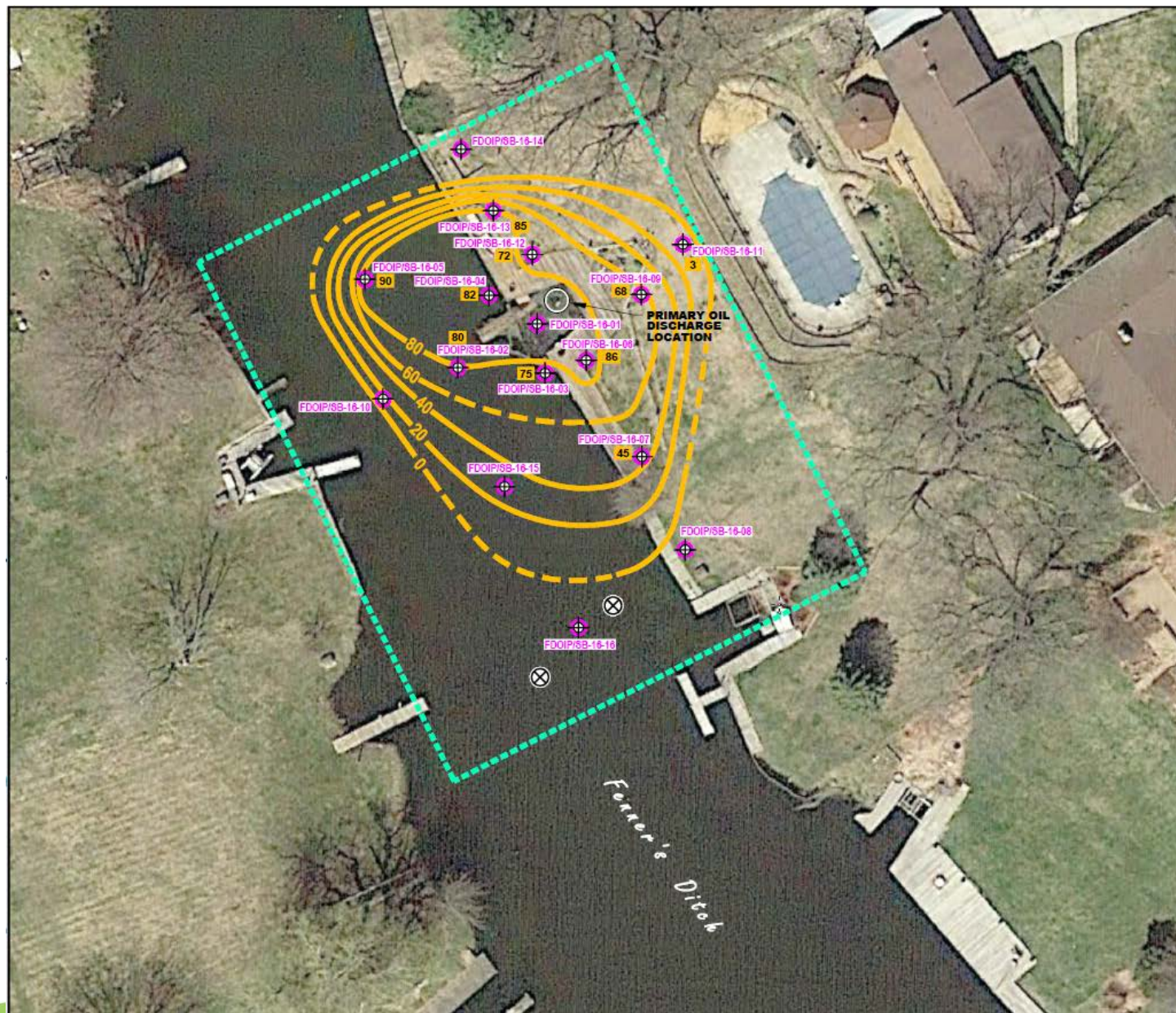


Company:	Stock Drilling Inc.	Operator:	Jonathan W.	File:	FDOIP16-01.OIP
Project ID:	Fenners Ditch	Client:	TRC	Date:	10/31/2016
				Location:	Muskegon







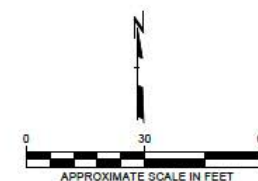


# LEGEND

- POTENTIAL LOCATIONS OF ABANDONED (1931) DOLLY DAM #4 OIL WELL
- 2016 OIP (OPTICAL INTERFACE PROBE / SOIL BORING) LOCATION
- LNAPL STUDY AREA
- LOWER LATERAL EXTENT (DASHED WHERE INFERRED) C.I. = 20%
- 80 VALUES ARE APPARENT % SATURATION FROM OIP

# NOTES

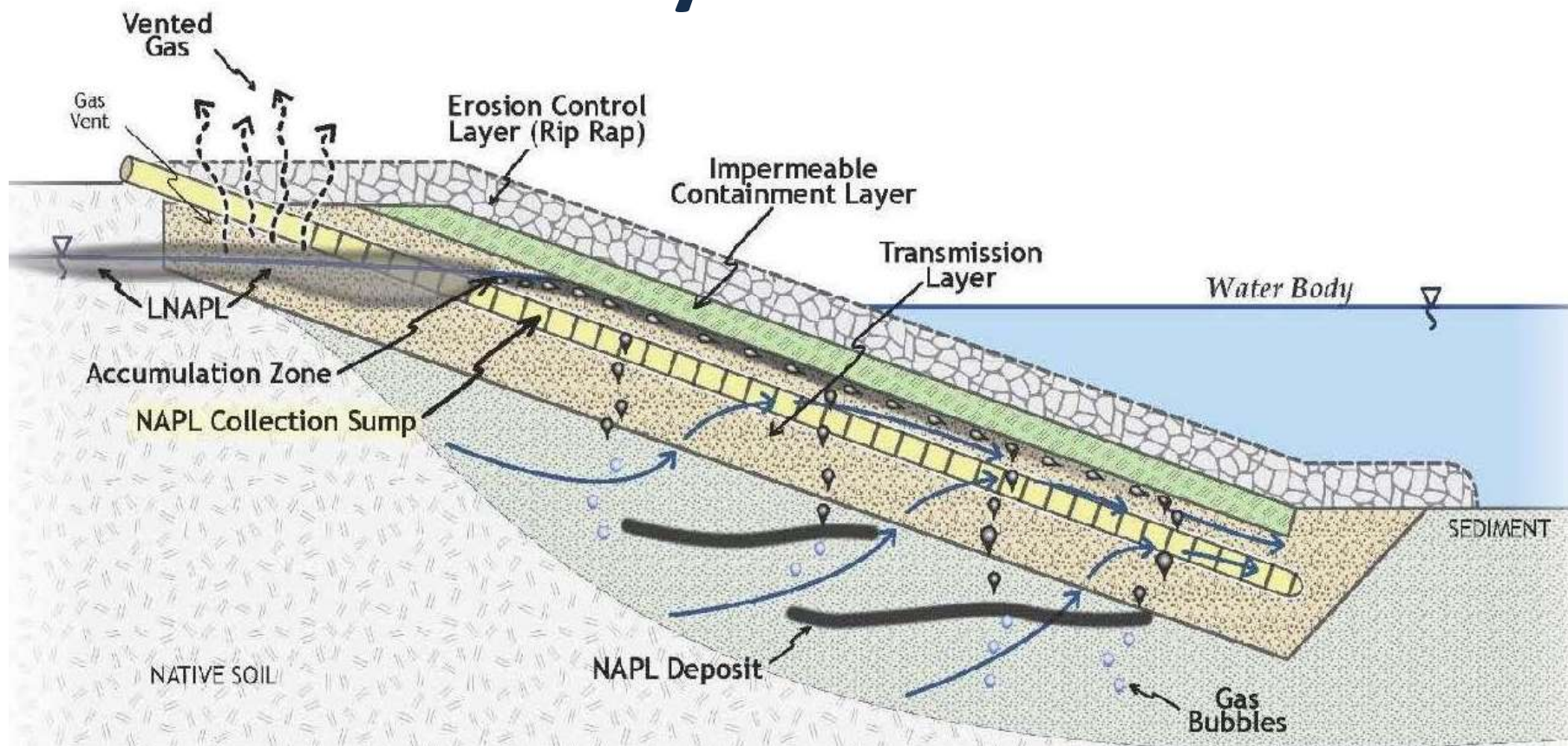
1. AERIAL FROM GOOGLE EARTH PRO, DATE APRIL 15, 2016.
2. LOWER LATERAL EXTENT = APPARENT LNAPL 20-35 FEET DEEP IN SOIL COLUMN.



PROJECT:		FENNER'S DITCH NORTH MUSKEGON, MICHIGAN	
TITLE:		REMEDIAL INVESTIGATION LOWER LATERAL EXTENT OF APPARENT LNAPL	
DRAWN BY:	D. STEHLE	PROJ NO:	238077.0002.02
CHECKED BY:	K. KILMER	FIGURE 9	
APPROVED BY:	D. KILMER		
DATE:	AUGUST 2017		
		600 Cascade West Pkwy SE Suite 105 Grand Rapids, MI 49548 <a href="http://www.trcsolutions.com">www.trcsolutions.com</a>	
		FILE NO: 238077.0002.02.09.dwg	



# Remedy Selection

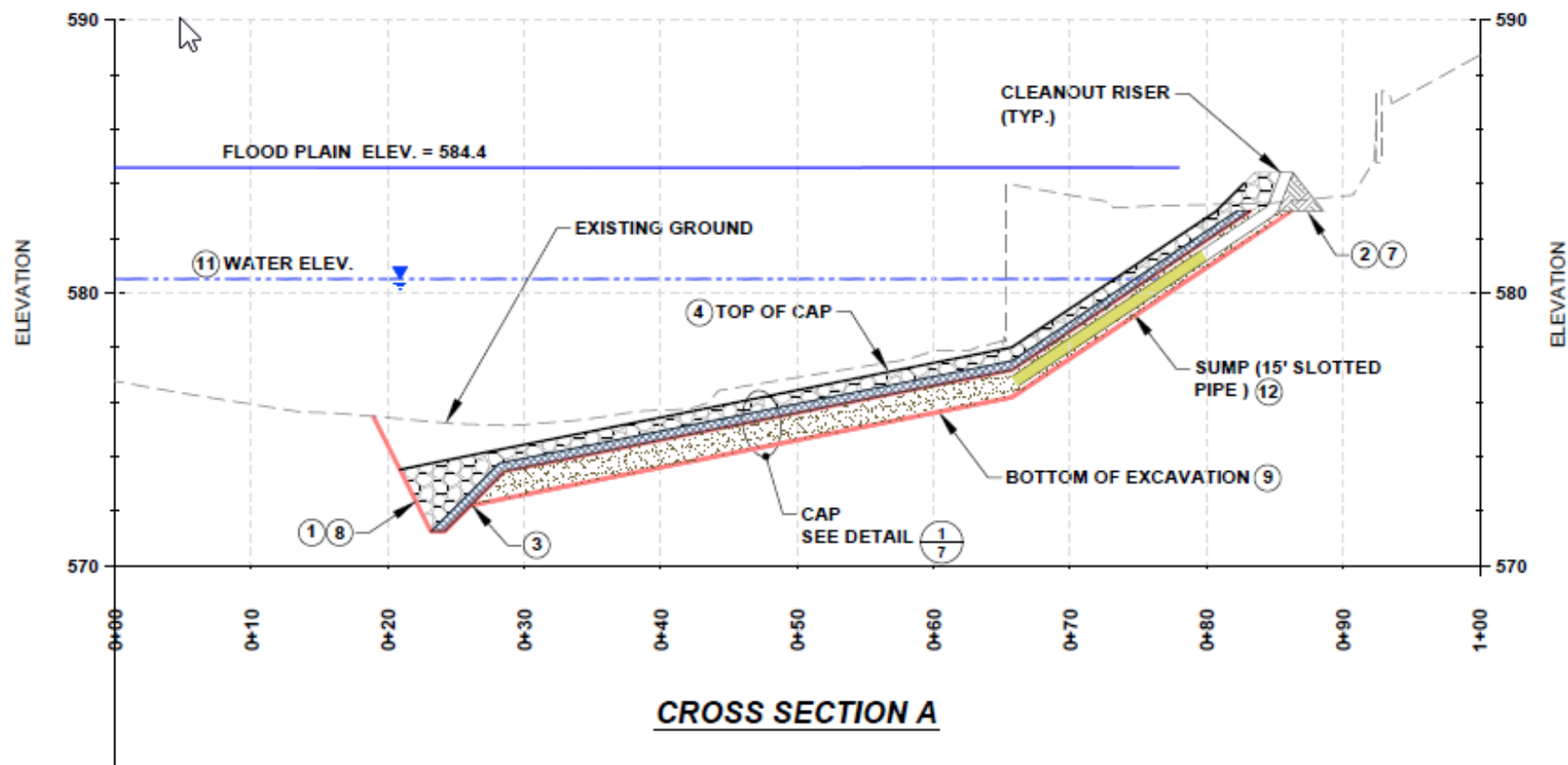


NAPL Trapping Cap®

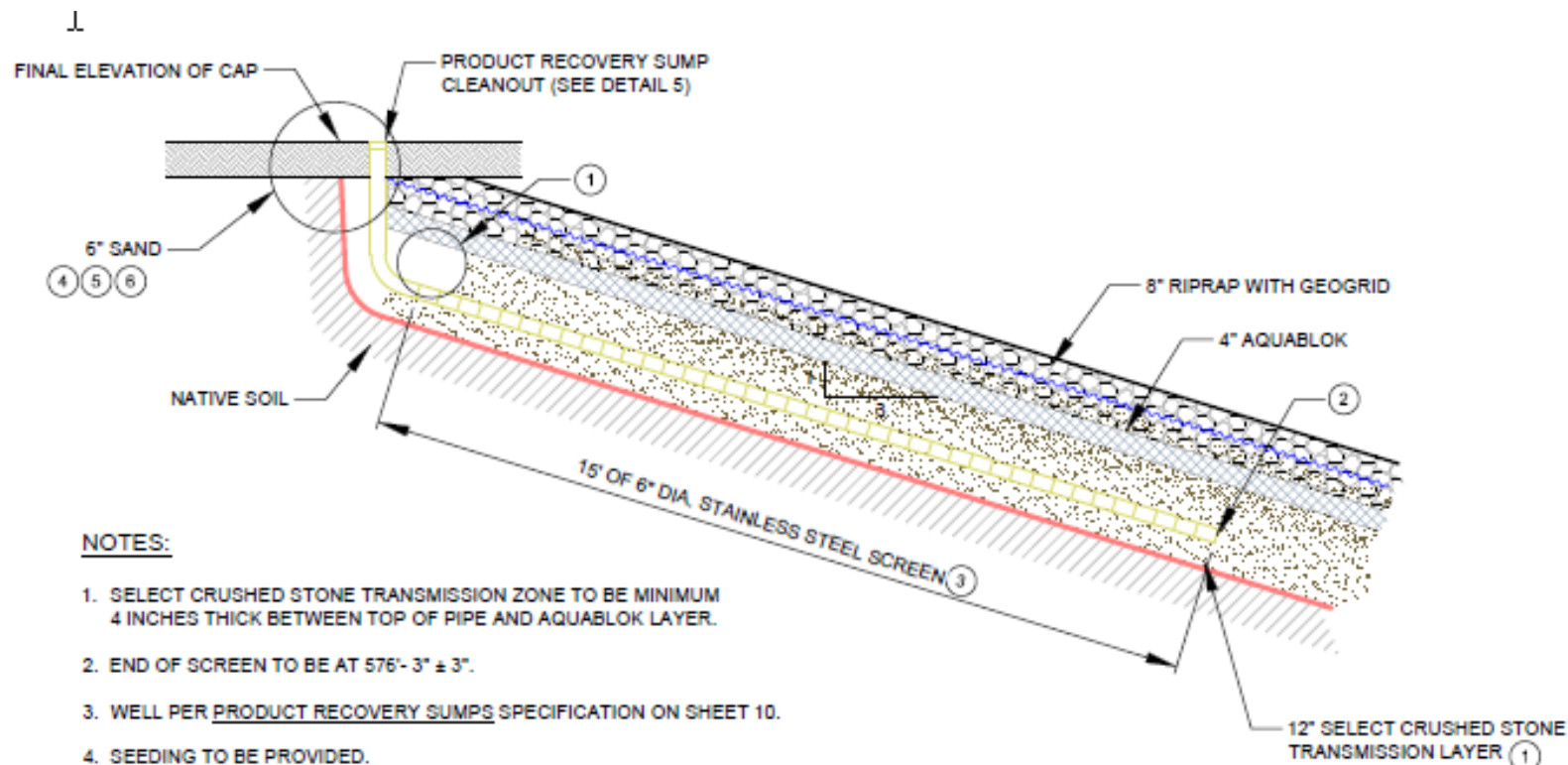












2  
7

## PRODUCT RECOVERY SUMP DETAIL

(NOT TO SCALE)



# Community Outreach



FOR ADDITIONAL  
INFORMATION  
PLEASE CONTACT:

Michigan Department of  
Environmental Quality  
Remediation and  
Redevelopment Division

DAVID BANDLOW  
DEQ Project Manager  
[BandlowD@michigan.gov](mailto:BandlowD@michigan.gov)  
616-745-5357  
Grand Rapids District Office  
350 Ottawa Ave NW Unit 10  
Grand Rapids MI 49503

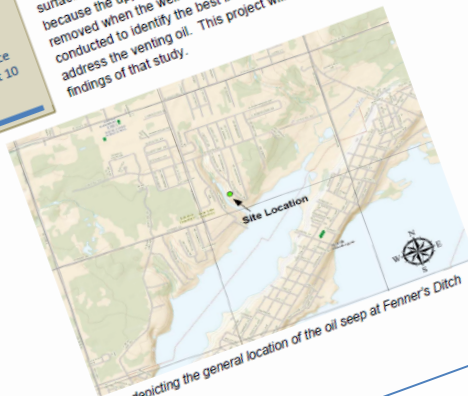
## FENNER'S DITCH OIL SEEP PROJECT

LAKETON TOWNSHIP, MUSKEGON COUNTY, MICHIGAN  
OCTOBER 2016

The Michigan Department of Environmental Quality (DEQ) and the United States Environmental Protection Agency (EPA) have partnered to address an oil seep that has been observed discharging to a canal known as Fenner's Ditch, a 0.34 mile long canal on the north side of Bear Lake in Laketon Township. Oil sheens and slicks have been observed on Fenner's Ditch for many years. Oil containment booms have been used to control the venting oil; however, this is not considered to be an adequate long-term strategy. The purpose of the project is to conduct an investigation to better define the nature and extent of the oil seep, and then to select, design, and implement a remedy to control the venting oil. This work will be conducted by the DEQ and their approved consultants and contractors. Costs for the work will be administered by the EPA from a funding source made available from the Oil Pollution Act.

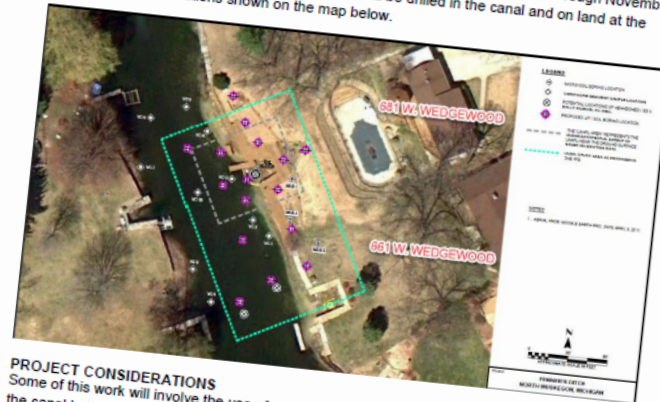
### PROJECT BACKGROUND

Previous investigations have concluded that the likely source of the oil seep is an improperly abandoned oil well that was drilled and "plugged" around 1930. It is possible that crude oil is migrating up the old borehole and venting to the surface water. Attempts to locate the borehole have been unsuccessful, in part because the upper portion of the well was abandoned. In 2015-2016, a feasibility study was removed when the well was abandoned. In 2015-2016, a feasibility study was conducted to identify the best investigation options and potential solutions to address the venting oil. This project will be focused on implementing the findings of that study.



### OIL SEEP INVESTIGATION

The first phase of work will involve investigating the oil seep through a series of soil borings and sediment cores. Field work is scheduled to begin October 31, 2016 and last through November 18, 2016. The soil borings and sediment cores will be drilled in the canal and on land at the magenta-colored locations shown on the map below.



### PROJECT CONSIDERATIONS

Some of this work will involve the use of a small barge in the canal so that sediment cores from the canal bottom can be collected. While this work is occurring, oil containment booms will be deployed in the canal to intercept oil slicks that may be generated as a result of the work. Boat traffic will be allowed to pass through the canal on the outside of the containment booms while work is occurring. On land, soil borings will only be conducted at properties where DEQ has been granted written access by the property owner.

### ENVIRONMENTAL CONCERNS

The oil seep is preventing home owners and other users from enjoying the natural resources of the canal. There is potential that the oil is accumulating on vegetation and in sediments, which could have adverse effects on the local ecosystem. Contact with oil slicks on the water surface should be avoided. No petroleum constituents were detected in residential drinking water wells that were previously sampled in the area of the oil seep.

### FUTURE WORK

Information from the investigation will be used in the development of a long-term strategy for the site. It is expected that data from the investigation will be processed during the winter of 2016-2017 and an additional phase of work will be initiated in the spring/summer of 2017. The next phase of work may involve additional investigation or implementation of a remedy designed to contain the venting oil.



# Timeline

- Joint Permit Application has been submitted to DEQ/US Army Corp of Engineers for work in the waterway
- Bids have been received and DEQ is in the process of issuing the award
- Contractor is anticipating 3-6 week construction phase
- Ideal schedule is to conduct work in May/June, 2018 with goal of completion by July 1<sup>st</sup>.



WE HAVE THE OIL  
JUST FRY YOUR FISH  
CALL YOUR STATE REP.



# Questions?

