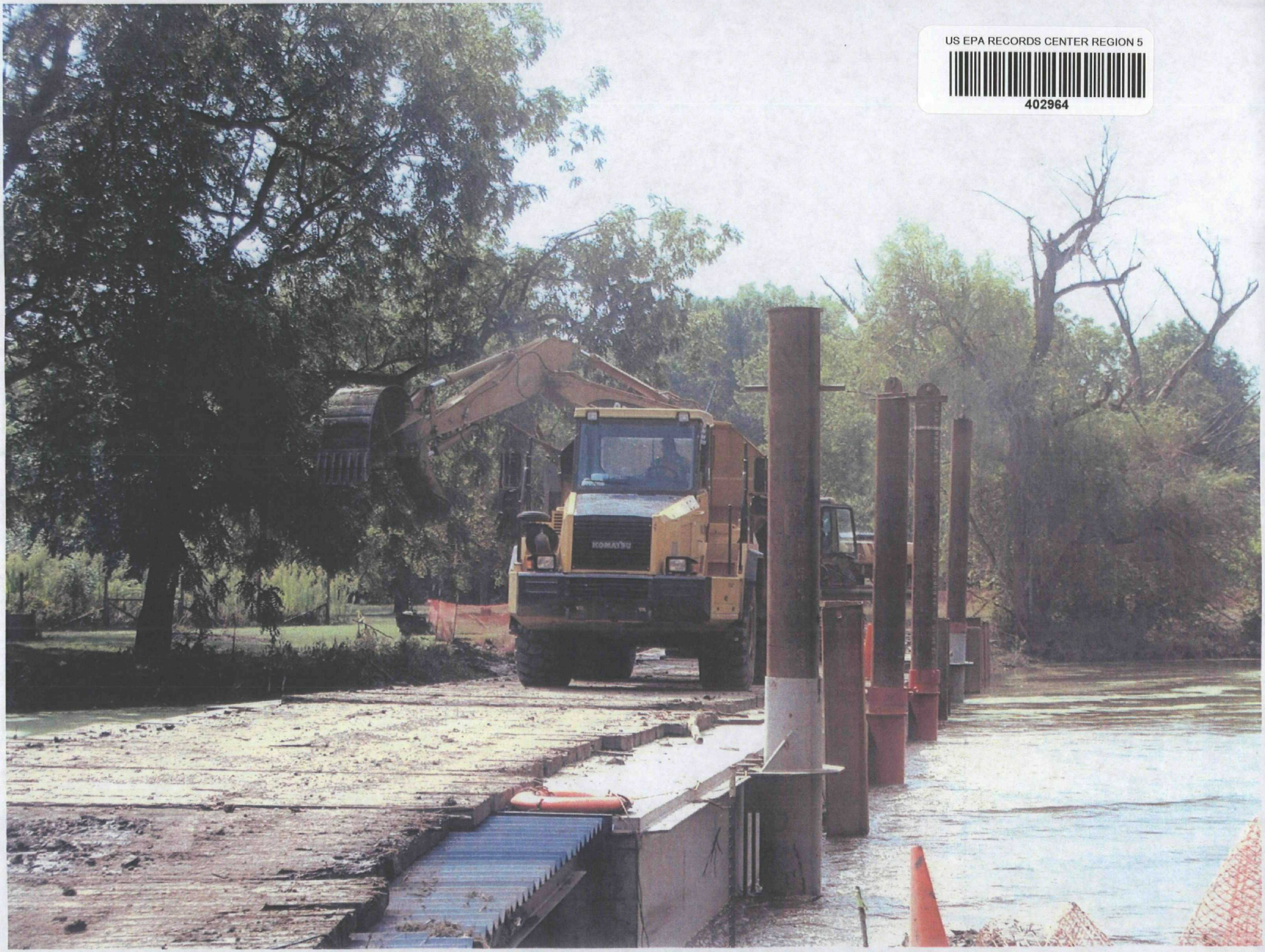
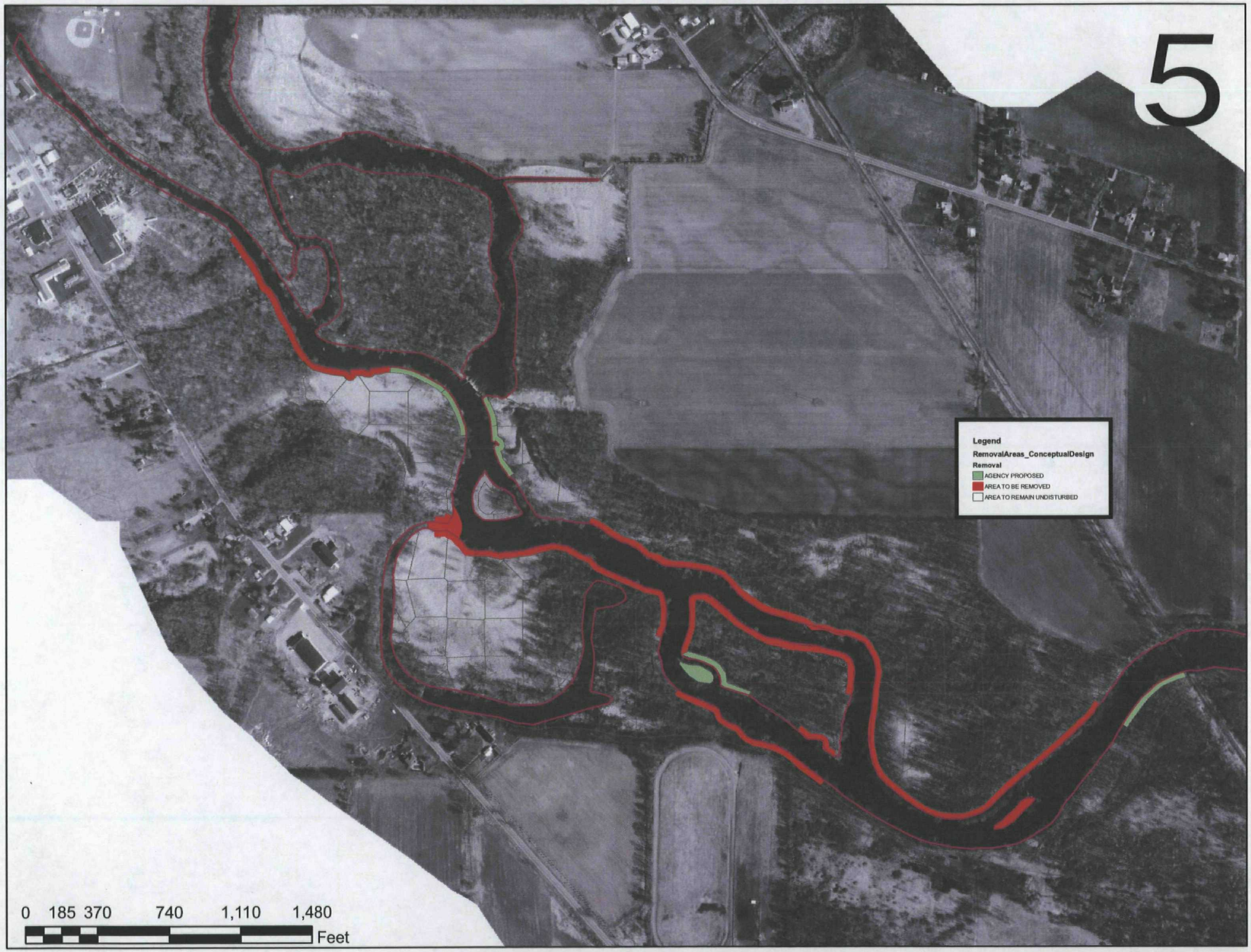
US EPA RECORDS CENTER REGION 5
402964

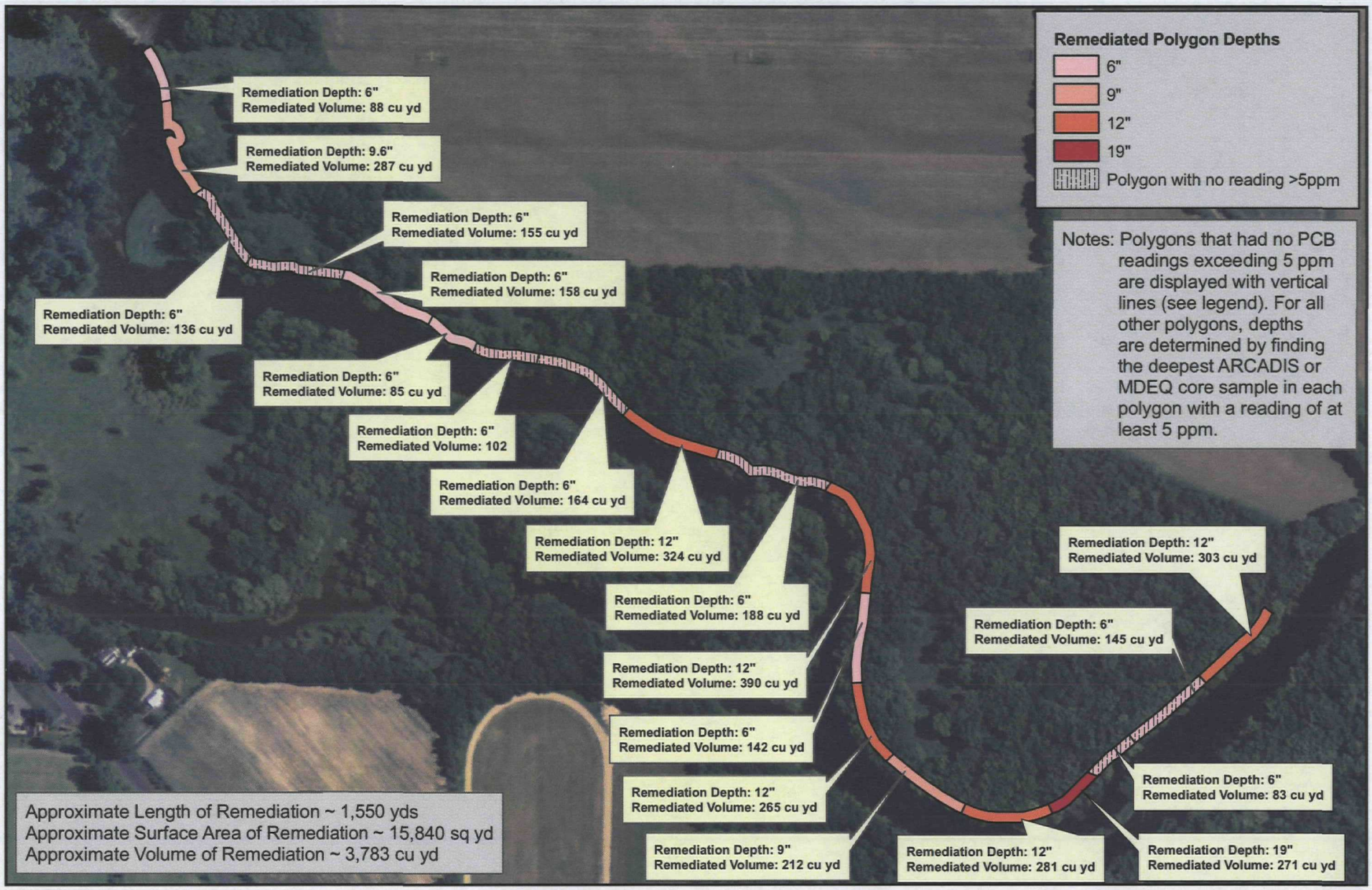



5
Legend
RemovalAreas_ConceptualDesign
Removal
AGENCY PROPOSED
AREA TO BE REMOVED
AREA TO REMAIN UNDISTURBED
0 185 370 740 1,110 1,480
Feet

Kalamazoo: ARCADIS North Bank Removal (ARCADIS/MDEQ Core Data)

Kalamazoo, MI

Feb 2009



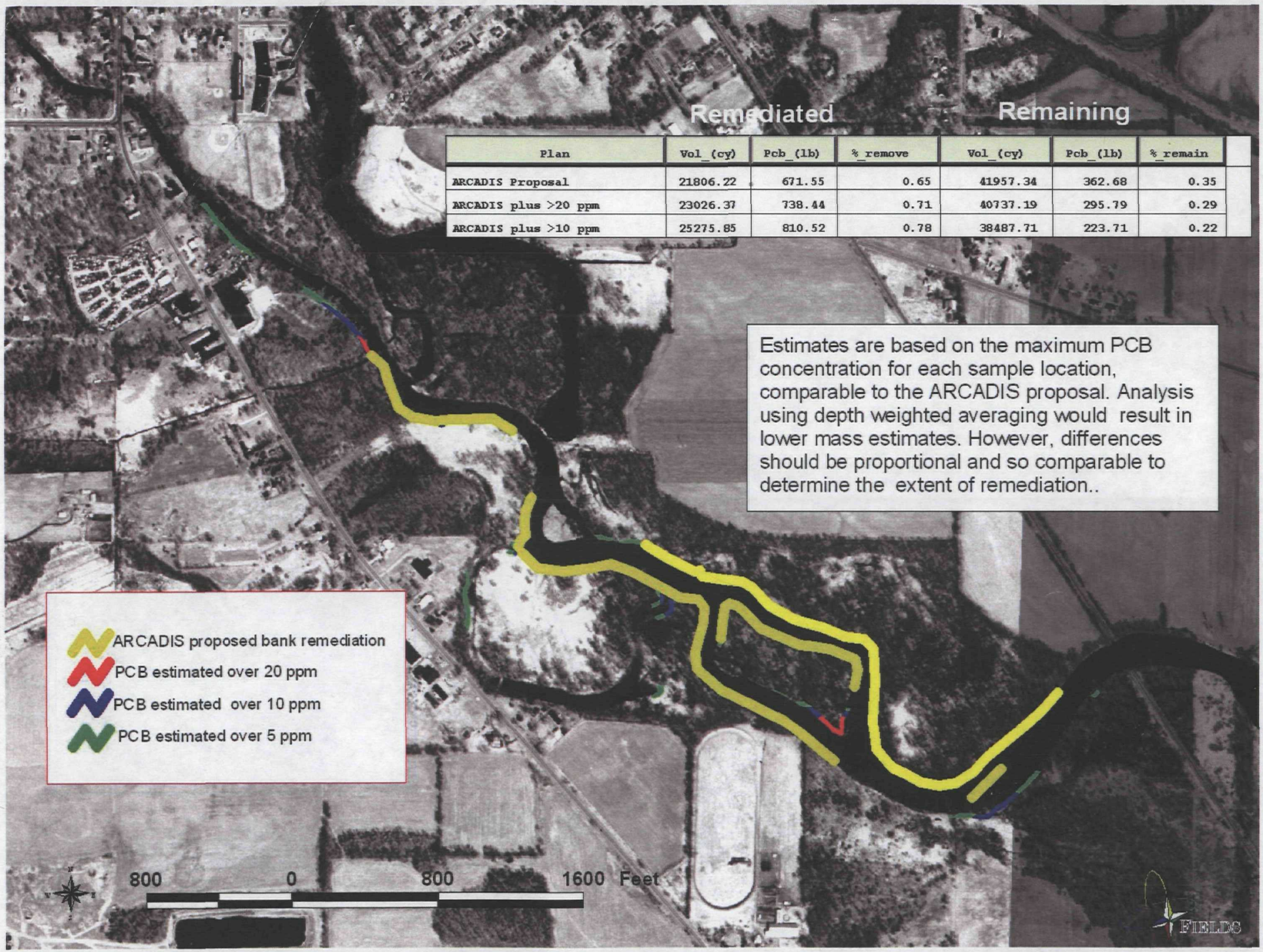
FIELDS
Field Environmental Decision Support

N

0 100 200 Yards

State Plane MI South (Intl Feet) Nad 83
ARCADIS / USEPA
Map Author: Mike Mejac (FIELDS)

United States Environmental Protection Agency



Plan	Remediated Vol_(cy)	Remediated Pcb_(lb)	Remediated % remove	Remaining Vol_(cy)	Remaining Pcb_(lb)	Remaining % remain
ARCADIS Proposal	21806.22	671.55	0.65	41957.34	362.68	0.35
ARCADIS plus >20 ppm	23026.37	738.44	0.71	40737.19	295.79	0.29
ARCADIS plus >10 ppm	25275.85	810.52	0.78	38487.71	223.71	0.22

Estimates are based on the maximum PCB concentration for each sample location, comparable to the ARCADIS proposal. Analysis using depth weighted averaging would result in lower mass estimates. However, differences should be proportional and so comparable to determine the extent of remediation..

ARCADIS proposal

	Removal			Remaining			TOTAL	
PCB conc	volume	PCB mass (lb) bank removal	% removed	volume	mass remaining	% remaining	volume	mass Total in situ
0-1 ppm		0.35	2.6%		13.40	97.4%		13.76
1-2 ppm		4.48	9.6%		42.31	90.4%		46.79
2-5 ppm		39.00	28.3%		98.70	71.7%		137.69
5-10 ppm		89.35	54.6%		74.15	45.4%		163.50
10-25 ppm		266.33	79.1%		70.19	20.9%		336.52
25-60 ppm		272.04	81.0%		63.93	19.0%		335.97
Total	21806.22	671.55	64.9%	41957.34	362.68	35.1%	63763.56	1034.23

ARCADIS plus 20 ppm cells

	Removal			Remaining			TOTAL	
PCB conc	volume	PCB mass (lb) bank removal	% removed	volume	mass remaining	% remaining	volume	mass Total in situ
0-1 ppm		0.67	4.9%		13.08	95.1%		13.76
1-2 ppm		4.66	10.0%		42.14	90.0%		46.80
2-5 ppm		39.23	28.5%		98.46	71.5%		137.69
5-10 ppm		89.81	54.9%		73.87	45.1%		163.68
10-25 ppm		268.82	79.9%		67.78	20.1%		336.60
25-60 ppm		335.25	100.0%		0.00	0.0%		335.25
Total	23026.37	738.44	71.4%	40737.19	295.79	28.6%	63763.56	1034.23

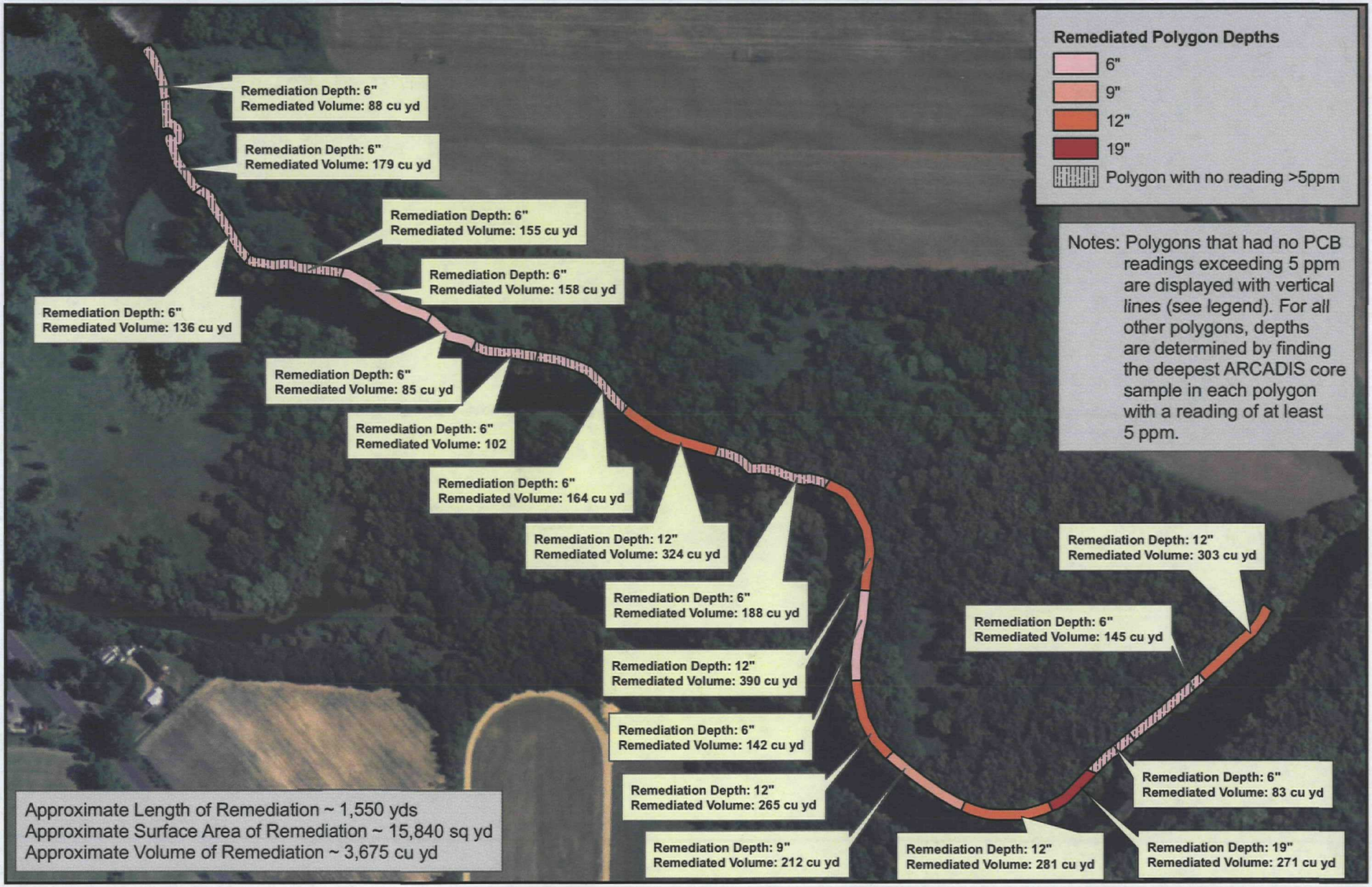
ARCADIS plus 10 ppm cells

% by concentration PCB conc	volume	Removal PCB mass (lb) bank removal	% removed	volume	Remaining mass remaining	% remaining	TOTAL volume	mass Total in situ
0-1 ppm		0.67	4.9%		13.08	95.1%		13.76
1-2 ppm		4.66	10.0%		42.14	90.0%		46.80
2-5 ppm		39.23	28.5%		98.46	71.5%		137.69
5-10 ppm		93.39	57.2%		69.96	42.8%		163.36
10-25 ppm		337.32	100.0%		0.00	0.0%		337.32
25-60 ppm		335.25	100.0%		0.00	0.0%		335.25
Total	25275.85	810.52	78.4%	38487.71	223.71	21.6%	63763.56	1034.23

	Remediated Banks			Remaining Banks		
Plan	vol (CY)	PCB (lb)	% remove	vol (CY)	PCB (lb)	% remain
ARCADIS Proposal	21806.22	671.55	64.9%	41957.34	362.68	35.1%
ARCADIS plus >20 ppm	23026.37	738.44	71.4%	40737.19	295.79	28.6%
ARCADIS plus >10 ppm	25275.85	810.52	78.4%	38487.71	223.71	21.6%

Kalamazoo: ARCADIS North Bank Removal (ARCADIS Core Data Only)

Kalamazoo, MI
Feb 2009



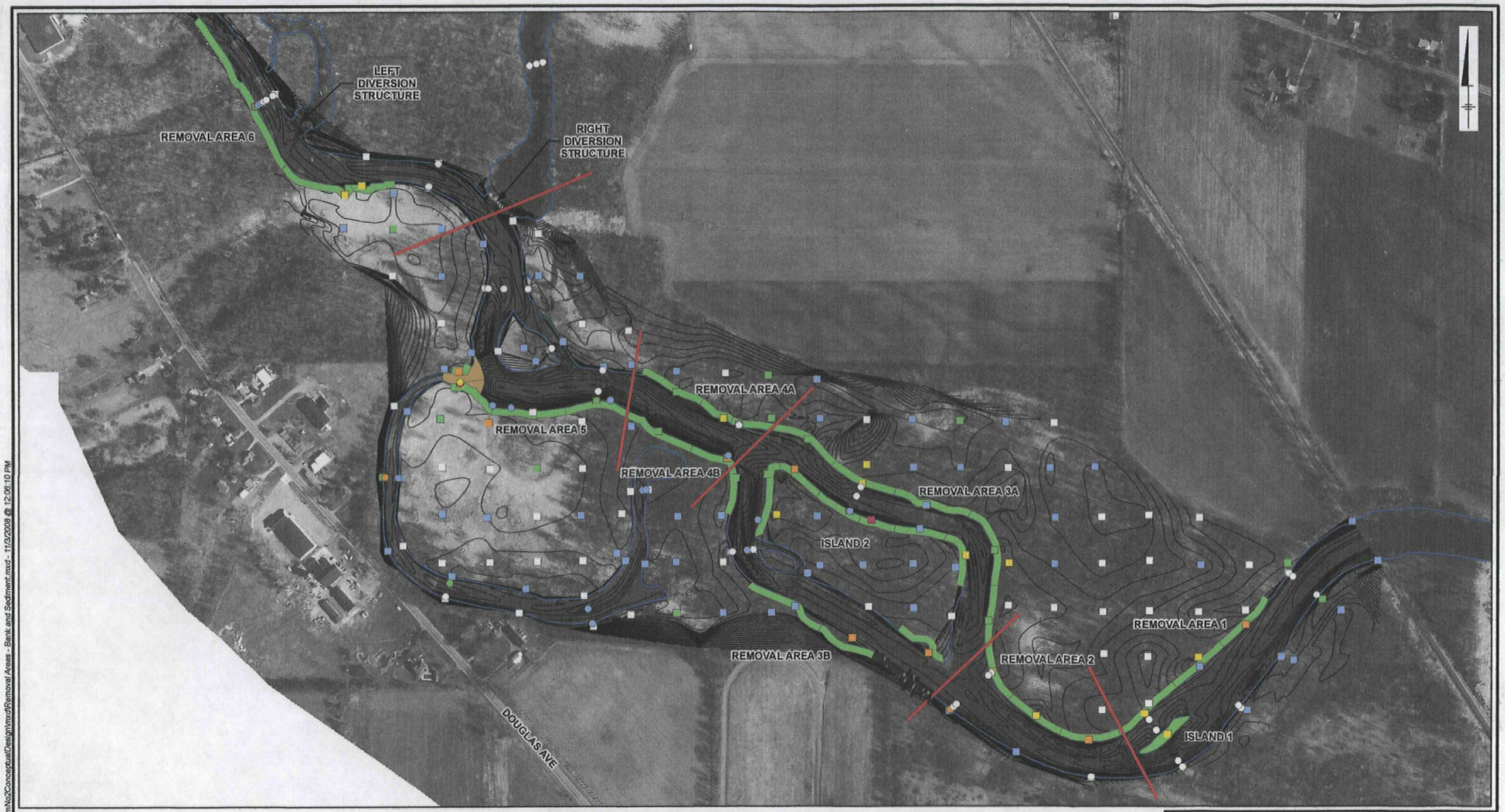
FIELDS
Field Environmental Decision Support

N

0 95 190 Yards

State Plane MI South (Intl Feet) Nad 83
ARCADIS / USEPA
Map Author: Mike Mejac (FIELDS)

United States Environmental Protection Agency



LEGEND:

SOIL SAMPLE LOCATION
MAXIMUM PCB RESULT (ppm):
- < 1
- 1 - 5
- 5 - 10
- 10 - 25
- 25 - 50
- > 50

SEDIMENT SAMPLE LOCATION
MAXIMUM PCB RESULT (ppm):
- < 1
- 1 - 5
- 5 - 10
- 10 - 25
- 25 - 50
- > 50

- TOPOGRAPHY/BATHYMETRY CONTOUR - 0.5 FT INTERVAL
- SHORELINE (APPROXIMATE)
- BANK REMOVAL AREA
- SEDIMENT REMOVAL AREA

0 400 800 Feet
GRAPHIC SCALE

KALAMAZOO RIVER STUDY GROUP
ALLIED PAPER, INC./PORTAGE CREEK/
KALAMAZOO RIVER SUPERFUND SITE
CONCEPTUAL DESIGN REPORT FOR BANK REMOVAL
AND RESTORATION PLAINWELL NO. 2 DAM AREA

PLAINWELL NO. 2 DAM AREA
TARGET REMOVAL AREAS

ARCADIS

FIGURE 12

SYR-90 MTK
KRSG (64539.00500)
Q:\KRSG\MorrowDam\ToPlainwell\Dam\SRI_DamNo2ConceptualDesign\mxd\Removal Areas - Bank and Sediment.mxd - 11/3/2008 @ 12:06:10 PM