Response to Great Lakes Legacy Act Request for Projects

Focused Feasibility Study for Crawford Creek and Tributary Remediation and Restoration – Superior, Wisconsin

Presentation to GLNPO Technical Review Committee
April 27, 2017

Presentation Overview

1. Introductions
2. GLLA Project Development Background
3. Site Overview
   - Location/Setting
   - Prior Investigations/Findings
   - Beneficial Use Impairments (BUIs)
4. Proposed GLLA Project Overview
   - Project Team
   - Objectives
   - Scope of Work/Tasks
   - Budget and Cost Share
   - Estimated Project Schedule

1. Introductions

2. GLLA Project Development Background

GLLA Project Development Background

- Historical release(s) and/or discharge(s) from Former Wood-Treating Facility to nearby Tributary and Crawford Creek (“Off-Property Area”)
- 2006: Wood-treating operations discontinued
- 2011: RCRA Corrective Actions completed at Former Wood-Treating Facility
- Off-Property Investigations:
  - 1996-2016 Beazer
  - 2014 GLNPO
- 2009: Draft Human health and ecological risk assessments (Beazer)
  - Revised to address WDNR comments, and resubmitted with FCMS in 2014
  - Documents have remained draft
- 2014: Draft Focused Corrective Measure Study (Beazer)
  - Evaluated remedial options for media/areas with potentially unacceptable risk
  - Document has remained draft

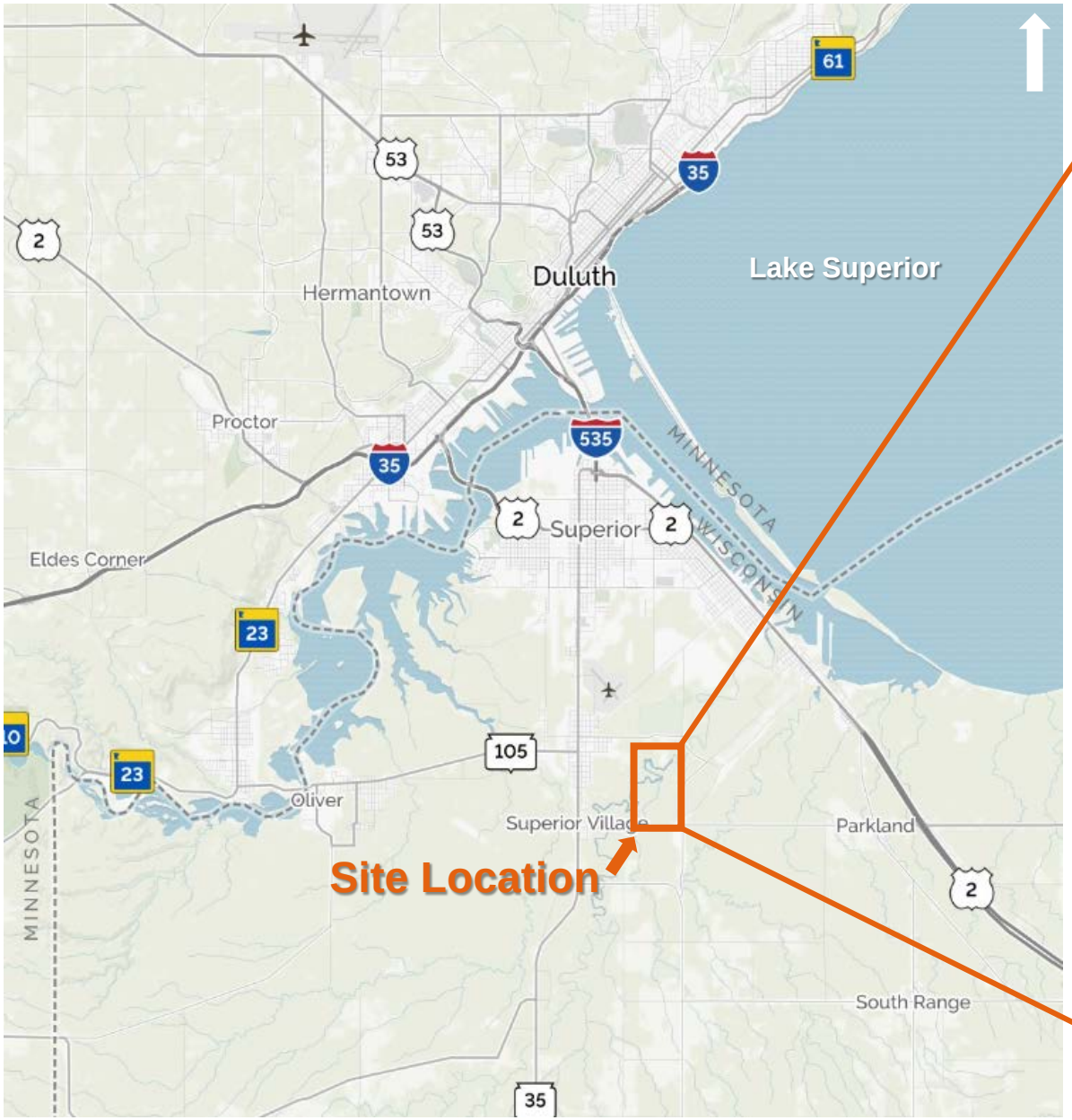
GLLA Project Development Background (Cont.)

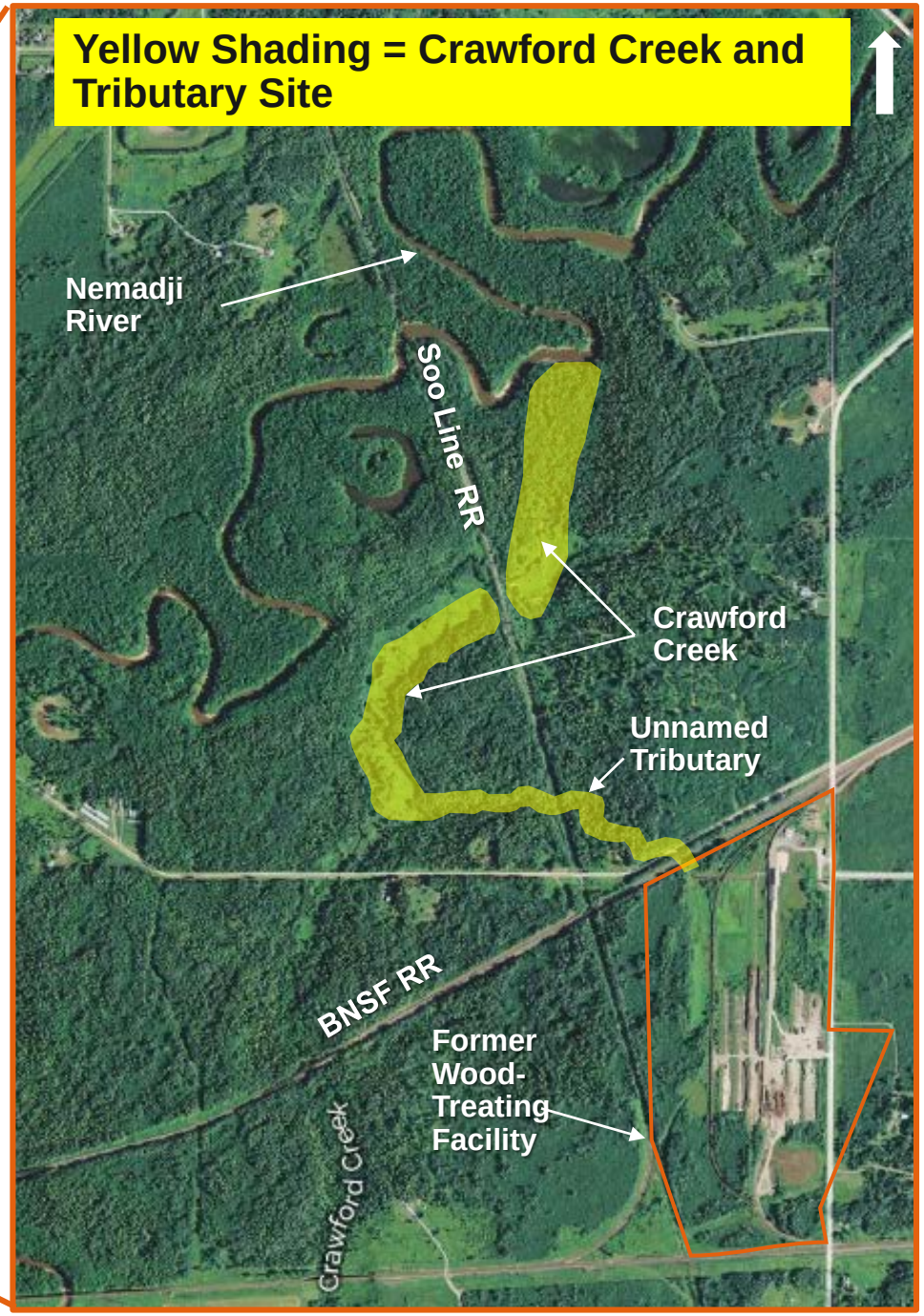
- 2011-2016: Meetings between Beazer, WDNR and USEPA GLNPO to discuss RAOs, remedial alternatives, and to develop an approach for a collaborative GLLA project
  - Project would be expanded to address BUIs and achieve AOC delisting goals, in addition to satisfying Beazer's obligations
- Feb. 2017: Final GLLA Project Application submitted by Beazer for FFS

3. Site Overview

Crawford Creek and Tributary Site – Superior, WI

Site Location Overview

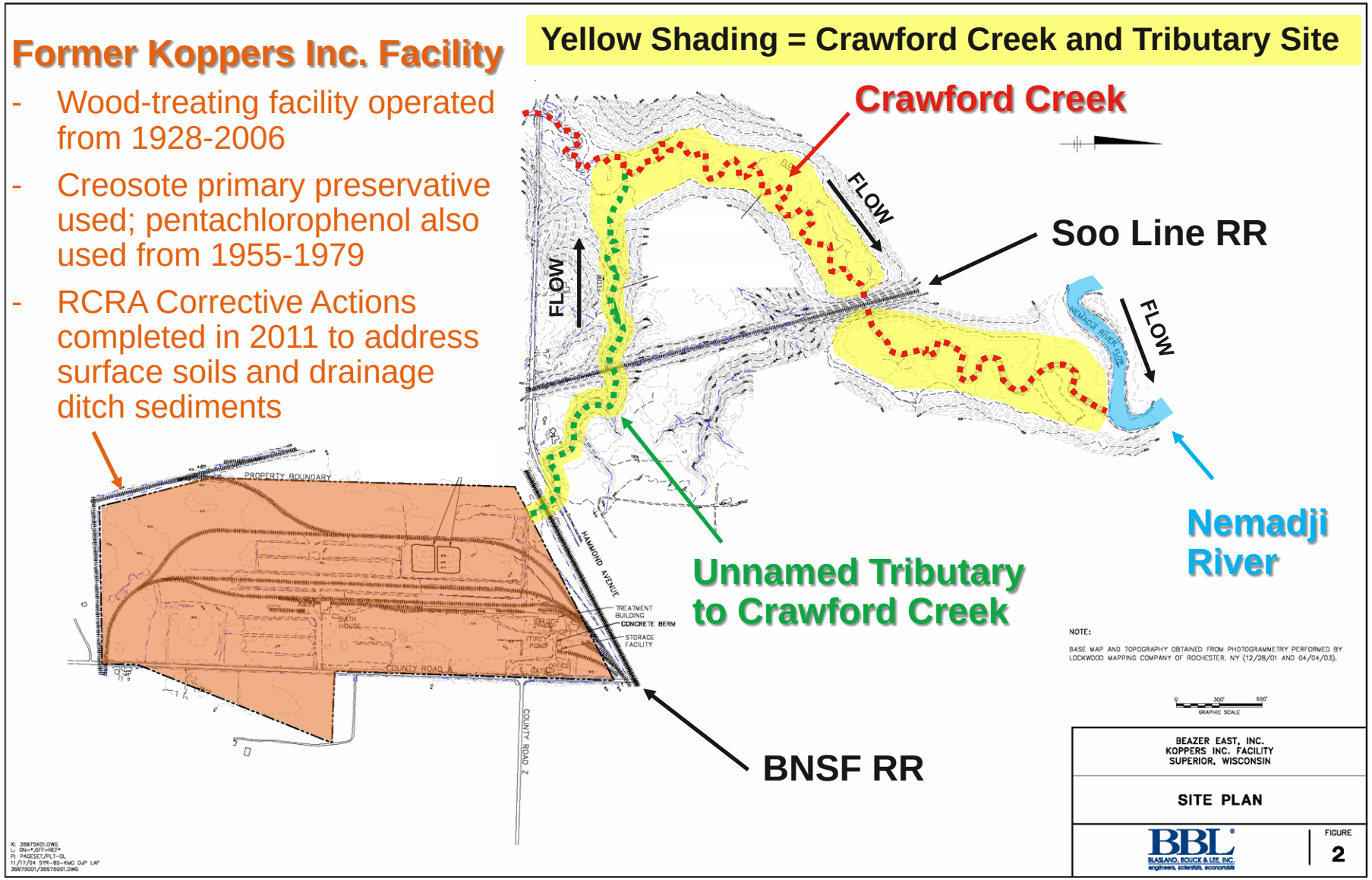




Site is Downstream of Former Koppers Inc. Facility

Former Koppers Inc. Facility

- Wood-treating facility operated from 1928-2006
- Creosote primary preservative used; pentachlorophenol also used from 1955-1979
- RCRA Corrective Actions completed in 2011 to address surface soils and drainage ditch sediments



Site Definition

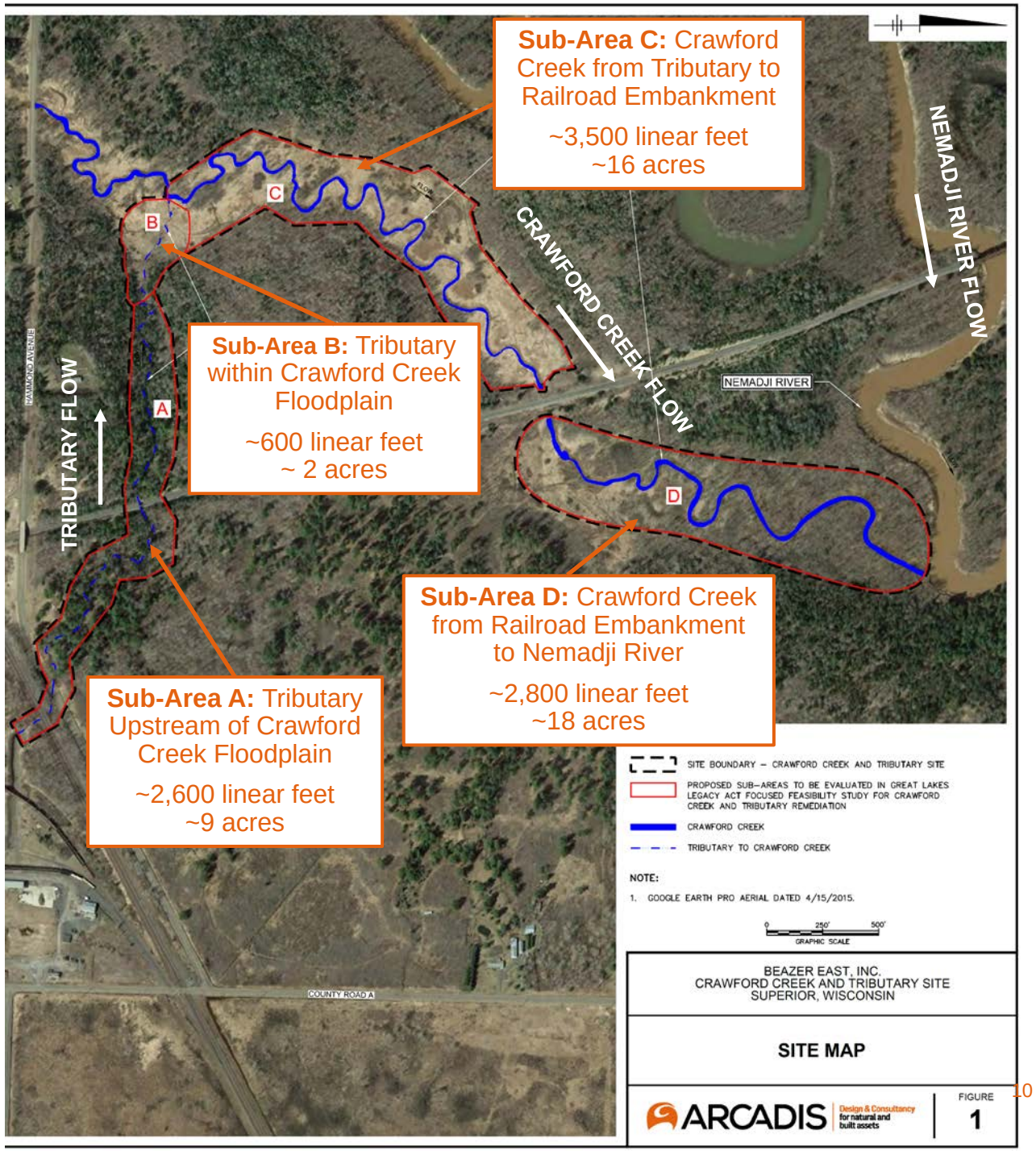
Site includes:

- Tributary to Crawford Creek
- Portion of Crawford Creek from the Tributary confluence downstream to the Nemadji River

Site divided into four "Sub-Areas":

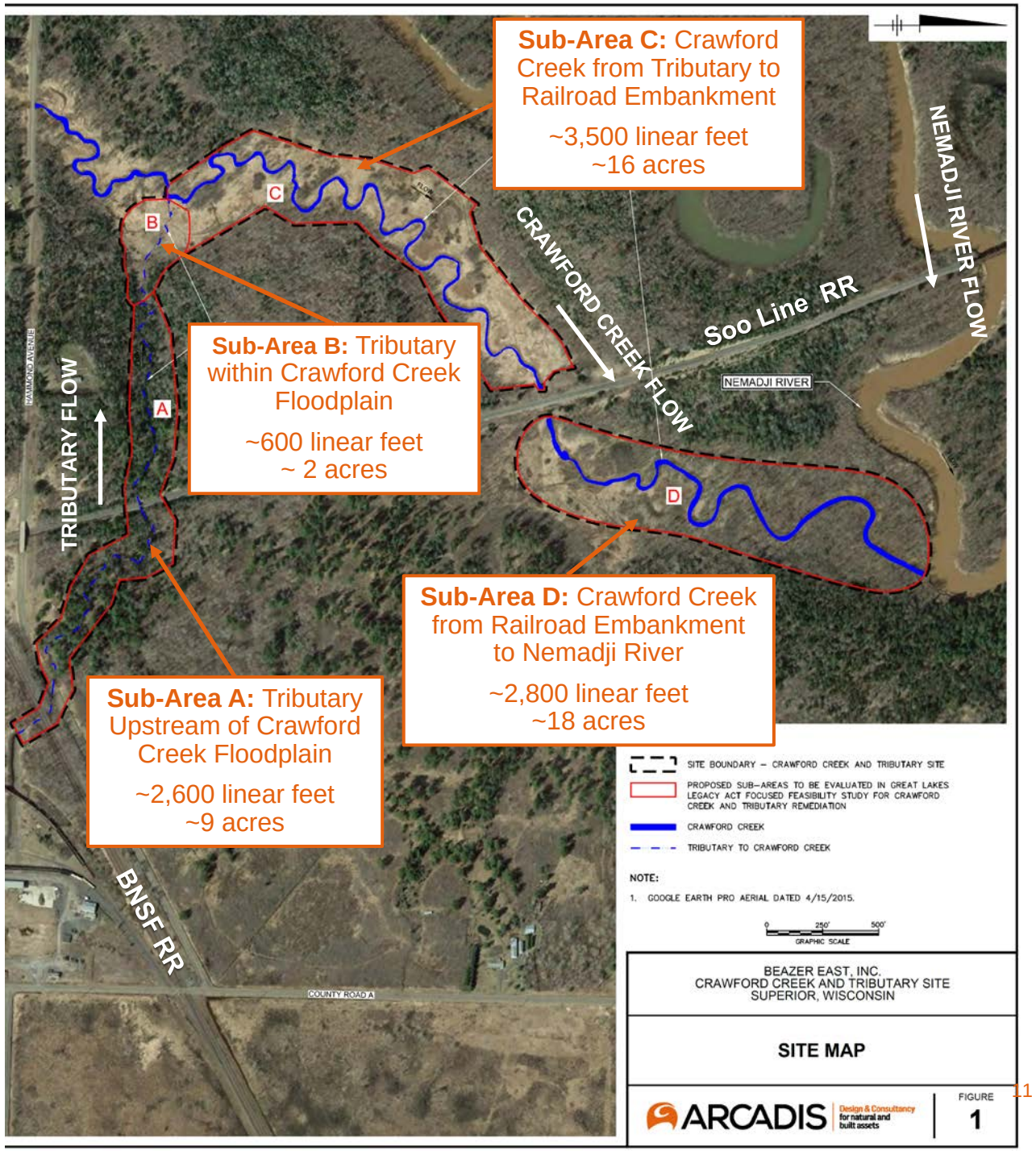
- A – Tributary Upstream of Crawford Creek Floodplain
- B – Tributary within Crawford Creek Floodplain
- C – Crawford Creek from Tributary to Railroad Embankment
- D – Crawford Creek from Railroad Embankment to Nemadji River

Total Channel Length: ~9,500 LF
Total Area: ~45 acres



Site Description

- Rural, sparsely populated area
- Predominantly undeveloped; vegetated with trees, shrubs, grasses
- Wetlands present throughout much of the Site
- Property owners:
  - Beazer
  - 3 private owners
  - Douglas County
  - BNSF Railway Company
  - Soo Line Railroad



Site is within the St. Louis River Area of Concern

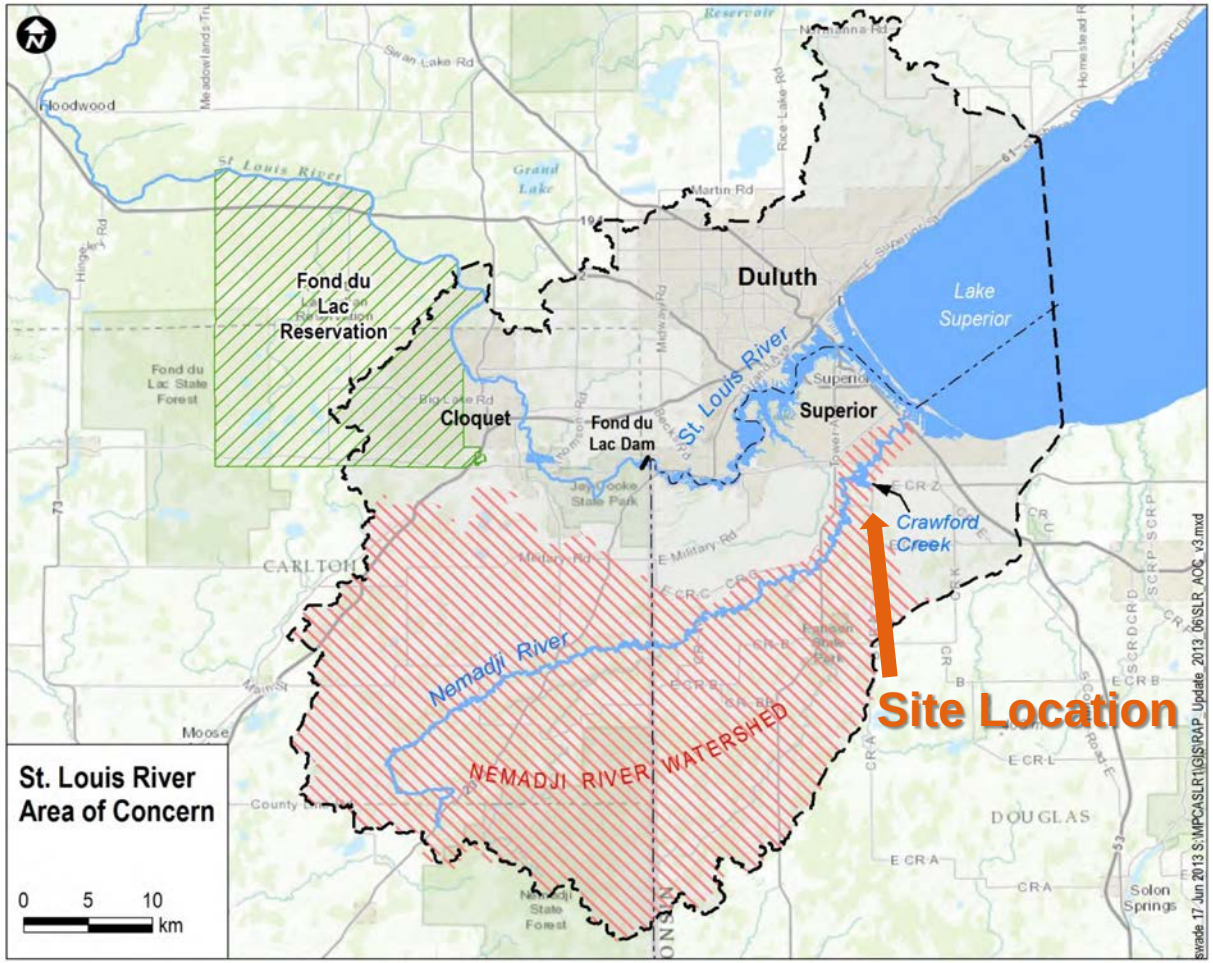


Figure 1 from SLRAOC Remedial Action Plan (MPCA and WDNR, 2016)

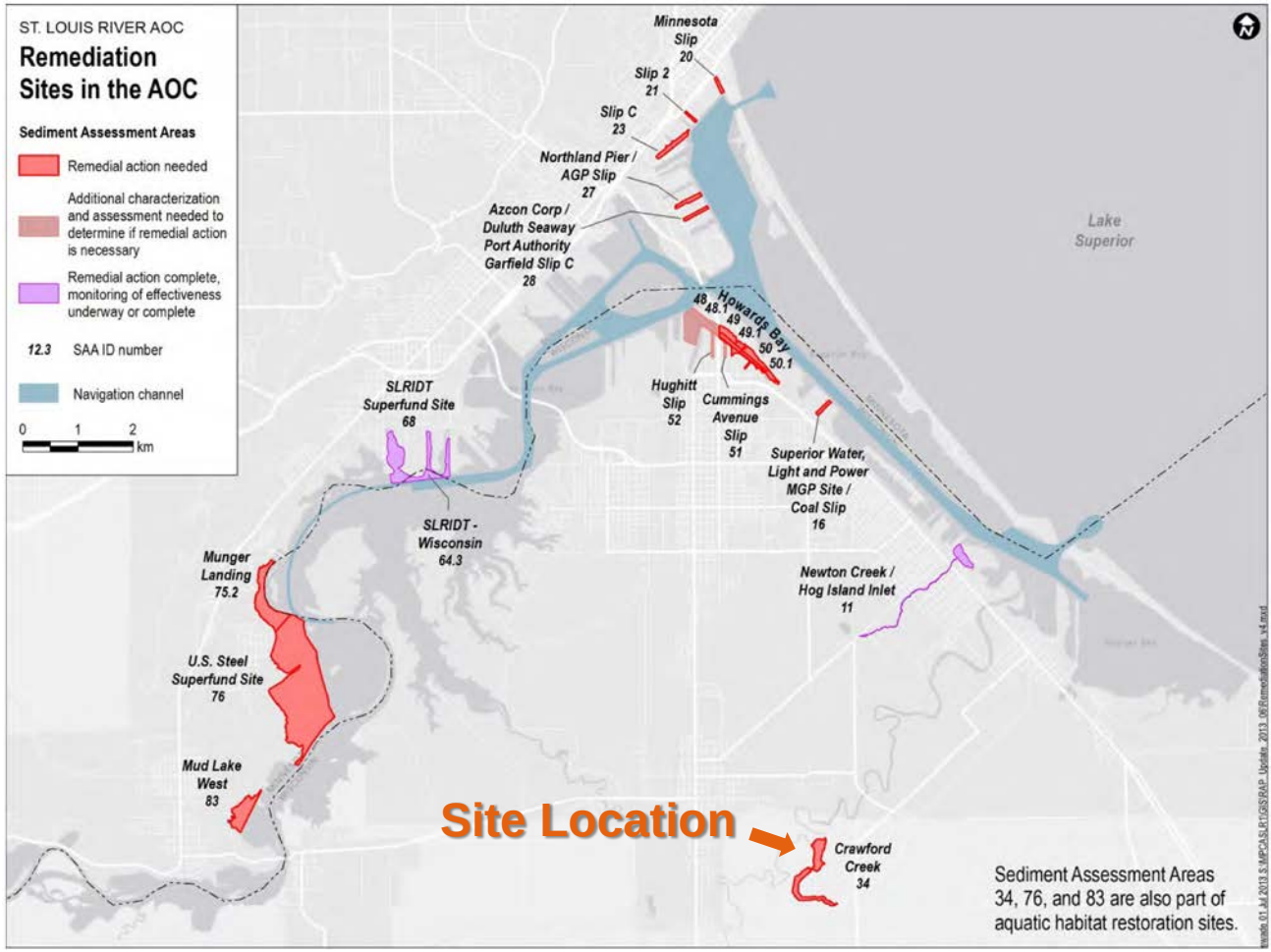
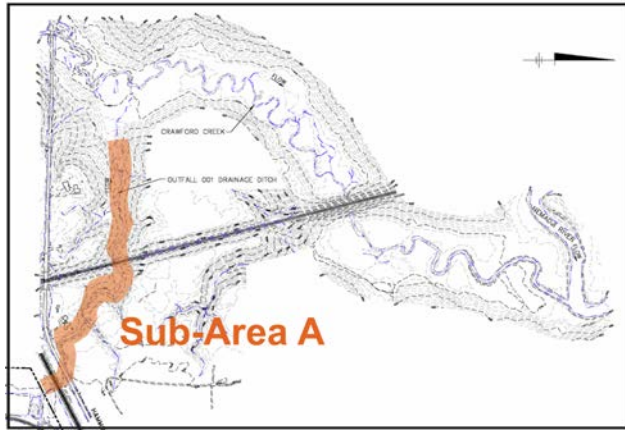


Figure 4 from SLRAOC Remedial Action Plan (MPCA and WDNR, 2016)

Sub-Area A Photographs

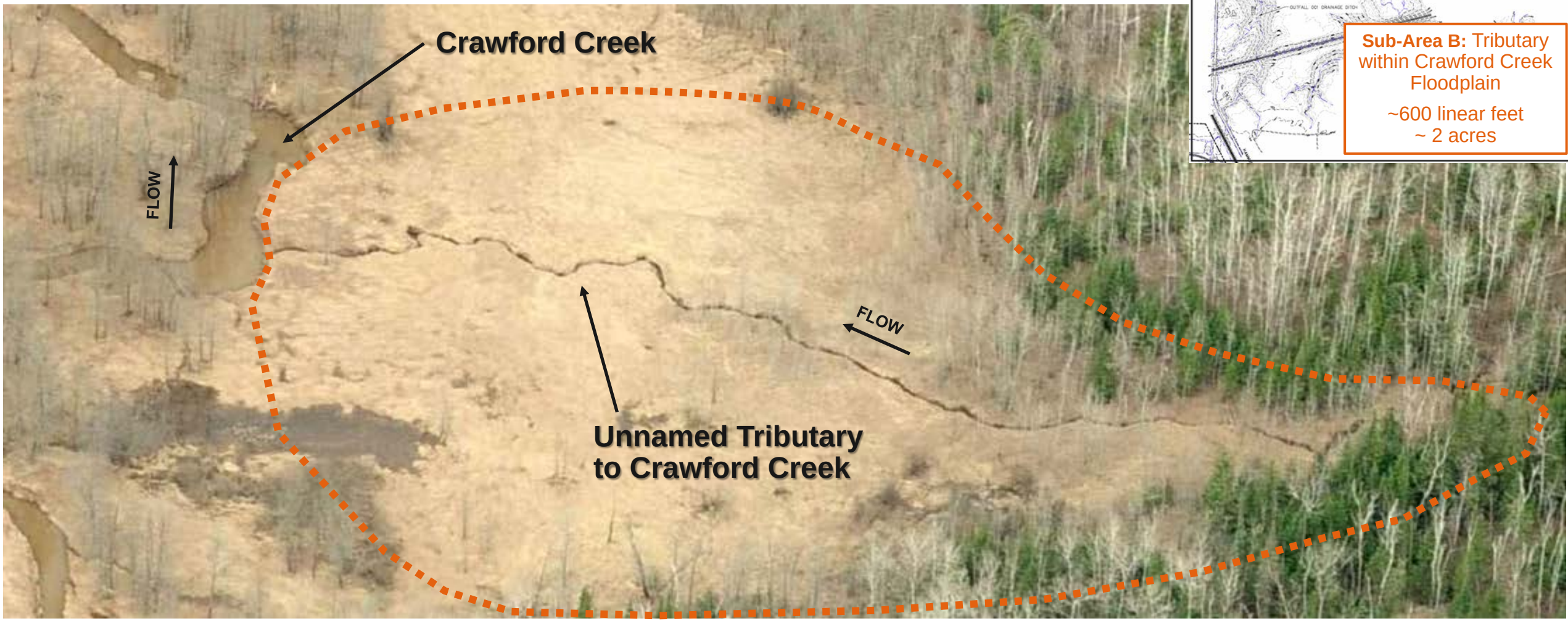
Sub-Area A: Tributary Upstream of Crawford Creek Floodplain

~2,600 linear feet
~9 acres



Deeply incised Tributary channel, with steep and heavily vegetated banks

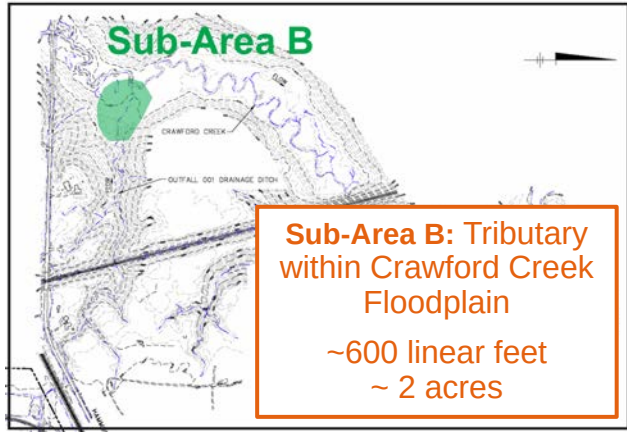
Sub-Area B Photographs



Approximate Limits of Sub-Area B

Sub-Area B Photographs (Cont.)

Tributary channel within the Crawford Creek floodplain



Sub-Area B: Tributary within Crawford Creek Floodplain

~600 linear feet
~ 2 acres

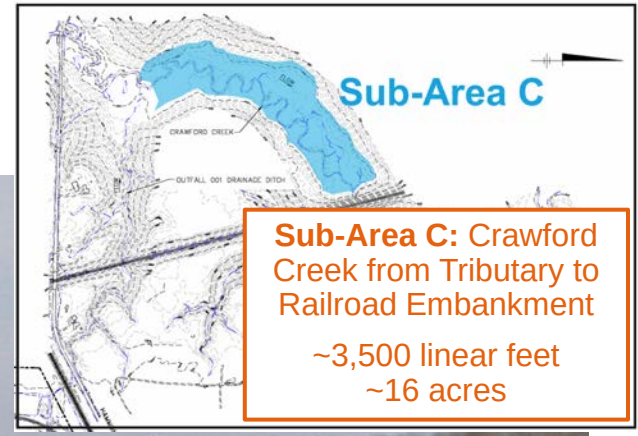
Sub-Area C Photographs

Sub-Area C: Crawford Creek from Tributary to Railroad Embankment

~3,500 linear feet
~16 acres

Crawford Creek and floodplain; looking SW (upstream) from top of Soo Line RR Embankment

Sub-Area C Photographs (Cont.)



Crawford Creek and floodplain; looking SW (upstream) from top of Soo Line RR Embankment

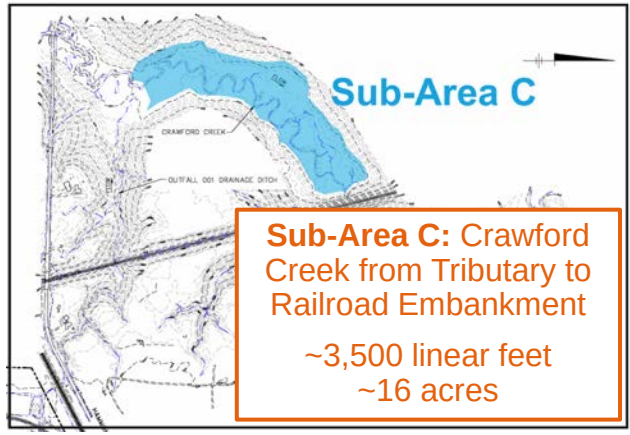
Bank full conditions

Crawford Creek and floodplain; looking SW (upstream) from top of Soo Line RR Embankment

Flooded conditions

Sub-Area C Photographs (Cont.)

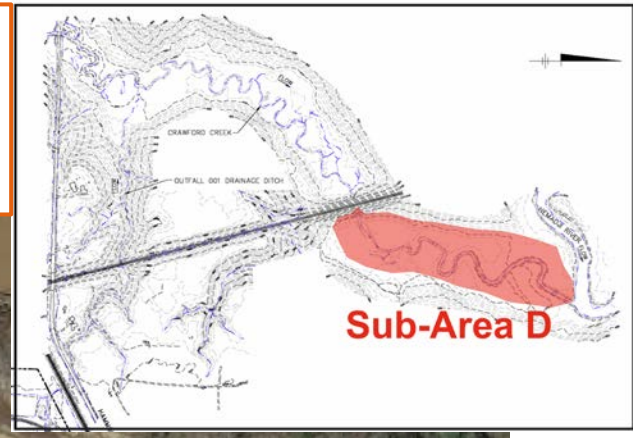
Crawford Creek and floodplain; looking NE (downstream) toward Soo Line RR Embankment and culvert



Sub-Area D Photographs

Sub-Area D: Crawford Creek from Railroad Embankment to Nemadji River

~2,800 linear feet
~18 acres



SOO LINE RR EMBANKMENT

CRAWFORD CREEK FLOW

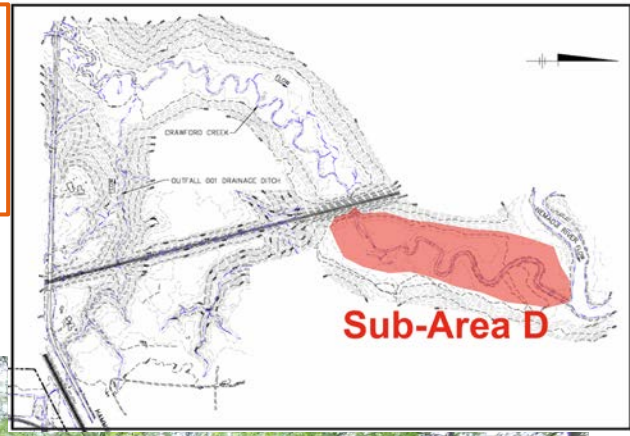
NEMADJI RIVER FLOW

Approximate Limits of Sub-Area D

Sub-Area D Photographs (Cont.)

Sub-Area D: Crawford Creek from Railroad Embankment to Nemadji River

~2,800 linear feet
~18 acres



Crawford Creek and floodplain, downstream of Soo Line RR Embankment

Summary of Prior Investigations

Investigation	Sub-Area				Analytical Samples						Probing/Coring/ Borings/Test Pits		Hydro Study	Habitat Eval.	BMI/Fish Survey
	A	B	C	D	SW	Sed	Bank/FP	GW	Fish	Insect	Sed	Bank/FP			
1996 (Beazer)	X	X	X	X	7	22	2								
1999 (Beazer)	X	X	X	X	4	181	112				182	100	X	X	X
2003 (Beazer)	X	X	X			6	10					178			
2005 (Beazer)	X	X	X	X	4	7	25		7	4	30	38	X		
2013 (Beazer)		X	X				8	35				42	X		
2014 (GLNPO)				X		64	35		11		91	41		X	X
2016 (Beazer)				X							121				
Totals:					15	280	192	35	18	4	424	399			

SW = surface water

Sed = sediment (from Tributary or Creek channels)

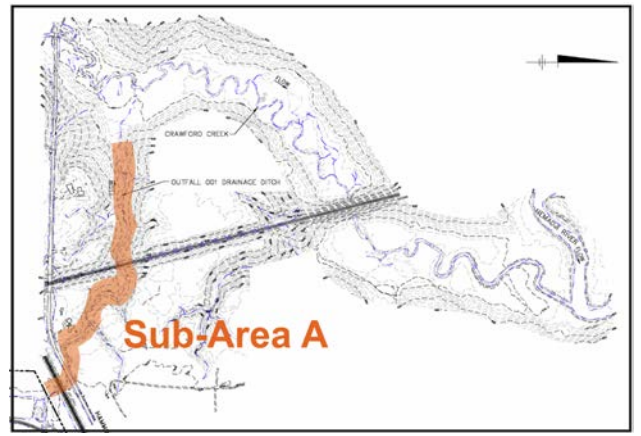
FP = floodplain

GW = groundwater

Hydro = hydrologic (surface water monitoring/modeling) and/or hydrogeologic (groundwater monitoring/modeling)

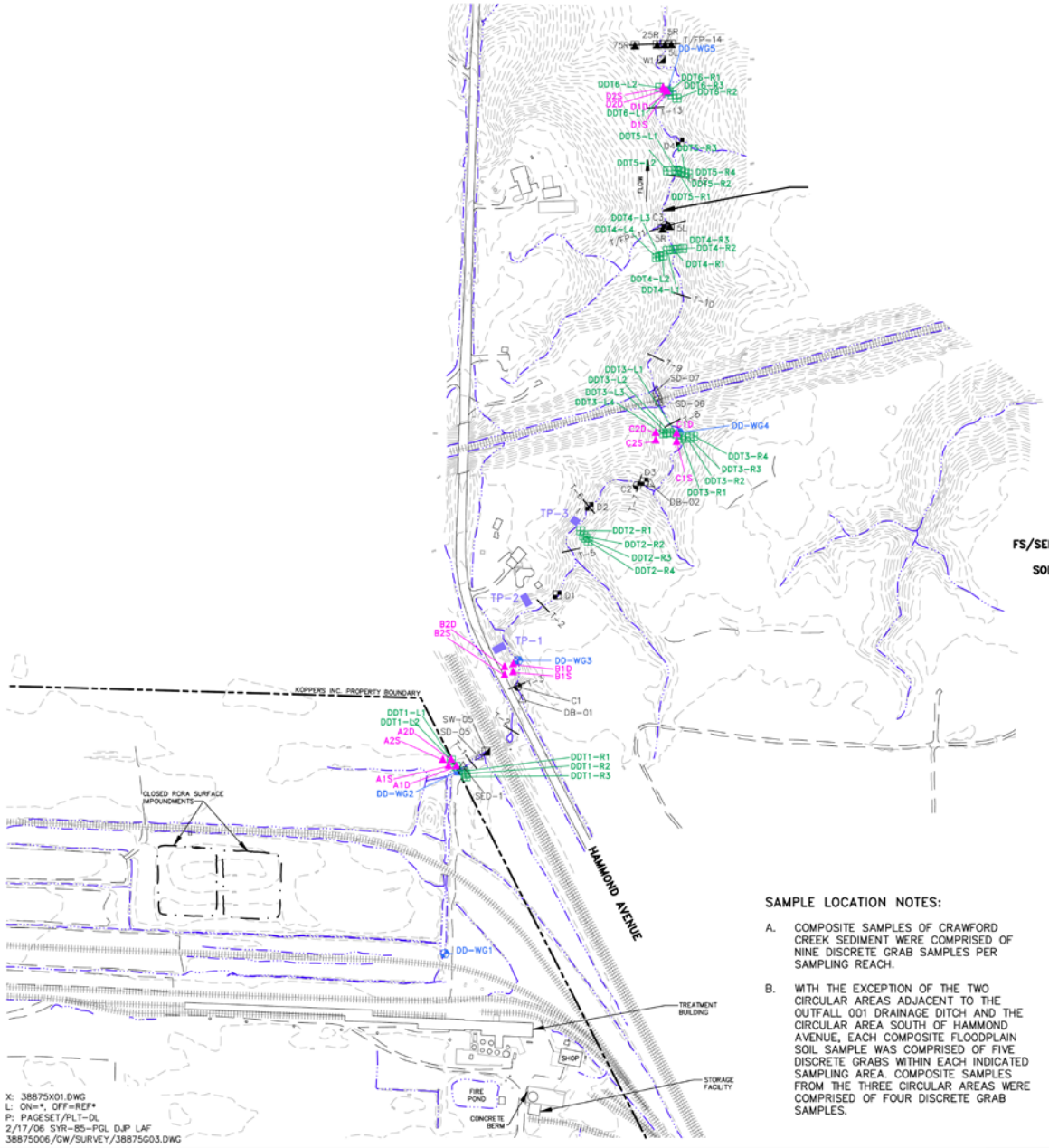
BMI = benthic macroinvertebrate

Investigation Locations – Sub-Area A (1996-2005)



Sub-Area A: Tributary Upstream of Crawford Creek Floodplain

~2,600 linear feet
~9 acres



SAMPLE LOCATION NOTES:

A. COMPOSITE SAMPLES OF CRAWFORD CREEK SEDIMENT WERE COMPRISED OF NINE DISCRETE GRAB SAMPLES PER SAMPLING REACH.

B. WITH THE EXCEPTION OF THE TWO CIRCULAR AREAS ADJACENT TO THE OUTFALL 001 DRAINAGE DITCH AND THE CIRCULAR AREA SOUTH OF HAMMOND AVENUE, EACH COMPOSITE FLOODPLAIN SOIL SAMPLE WAS COMPRISED OF FIVE DISCRETE GRABS WITHIN EACH INDICATED SAMPLING AREA. COMPOSITE SAMPLES FROM THE THREE CIRCULAR AREAS WERE COMPRISED OF FOUR DISCRETE GRAB SAMPLES.

LEGEND:

- KOPPERS INC. PROPERTY BOUNDARY
- FS/SED-R3 — 2005 COMPOSITE FISH/SEDIMENT SAMPLE REACH (SEE NOTE A)
- SOIL-T3 — 2005 COMPOSITE FLOODPLAIN SOIL SAMPLE TRANSECT/AREA (SEE NOTE B)
- FLY-1 — 2005 INSECT SAMPLE LOCATION
- C2S — 2005 PIEZOMETER LOCATION
- DDT1-R1 — 2005 SOIL BORING LOCATION
- DD-WG3 — 2005 SURFACE WATER GAUGE LOCATION
- CC-SHEEN-2 — 2005 SHEEN SAMPLE LOCATION
- TP-1 — 2005 TEST PIT LOCATION
- PREVIOUS SEDIMENT/FLOODPLAIN SOIL BORING TRANSECT
- PREVIOUS FISH SURVEY AREA
- PREVIOUS INSECT SAMPLE
- PREVIOUS FLOODPLAIN SOIL SAMPLE (2/03)
- PREVIOUS SEDIMENT SAMPLE (5/03)
- C — PREVIOUS SEDIMENT CORE SAMPLE
- CB — PREVIOUS SEDIMENT CORE BACKGROUND SAMPLE
- W — PREVIOUS WATER SAMPLE
- WB — PREVIOUS WATER BACKGROUND SAMPLE
- T — PREVIOUS TRANSECT SAMPLE
- SG — PREVIOUS STAFF GAUGE
- FP — PREVIOUS FLOODPLAIN SOIL SAMPLE
- D — PREVIOUS BANK SOIL SAMPLE
- DB-02 — PREVIOUS SOIL/SEDIMENT SAMPLE
- GC1 — PREVIOUS GEOCHRONOLOGIC SEDIMENT CORE
- N6-1 — PREVIOUS TEST PIT LOCATIONS

NOTES:

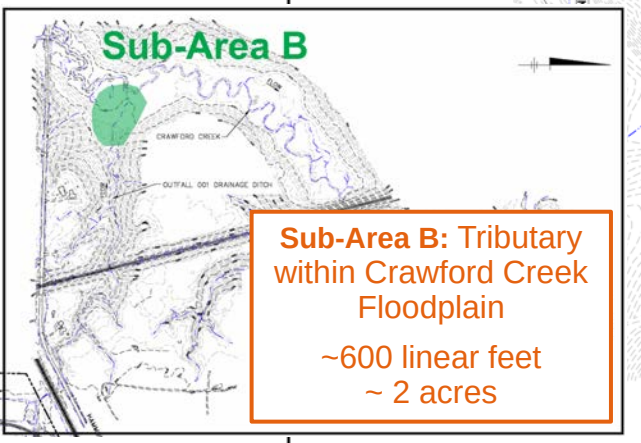
1. BASE MAP AND FROM PHOTOGR LOCKWOOD MAP ROCHESTER, NY
2. ALL LOCATIONS

BEAZER KOPPERS SUPERIO

2005 AND PREVI INVESTIGATI

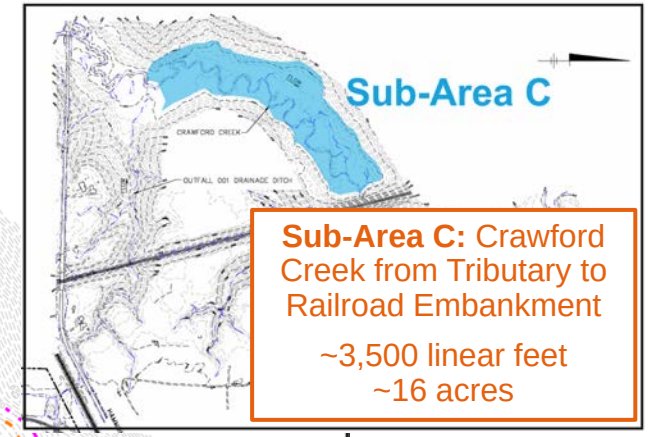
BB BLASLAND, BOUCK & engineers, scientists, e

Investigation Locations – Sub-Areas B and C (1996-2013)



Sub-Area B: Tributary within Crawford Creek Floodplain

~600 linear feet
~ 2 acres



Sub-Area C: Crawford Creek from Tributary to Railroad Embankment

~3,500 linear feet
~16 acres

Investigation Locations – Sub-Area D (2014 GLNPO only)

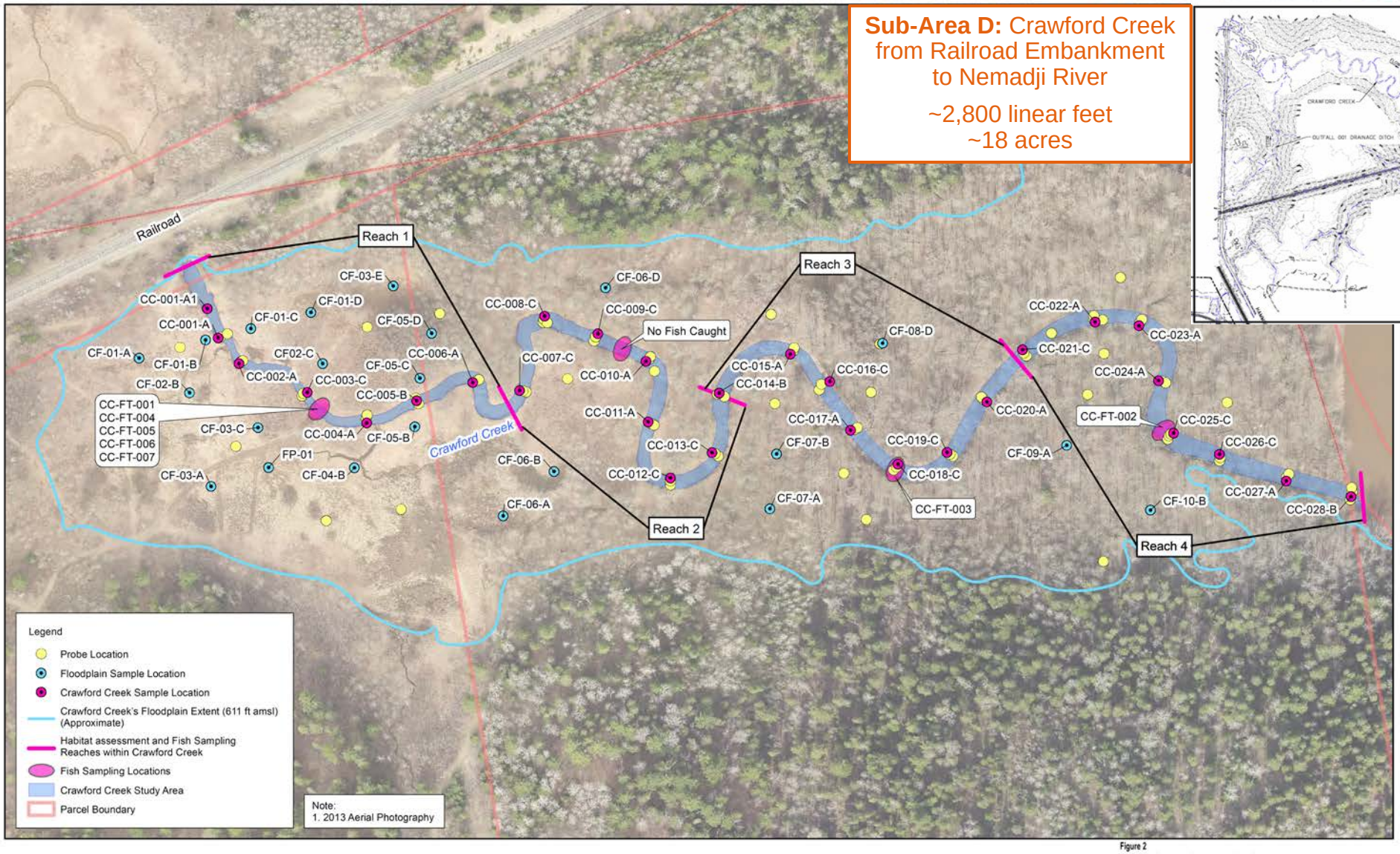


Figure 2
Sediment Sampling, Probing and Fish Sampling Location Map - Crawford Creek and Floodplain
Crawford Creek/Nemadji River Sediment Characterization Site Characterization Report
Superior, WI

MKE \\LAKEFRONT\PROJ\GLAES\CRAWFORDCREEKS\SUPERIORWI\MAPFILES\SITECHARACTERIZATIONREPORT2014\FIGURE 02 - SED SAMPLING, PROBING AND FISH SAMPLING LOCATION MAP - CC AND FP.MXD JHANSEN1 12/2/2014 12:16:47 PM

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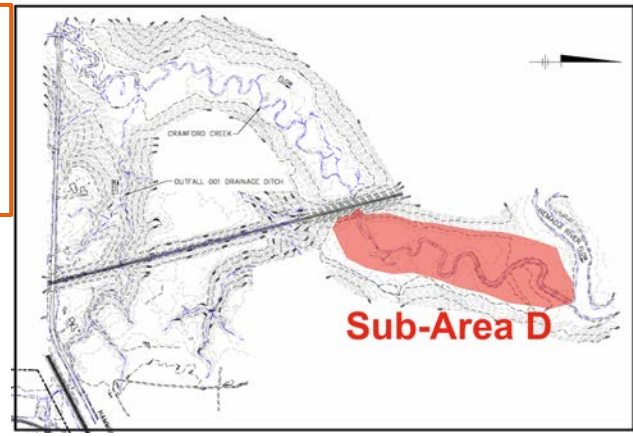
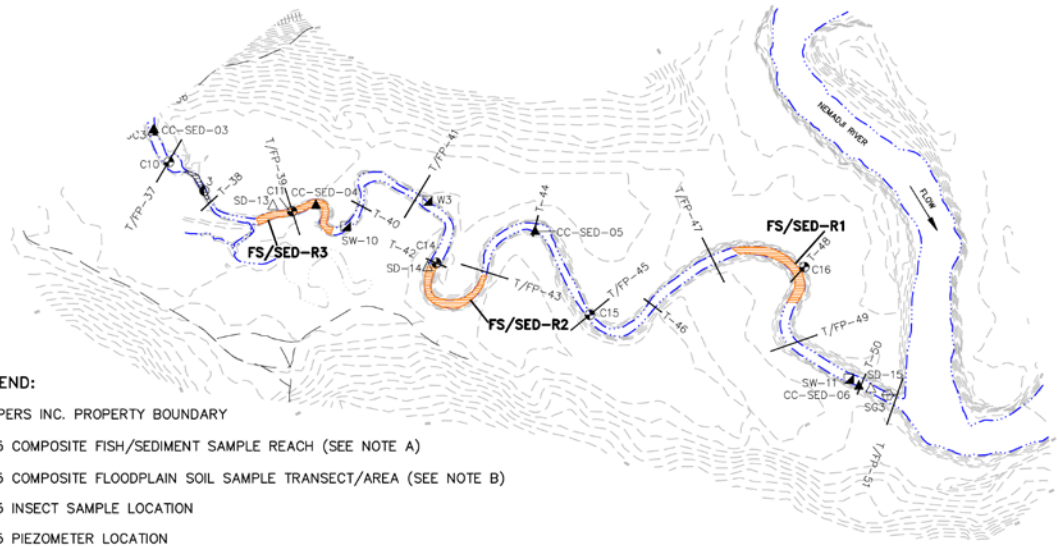
Investigation Locations – Sub-Area D (1999-2005 Beazer)

Sub-Area D: Crawford Creek from Railroad Embankment to Nemadji River

~2,800 linear feet
~18 acres





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- DB-02 — PREVIOUS SOIL/SEDIMENT SAMPLE
- GC1 — PREVIOUS GEOCHRONOLOGIC SEDIMENT CORE
- N6-1 — PREVIOUS TEST PIT LOCATIONS

NOTES:

1. BASE MAP AND TOPOGRAPHY OBTAINED FROM PHOTOGRAMMETRY PERFORMED BY LOCKWOOD MAPPING COMPANY OF ROCHESTER, NY (12/28/01).
2. ALL LOCATIONS ARE APPROXIMATE.

0 200' 400'
GRAPHIC SCALE

BEAZER EAST, INC.
KOPPERS INC. FACILITY
SUPERIOR, WISCONSIN

2005 AND PREVIOUS OFF-PROPERTY INVESTIGATION LOCATIONS

BBL BLASLAND, BOUCK & LEE, INC. engineers, scientists, economists

FIGURE 6

Investigation Findings

Constituents of Potential Concern

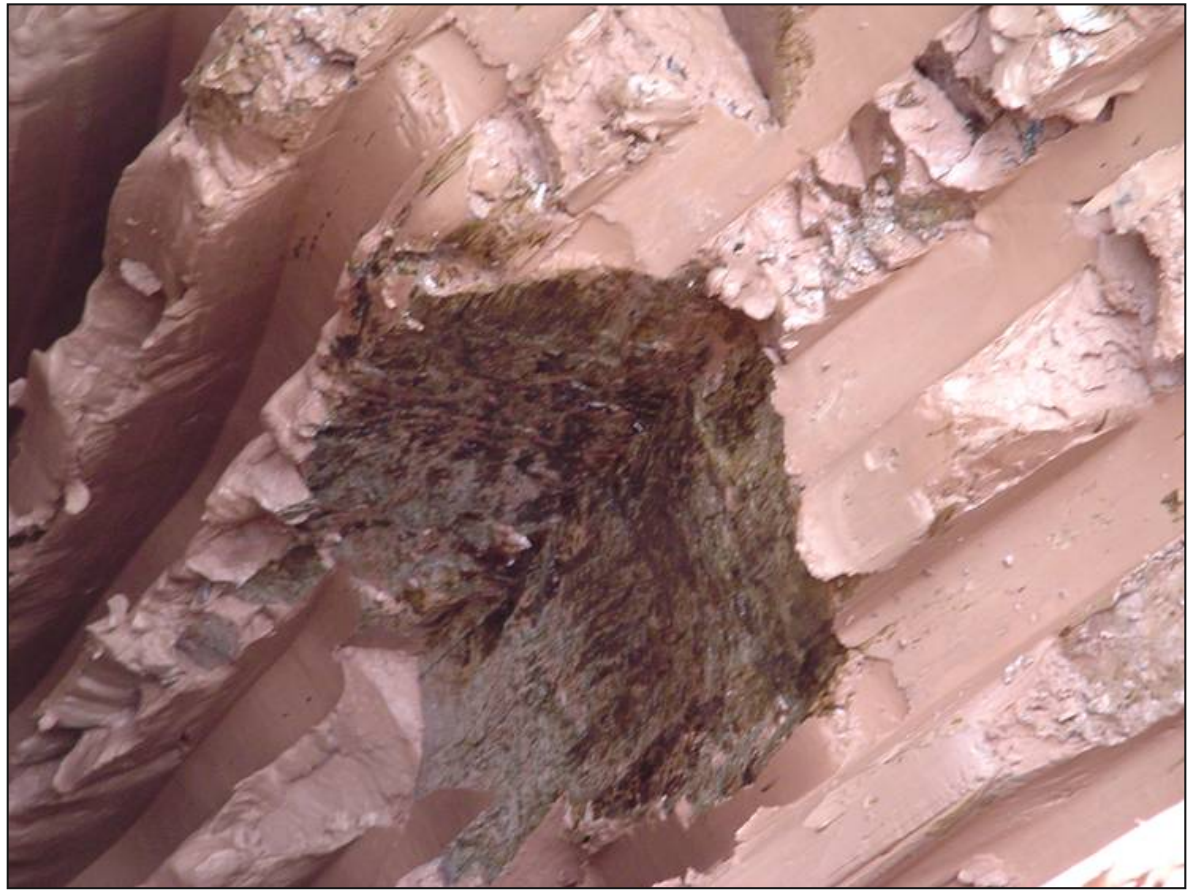
- Polycyclic aromatic hydrocarbons (PAHs) *
- Dioxins/furans *
- Pentachlorophenol

*Main drivers

Visual Observations

- Creosote-like product (NAPL) – blebs, globules, coating in clay cracks/fractures
- Staining
- Sheens

Visual Observations



NAPL in clay fractures (cleaved from test pit sidewall)

Visual Observations (Cont.)

“Black stained layer” in test pit sidewall

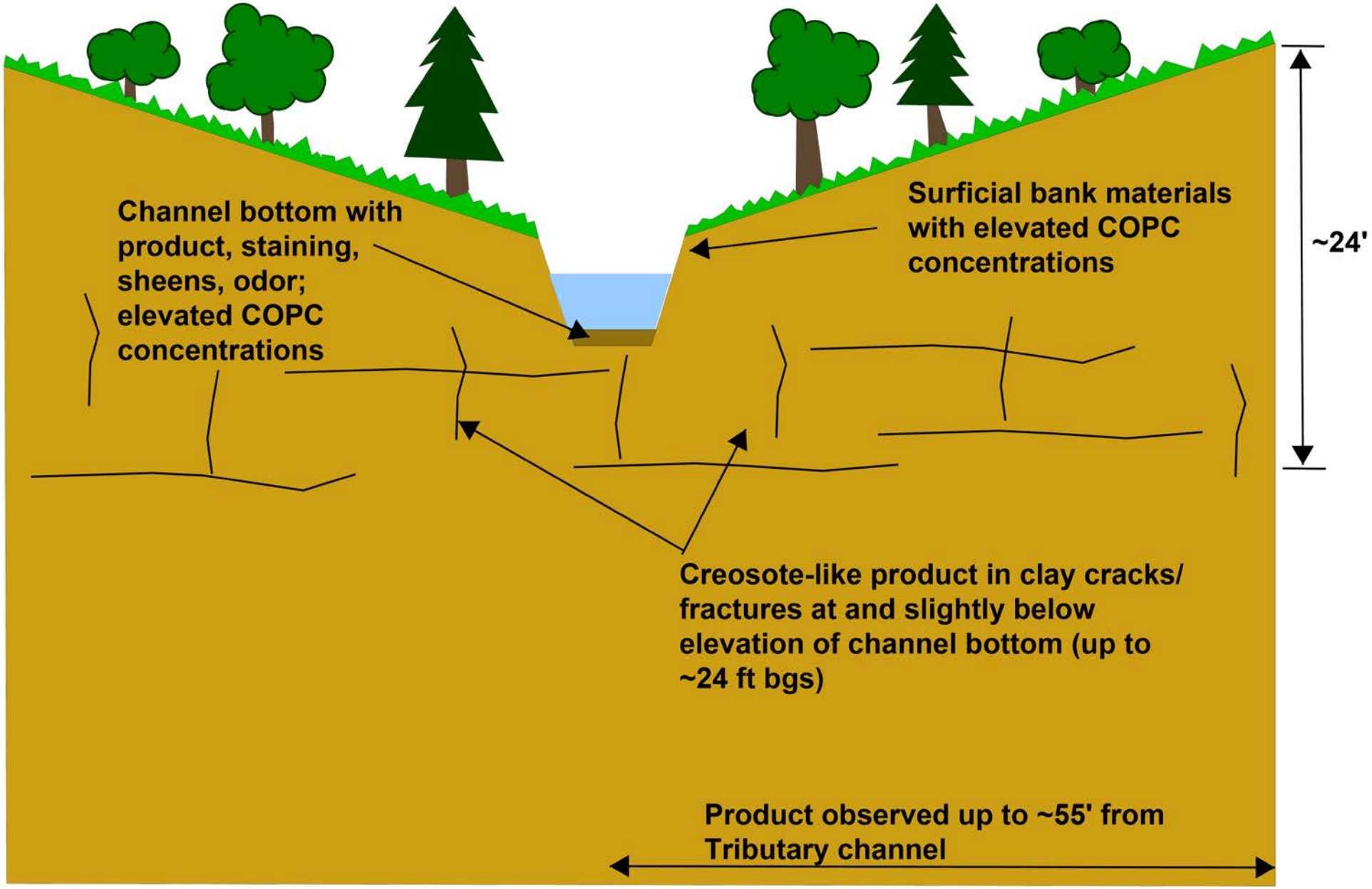
- Dry, weathered depositional material (no NAPL)
- Present in Sub-Area B and portions of Sub-Area C
- Generally ~2’ in thickness, starting around 2’ bgs

NAPL in clay fractures in test pit sidewall

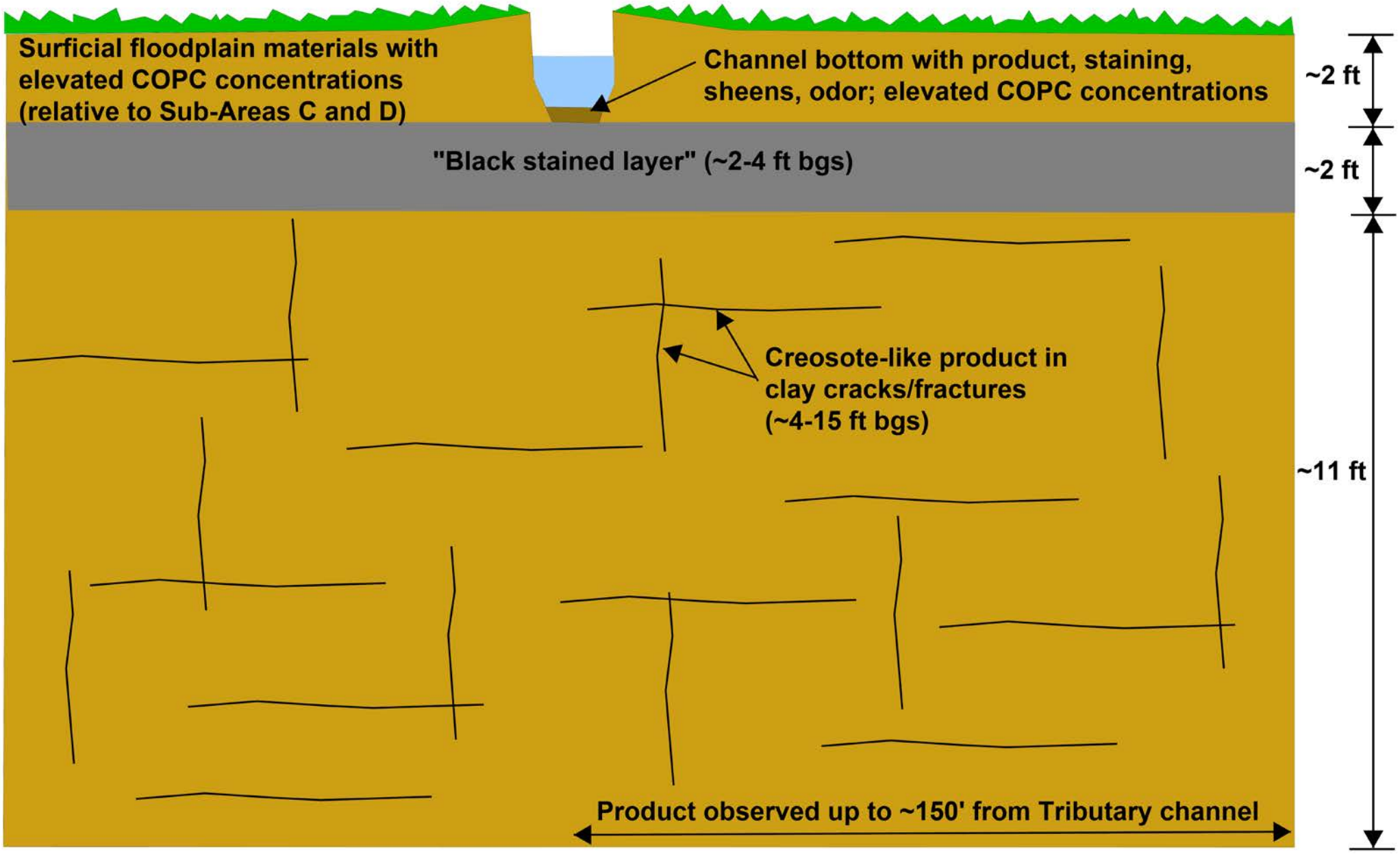
Visual Observations (Cont.)

Sheen on Tributary bank

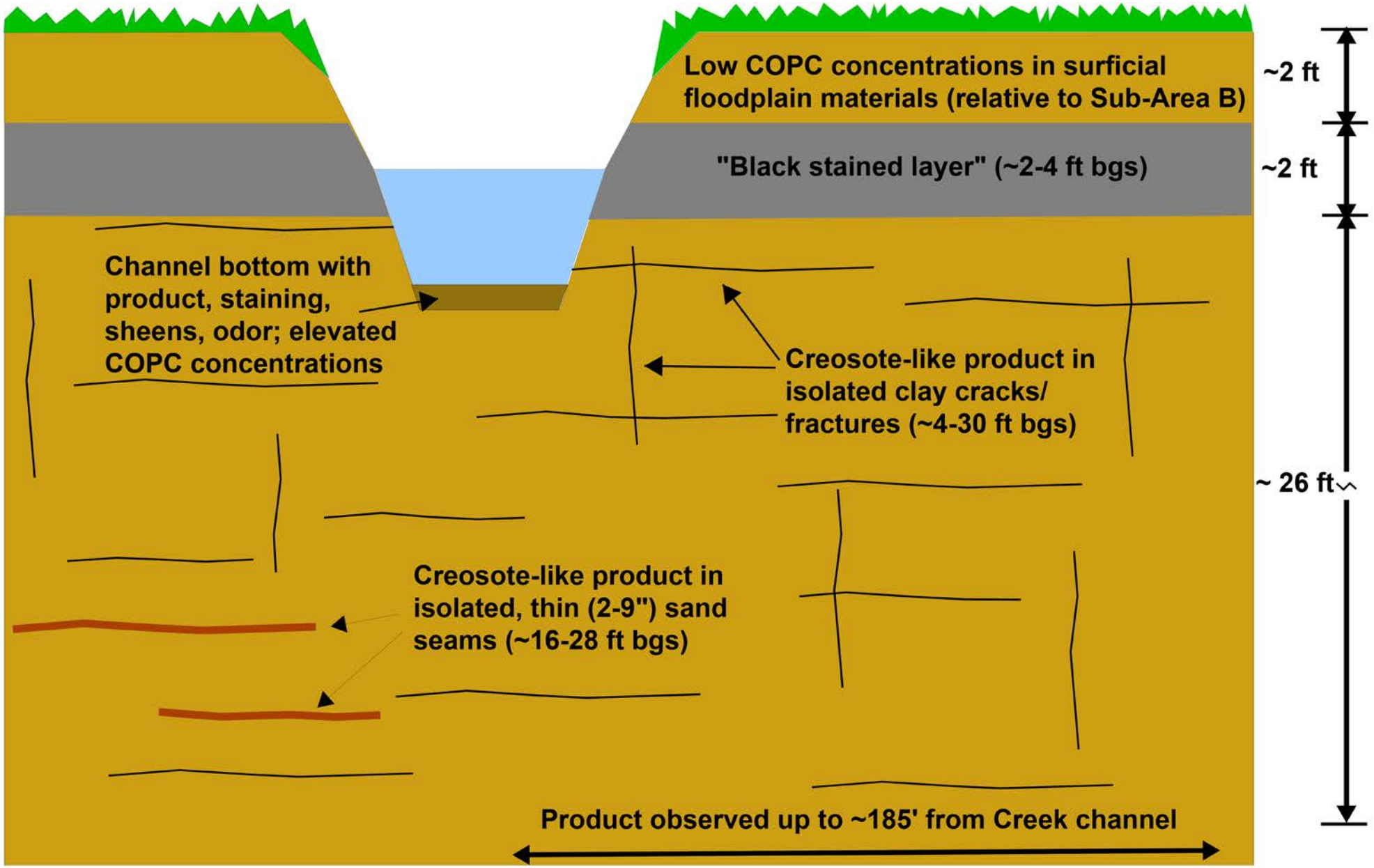
Conceptual Site Model – Sub-Area A



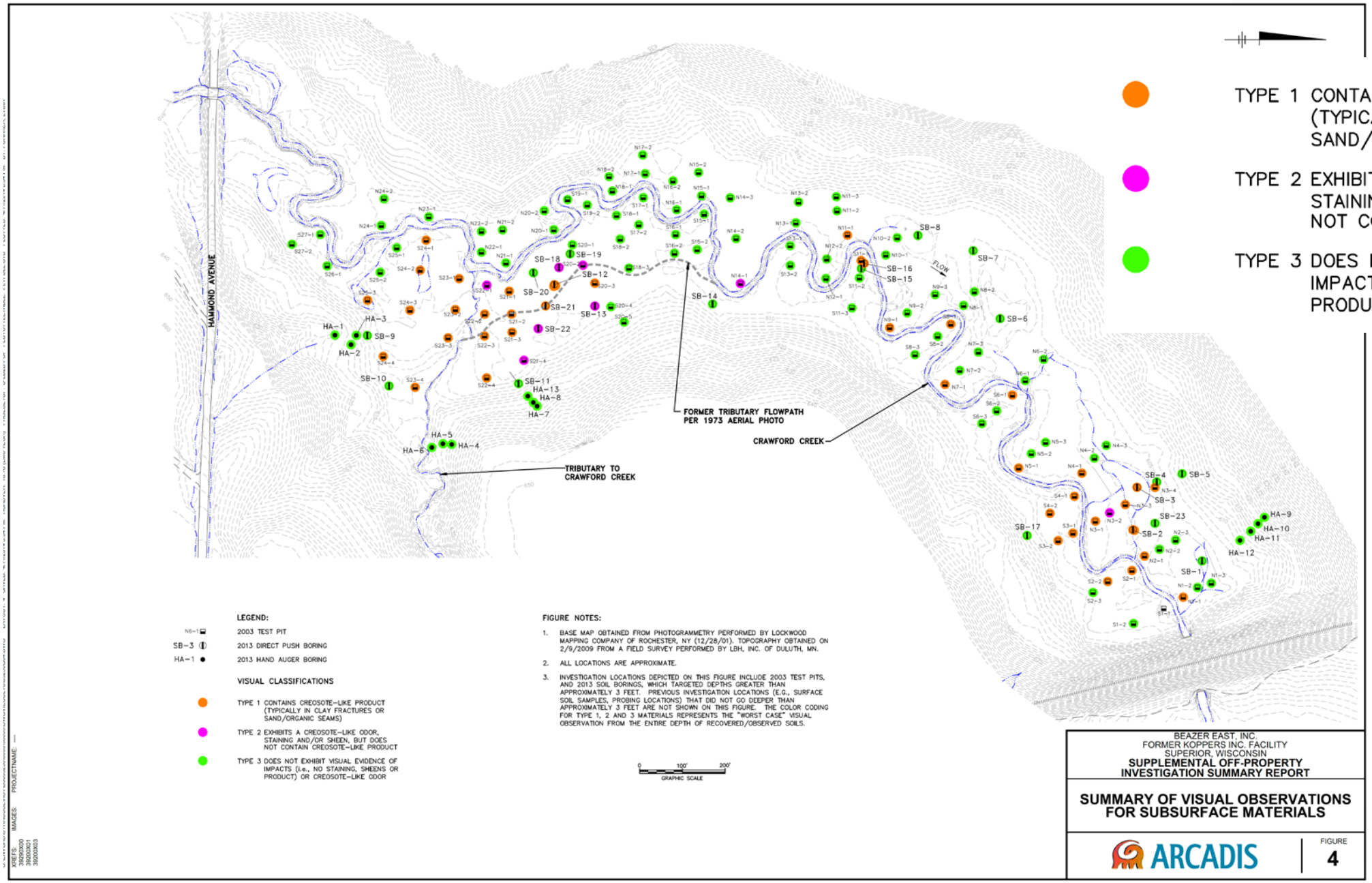
Conceptual Site Model – Sub-Area B



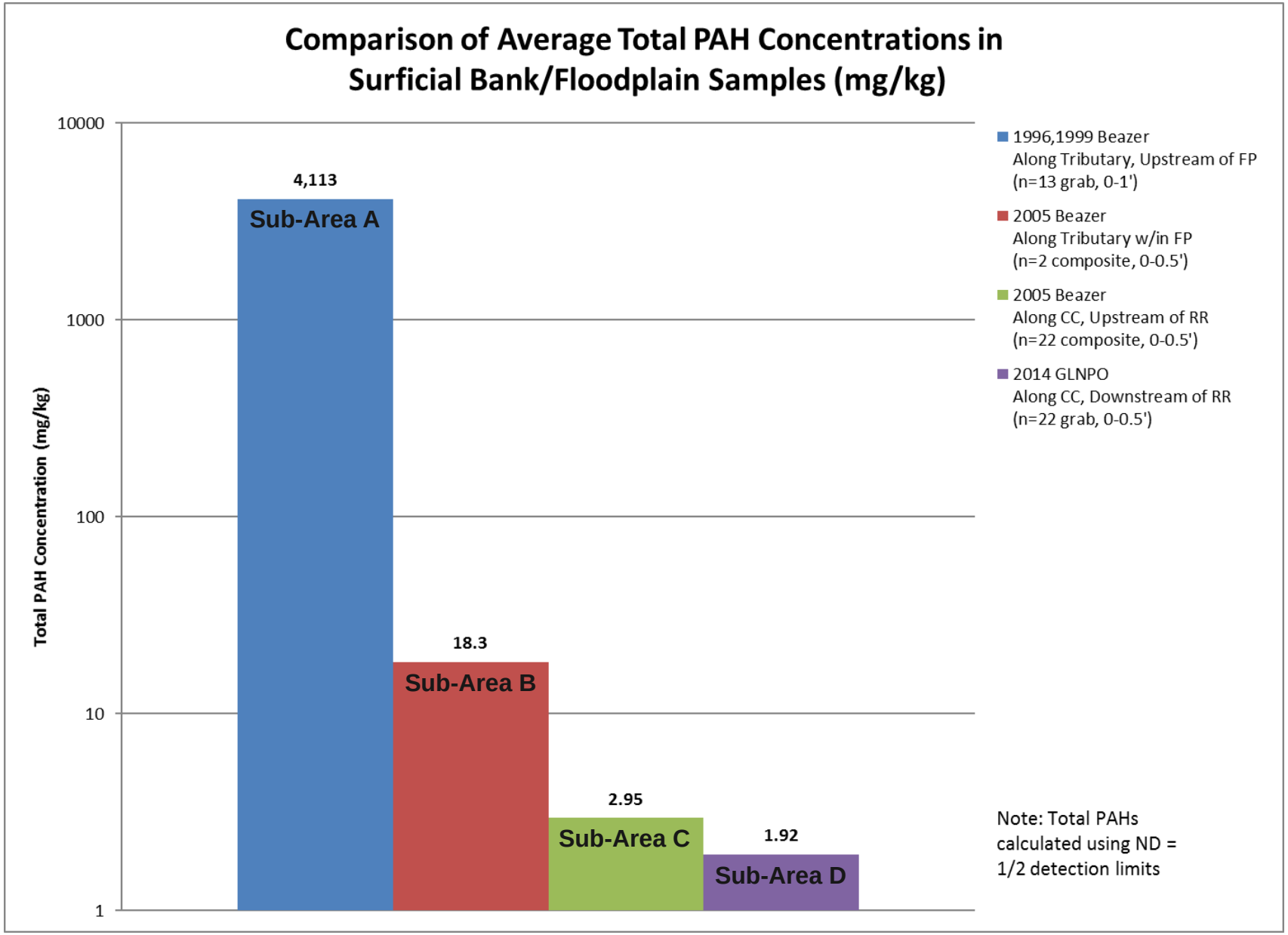
Conceptual Site Model – Sub-Area C



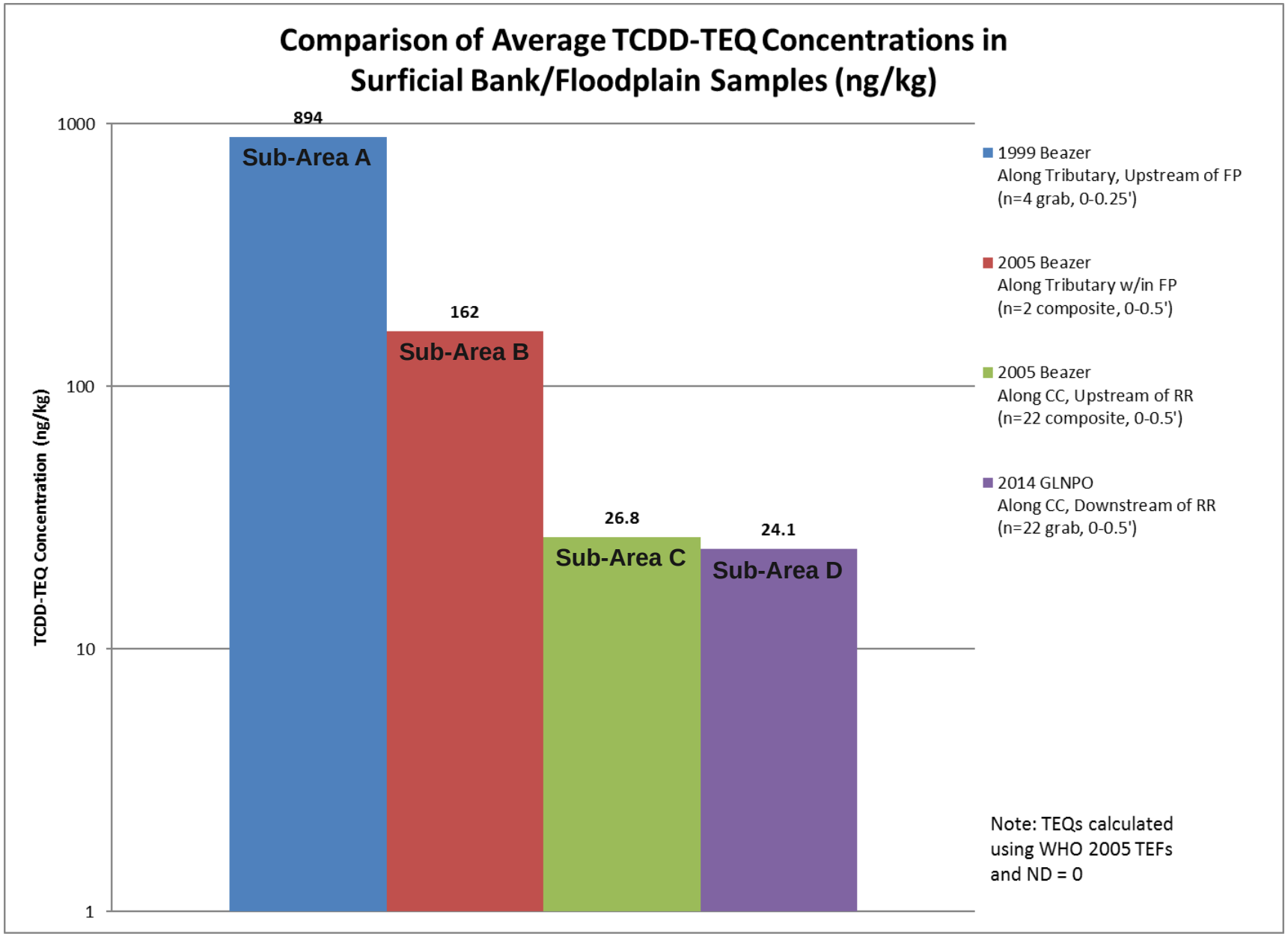
Floodplain Visual Impacts – Sub-Areas B and C



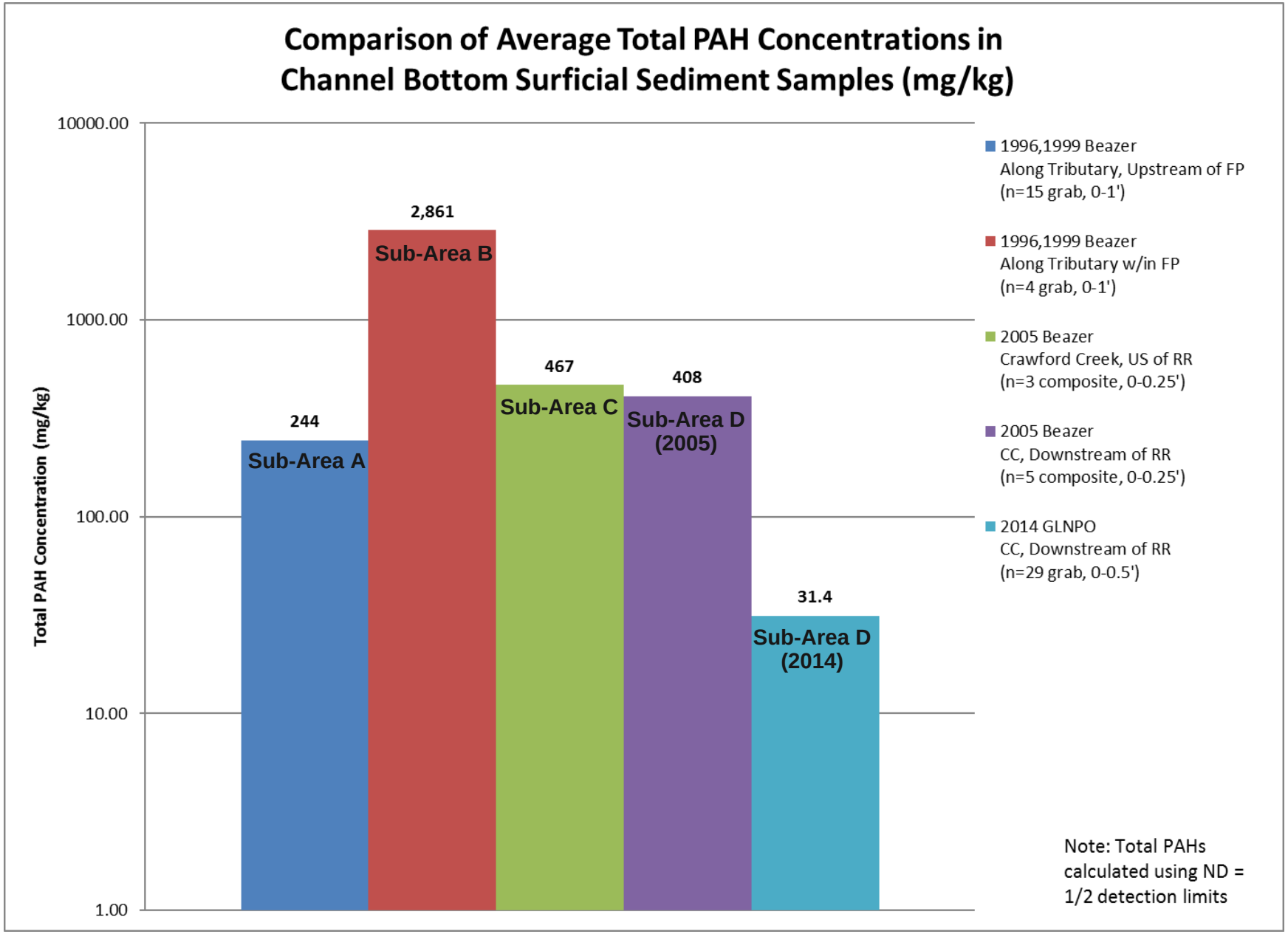
Floodplain Analytical Data Summary – Total PAHs



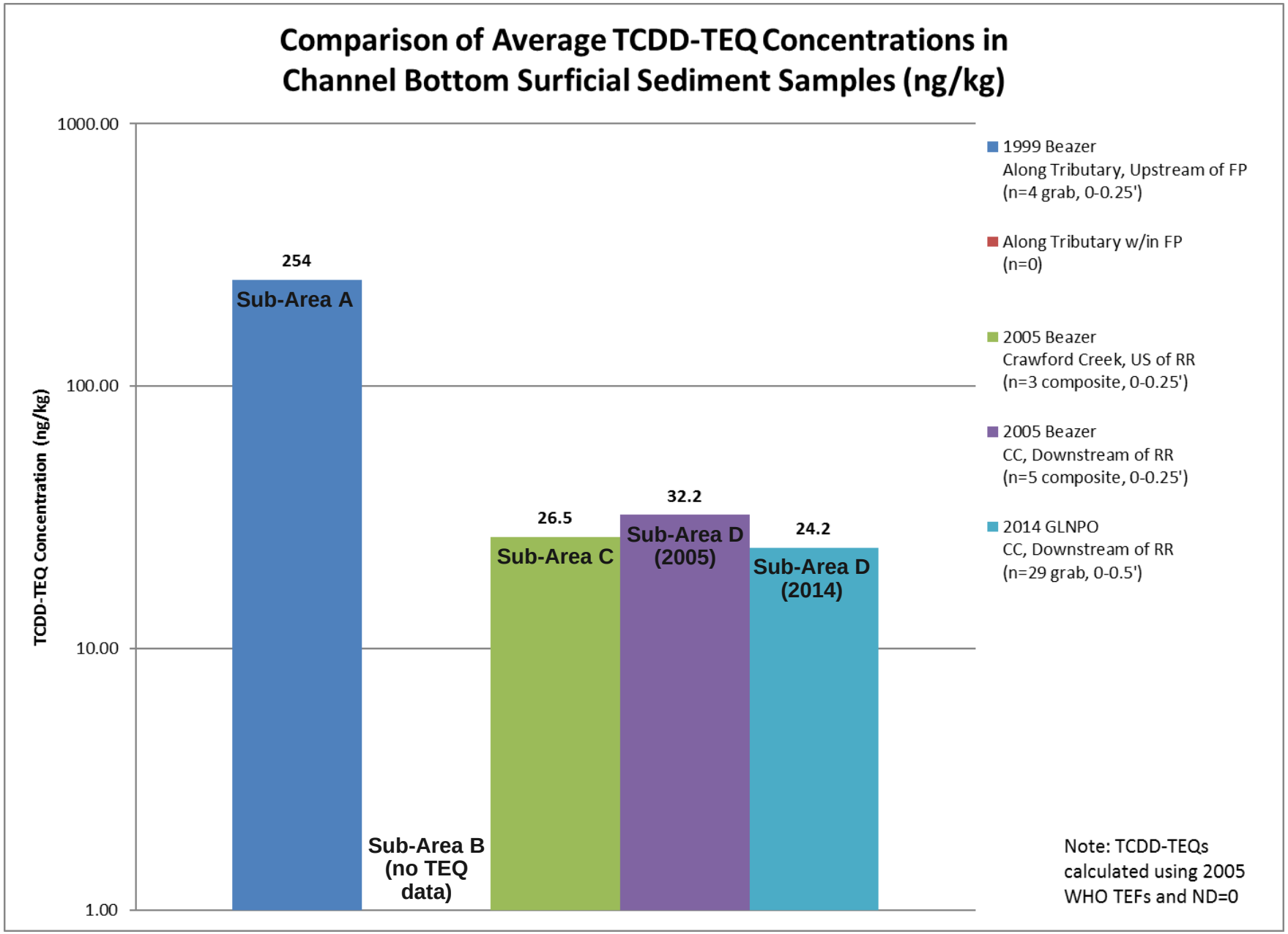
Floodplain Analytical Data Summary – TCDD TEQ



Channel Bottom Analytical Data Summary – Total PAHs



Channel Bottom Analytical Data Summary – TCDD TEQ



BUIs Identified for the Site

BUI 9 – Loss of Fish and Wildlife Habitat

- 2013 SLRAOC RAP Update states that “remediation of contaminated sediments and restoration of habitat within stream, wetland, and floodplain areas” is needed to remove BUI 9

BUI 7 – Beach Closings and Body Contact

- BUI added in 2015 SLRAOC RAP Update, due to the presence of “warning” signs (against direct contact) that are posted in Sub-Areas A through C

BUI 8 – Degradation of Aesthetics

- WDNR indicates that the presence of sheens and NAPL constitutes an aesthetic impairment that will be addressed concurrently with addressing BUI 9

4. Proposed GLLA Project Overview

Focused Feasibility Study (FFS) for Crawford Creek and Tributary Remediation and Restoration

Project Team

- USEPA GLNPO
  - GLNPO Contractor
- Beazer (Non-Federal Sponsor)
  - Beazer Consultants
- Wisconsin DNR

Project Objectives

Overall Objective:

- Identify a consensus remedy that, upon implementation, will support BUI removal and also satisfy Beazer's obligations

Project-Specific Objectives:

- Evaluate and address data gaps, if any, to complete an FFS
- Evaluate a defined set of remedial/restoration alternatives in an FFS Report
- Document project team consensus on a preferred remedial/restoration approach

Scope of Work

Task 1 – FFS Data Gap Evaluation/Investigation

- Evaluate existing dataset for completing the FFS [*GLNPO contractor lead*]
  - Data to be reviewed in context of remedial objectives/goals to be established as part of PA/SOW development
  - Determine need for supplemental investigation to address data gaps [*all parties to agree on need for and scope of supplemental investigation*]
- If needed, prepare work plan for and conduct supplemental field investigation to address agreed upon data gaps [*Beazer contractor lead*]
- Delineate and map the Ordinary High Water Mark (OHWM) [*WDNR and Beazer contractor*]
  - Distinguishes soil (above the OHWM) vs. sediment (below the OHWM)
- Delineate and map wetlands [*Beazer contractor lead, boundary verification by WDNR*]
  - Sub-Areas A-C: confirm prior delineation
  - Sub-Area D: full delineation needed

Scope of Work (Cont.)

Task 2 – FFS Report

Key Aspects of Work:

- Approach has been developed to promote collaboration between and review/input by all project team members (GLNPO, Beazer, and WDNR)
- Streamline efforts by utilizing existing information/evaluations in Beazer's 2014 Off-Property Focused Corrective Measures Study (for Sub-Areas A-C) and other documents
- Important to reach consensus at key milestones before moving to next step (process and milestones to be outlined in PA/SOW), for example:
  - Remedial action objectives/goals – will drive the data gap evaluation and also identification of the media/areas/volumes potentially requiring remediation
  - Remedial/restoration alternatives – project team consensus on list of alternatives needed prior to detailed/comparative evaluations
- GLNPO contractor will assemble and issue the final FFS report, following project team consensus

Scope of Work (Cont.)

Color Key:
First Draft = GLNPO
First Draft = Beazer
First Draft = GLNPO and Beazer

Task 2 – FFS Report

Proposed Outline/Table of Contents:

1. Introduction
2. Purpose/Objectives
3. Site Description, Land Use, History
4. Summary of Previous Investigations/Evaluations (including any supplemental data gap investigations)
5. Conceptual Site Model Summary
6. Remedial Action Objectives/Goals and BUIs
   - RAOs to be established based on discussions among Beazer, GLNPO, and WDNR as part of the Project Agreement Scope of Work development; significant progress has been made during prior meetings
7. Identification of Media/Areas/Volumes Potentially Requiring Remediation
8. Screening of Candidate Remedial/Restoration Technologies

Scope of Work (Cont.)

Color Key:
First Draft = GLNPO
First Draft = Beazer
First Draft = GLNPO and Beazer

Task 2 – FFS Report

Proposed Outline/Table of Contents (Cont.):

9. Disposal Options Analysis
10. Identification/Description of Remedial/Restoration Alternatives
    - Several alternatives have already been identified and agreed to
11. Identification/Description of Evaluation Criteria
12. Evaluation of Remedial/Restoration Alternatives (Detailed/comparative evaluations and summary)

Scope of Work (Cont.)

Task 3 – Project Management and Project Team Coordination

Key Aspects of Work:

- Routine coordination among project team
- Periodic conference calls and/or meetings to discuss project progress, results, potential issues, and reach resolution/agreement
- Maintaining data/project files
- Monthly status reports
- Public outreach/communications (exact scope TBD)

Collaborative nature of this project will require close coordination among the project team

Scope of Work (Cont.)

Task 4 – Preferred Remedy Consensus Memorandum

Key Aspects of Work:

- Project team meeting to discuss and agree upon the preferred remedy
- Public input to also be considered
- Consensus on the preferred remedy will be documented among Beazer, GLNPO, and WDNR in a memorandum to be signed by each party

Estimated Budget and Cost Share

Task	Assumptions	Est. Cost
Task 1: Data gap evaluation/investigation	• Evaluate existing data • Conduct supplemental investigation (if necessary) • OHWM/wetland delineation and mapping	$440,000
Task 2: FFS Report	• Prepare draft and final versions of FFS Report	$250,000
Task 3: Project Management and Project Team Coordination	• Monthly project team calls and status reports • Project team meetings • Public meeting	$140,000
Task 4: Preferred Remedy Consensus Memorandum	• Prepare/sign memo documenting project team consensus on preferred remedy	$20,000
	Total:	**$850,000**

- GLNPO – 50% of total project costs
- Beazer (NFS) – 50% of total project costs
  - In-kind services

Estimated Project Schedule

- Following execution of Project Agreement, estimate 20-month schedule for completing data gap evaluation/investigation, FFS report, and remedy consensus memo
- Estimated timeline, assuming Project Agreement signed in July 2017:
  - Data gap evaluation and field investigation (if necessary) completed by the end of 2017
  - FFS report completed by end of 2018
  - Remedy consensus memo completed in early 2019
- Following completion of remedy consensus memo, begin Project Agreement for remedial design