



July 19, 2012

Janet DiMaggio  
Wisconsin Department of Natural Resources  
3911 Fish Hatchery Road  
Fitchburg, Wisconsin 53711



RE: NewFields Project No. 800.0270.000  
WDNR BRRTs No. 03-28-176509  
June 2012 Groundwater Summary  
DB Oak Facility, 700-710 Oak Street, Ft. Atkinson, Wisconsin

Dear Ms. DiMaggio:

This letter report includes a summary of groundwater sample results collected at the DB Oak site between June 6 and 7, 2012. Samples were collected from wells at the DB Oak site in accordance with recommendations presented in the Groundwater Monitoring Report dated June 1, 2012. Samples were also collected from six off-site wells at the Uncle Josh Bait (UJB) Shop facility hydraulically down gradient and south-southeast from the DB Oak treatment area. The DB Oak and UJB sites are shown on the attached figures.

### ***Background***

Tetrachloroethene, or perchloroethene (PCE) is the primary constituent of concern that exceeds groundwater quality standards, but degradation products of PCE (TCE, cis- and trans 1,2-dichloroethene (cis-DCE and trans-DCE), 1,1-dichloroethene (1,1-DCE), and vinyl chloride) also exceed standards. The highest concentrations of chlorinated volatile organic compounds (CVOCs) were detected in samples collected at MW-3 installed at the east side of the building adjacent to facility loading docks, and at MW-4 installed near a former PCE tank near the northeast corner of the building. Samples collected from adjacent piezometers indicate that contaminants migrated vertically at MW-3, but not at MW-4. The vertical extent of total CVOC contamination is greatest at the MW-3 well nest; elevated CVOCs were detected below 100 feet in samples collected from the MW-3C boring prior to the installation of this deep piezometer. Elevated concentrations of CVOCs were also detected in samples collected from shallow down gradient piezometers MW-2A and MW-7A, but samples collected from deep piezometers MW-2B and MW-7B indicate that CVOC concentrations declined significantly below 65 feet.

Groundwater samples have been collected quarterly at the DB Oak facility since in-situ treatment was initially completed in June 2009. Prior to treatment, the highest concentrations of CVOCs were detected at treatment area wells MW-3, MW-3A, MW-3B, and MW-4. Elevated concentrations of VOCs were also detected at treatment area wells TW-01, TW-02 and TW-03, and at down gradient

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wells MW-2, MW-2A, and MW-7A. Post treatment results indicate that in-situ treatment increased the rate of reductive de-chlorination.

Overall, decreasing PCE and TCE concentrations concurrent with increasing cis-1,2-DCE and vinyl chloride concentrations were observed following initial treatment completed in June 2009. The most significant changes were observed within the treatment zone at shallow wells TW-01, TW-03, and MW-3. However, results for the first two years of post-treatment monitoring indicate that the rate of degradation within the treatment zone varies by location. Modest declines for PCE and TCE concurrent with modest increases for cis-1,2-DCE and vinyl chloride at wells TW-02, MW-3A, MW-3B, and MW-4. Following supplemental treatment at these areas in June 2011, significant declines for PCE and TCE were observed at MW-3A, MW-3B, MW-4, and TW-03. Groundwater monitoring recommended in the June 2012 Groundwater Monitoring Report is intended to further evaluate the effectiveness of in-situ treatment.

#### ***June 2012 Groundwater Monitoring Results***

The Wisconsin Department of Natural Resources (WDNR) notified NewFields in May that an off-site exemption was granted for the UJB site, and suggested that these off-site wells be incorporated into the monitoring program for the DB Oak site. On June 6, NewFields collected samples from six off-site wells (MW-1, MW-1A, MW-4, MW-4A, MW-6, and MW-6A) concurrent with the collection of samples from ten on-site wells (TW-02, TW-03, MW-2, MW-2A, MW-3, MW-3A, MW-3B, MW-4, MW-4A, and MW-7A). On-site samples were collected in accordance with recommendations presented in the Groundwater Monitoring Report dated June 1, 2012<sup>1</sup>. Results for samples collected at DB Oak are summarized in Table 1, and results for UJB wells are summarized in Table 2. Well locations are shown on the attached figures.

As shown on Table 1, CVOCs were detected in samples collected from DB Oak wells. The highest concentration of CVOCs were detected in samples collected from shallow water table observation wells MW-3 and MW-4 indicating sources near each well. Elevated concentrations were also detected at TW-02 and TW-03, which are down gradient from MW-4 and at MW-2, which is down gradient from well MW-3.

As shown in Table 2, low concentrations of CVOCs were detected at shallow UJB wells MW-1 and MW-6, but no CVOCs were detected at shallow UJB well MW-4. Figures 1A, 1B, and 1C show shallow groundwater elevations and isoconcentration contours for total VOCs, cis-1,2-DCE, and vinyl chloride, respectively. As shown in these figures, June results indicate that shallow groundwater contamination is limited to the treatment zone area at DB Oak property.

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<sup>1</sup> Although not recommended in the June 2012 annual report, a sample was also collected from MW-4A, which is a shallow piezometer up gradient from the UJB site.



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As shown on Table 1, elevated CVOCs were also detected in samples collected from shallow piezometers at the DB Oak site. The highest concentration of CVOCs at the DB Oak site were detected in samples collected from shallow piezometers MW-3A, and at down gradient piezometer MW-2A. However, only low concentrations of CVOCs were detected at MW4A. These results verify vertical migration of contaminants at MW-3, but not at MW-4.

Elevated concentrations of CVOCs were also detected at shallow piezometers at the UJB site. As shown in Table 2, elevated concentrations of CVOCs were detected at shallow piezometers MW-1A and MW-4A, but only low concentrations of VOCs were detected at piezometer MW-6A. These results indicate that groundwater contamination is present at depth beneath the DB Oak and UJB sites. Figures 2A, 2B, and 2C show the potentiometric surface for shallow piezometers at the DB Oak and UJB sites (the "A" Horizon) and isoconcentration contours for total VOCs, cis-1,2-DCE, and vinyl chloride, respectively.

### ***Conclusions***

Contaminant migration at the DB Oak site is influenced by groundwater flow conditions. As described in previous reports, groundwater elevations indicate that a small groundwater depression is located at the south side of the DB Oak facility. The shallow groundwater flow regime is likely influenced by a drainage ditch originating at a storm drain outfall near MW-2, which extends south parallel to the railway toward the Lorman Street; the drainage ditch discharges to a storm sewer that extends east beneath Lorman Street. This depression likely represents a discharge zone for shallow groundwater (see Figures 1A, 1B, and 1C). Low levels of CVOCs at UJB wells are consistent with these shallow groundwater flow conditions. However, this depression is not apparent in the "A" Horizon<sup>2</sup> potentiometric surface (see Figure 2A, 2B, and 2C). Groundwater monitoring results indicate that contaminants migrated vertically at the MW-3 source area, and then laterally to the south.

Contaminants at UJB piezometer MW-4A may have migrated off-site at depth from the DB Oak MW-3 source area. However, CVOCs detected at UJB piezometer MW-1A indicates another source is likely present between the DB Oak and UJB sites. Low concentrations of VOCs at piezometer MW-4A at the DB Oak site indicate that contaminants have not migrated vertically at the MW-4 source area. Additionally, low concentrations at UJB piezometer MW-6A indicate that contaminants have not migrated laterally at depth from the DB Oak MW-4 source area. These results also indicate another source area between the DB Oak and UJB sites.

Additionally, benzene was detected at UJB wells MW1A, MW-6, and MW-6A, along with chlorobenzene at MW-6 and MW-6A, and 1,2-dichlorobenzene and isopropylbenzene at MW-6. These constituents were not detected in samples collected at the DB Oak site, indicating that the

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<sup>2</sup> "A" horizon piezometers include MW-2A, MW-3A, MW-4A, MW-6A, MW-7A, MW-8A and UJB wells MW-1A, MW-4A, and MW-6A. "B" horizon piezometers include MW-2B, MW-3B, MW-4B, MW-7B, and MW-8B.



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source for these constituents is also between the DB Oak and UJB.

### ***Recommendations***

Gardner Denver made a request to take ownership of wells MW-1, MW-1A, MW-4, MW-4A, MW-6, and MW-6A. However, the site owner has indicated that the wells are to be abandoned. Gardner Denver will continue to collect groundwater samples at the DB Oak site in accordance with recommendation presented in the June 2012 Annual Report. As requested by WDNR additional samples will be collected from MW-1, MW-6, and MW-6A in March 2013. The revised sampling program is shown in Table 3.

Gardner Denver will also await a response from WDNR regarding off-site contamination. If the UJB wells are not abandoned, Gardner Denver will measure water levels at these wells concurrent with water levels at the DB Oak site as part of the post remediation groundwater monitoring program. Additionally, samples will be collected from UJB piezometers MW-1A, MW-4A, and MW-6A in September 2012, December 2012, and March 2013 concurrent with post remediation monitoring recommended in the June 2012 report.

CVOC concentrations at UJB piezometer MW-4A are expected to decline as DB Oak source area concentrations decline. Samples collected from UJB piezometers MW-1A and MW-6A will provide additional evidence for another source for groundwater contamination between DB Oak and the UJB site. If another up gradient source is present, concentrations at MW-6A are expected to remain low and concentrations at MW-1A are expected to remain high. Groundwater sample results, and if needed, recommendations for additional off-site wells, will be included in the next annual report.

Should you have any questions or comments, please contact me at (608) 442-5223, extension 503.

Sincerely,

**NewFields**

A handwritten signature in cursive script, reading "Mark S. McColloch".

Mark S. McColloch, P.G.  
Senior Geologist



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cc: Mr. Stephen McClure, Gardner Denver, Inc.  
Mr. Jeff Ackerman, WDNR

#### Attachments

Table 1	June 2012 VOC Groundwater Sample Results DB Oak Facility
Table 2	June 2012 VOC Groundwater Sample Results, Uncle Josh Bait Shop
Table 3	Modified Groundwater Monitoring Program
Figure 1A	Shallow Groundwater Potentiometric and VOC Contours
Figure 1B	Shallow Groundwater Potentiometric and cis-1,2-DCE Contours
Figure 1C	Shallow Groundwater Potentiometric and Vinyl Chloride Contours
Figure 2A	Horizon A Groundwater Potentiometric and VOC Contours
Figure 2B	Horizon A Groundwater Potentiometric and cis-1,2-DCE Contours
Figure 2C	Horizon A Groundwater Potentiometric and Vinyl Chloride Contours



**Table 1**  
**June 2012 VOC Groundwater Sample Results**  
**DB Oak Facility, Fort Atkinson, Wisconsin**

Constituent	PAL	ES	TW-01	TW-02	TW-03	IW-01	MW-1	MW-2	MW-2A	MW-2B
1,1-Dichloroethene (DCE)	0.7	7	--	<88	<i>1.2</i>	--	--	<52	<42	--
cis-1,2-Dichloroethene (c-DCE)	7	70	--	1,400	770	--	--	3,200	2,200	--
trans-1,2-Dichloroethene (t-DCE)	20	100	--	120	5.6	--	--	<65	<52	--
Tetrachloroethene (PCE)	0.5	5	--	1,400	10	--	--	350	<88>	--
Trichloroethene (TCE)	0.5	5	--	1,200	15	--	--	300	<79>	--
Vinyl Chloride (VC)	0.02	0.2	--	1,800	1,100	--	--	<46	<73>	--
Total VOCs			0.0	5,920	1,900.6	0.0	0.0	3,850	2,440	0.0

Constituent	PAL	ES	MW-3	MW-3A	MW-3B	MW-3C	MW-4	MW-4 DUP#1	MW-4A	MW-4B
1,1-Dichloroethene (DCE)	0.7	7	<210	<170	<100	--	<170	<10	<0.20	--
cis-1,2-Dichloroethene (c-DCE)	7	70	<200	7,900	3,400	--	8,300	8,500	1.8	--
trans-1,2-Dichloroethene (t-DCE)	20	100	<260	<210	<130	--	<210	<210	<0.19	--
Tetrachloroethene (PCE)	0.5	5	<210	<160	<110>	--	<160	<160	<i>0.85</i>	--
Trichloroethene (TCE)	0.5	5	<170	<130	550	--	<130	150	<0.51>	--
Vinyl Chloride (VC)	0.02	0.2	12,000	4,700	710	--	7,000	6,200	<0.15	--
Total VOCs			12,000	12,600	4,770	0.0	15,300	14,850	3.16	0.0

Constituent	PAL	ES	MW-5	MW-6	MW-6A	MW-7	MW-7A	MW-7B	MW-8	MW-8A	MW-8B
1,1-Dichloroethene (DCE)	0.7	7	--	--	--	--	<1.0	--	--	--	--
cis-1,2-Dichloroethene (c-DCE)	7	70	--	--	--	--	<i>67</i>	--	--	--	--
trans-1,2-Dichloroethene (t-DCE)	20	100	--	--	--	--	<0.97	--	--	--	--
Tetrachloroethene (PCE)	0.5	5	--	--	--	--	54	--	--	--	--
Trichloroethene (TCE)	0.5	5	--	--	--	--	<3.5>	--	--	--	--
Vinyl Chloride (VC)	0.02	0.2	--	--	--	--	<0.75	--	--	--	--
Total VOCs			0.0	0.0	0.0	0.0	124.5	0.0	0.0	0.0	0.0

All units reported in µg/L.  
All detected constituents are shown in bold  
< - Detected below Limit of Detection.  
< > Detected above Limit of Detection, but below Limit of Quantitation

PAL - Preventive Action Limit per Wisconsin Admin. Code sec. NR 141.10.  
ES - Enforcement Standard per Wisconsin Admin. Code sec. NR 141.10.

Concentrations exceeding the PAL are in red italics.  
Concentrations exceeding the ES are shaded.

**Table 2**  
**June 2012 VOC Groundwater Sample Results**  
**Uncle Josh Bait Shop, Fort Atkinson, Wisconsin**

Constituent	PAL	ES	MW-1	MW-1A	MW-4	MW-4A	MW-6	MW-6A
Benzene	0.5	5	<0.26	<39>	<0.26	<100	<i>0.91</i>	<i>&lt;0.90&gt;</i>
Chlorobenzene	20	100	<0.21	<11	<0.21	<84	<b>2.2</b>	<b>1.1</b>
1,2-Dichlorobenzene	60	600	<0.19	<9.3	<0.19	<74	<0.38>	<0.19
Isopropylbenzene	--	--	<0.22	<11	<0.22	<89	<0.25>	<0.22
1,1-Dichloroethene (DCE)	0.7	7	<0.20	<28>	<0.20	<80	<0.20	<0.20
cis-1,2-Dichloroethene (c-DCE)	7	70	<b>0.94</b>	<b>12,000</b>	<0.21	<b>5,800</b>	<0.21	<b>0.80</b>
trans-1,2-Dichloroethene (t-DCE)	20	100	<0.19	<b>62</b>	<0.19	<77	<0.19	<0.19
Tetrachloroethene (PCE)	0.5	5	<0.15	<7.3	<0.15	<58	<0.15	<0.30>
Trichloroethene (TCE)	0.5	5	<0.25	<12	<0.25	<150>	<0.25	<0.25
Vinyl Chloride (VC)	0.02	0.2	<0.20>	<b>630</b>	<0.15	<120>	<0.15	<b>0.70</b>
Total VOCs			<b>1.14</b>	<b>12,759</b>	<b>0.0</b>	<b>6,070</b>	<b>3.74</b>	<b>3.80</b>

All units reported in µg/L.

All detected constituents are shown in bold

< - Detected below Limit of Detection.

< > Detected above Limit of Detection, but below Limit of Quantitation

PAL - Preventive Action Limit per Wisconsin Admin. Code sec. NR 141.10.

ES - Enforcement Standard per Wisconsin Admin. Code sec. NR 141.10.

Concentrations exceeding the PAL are in red italics.

Concentrations exceeding the ES are shaded.

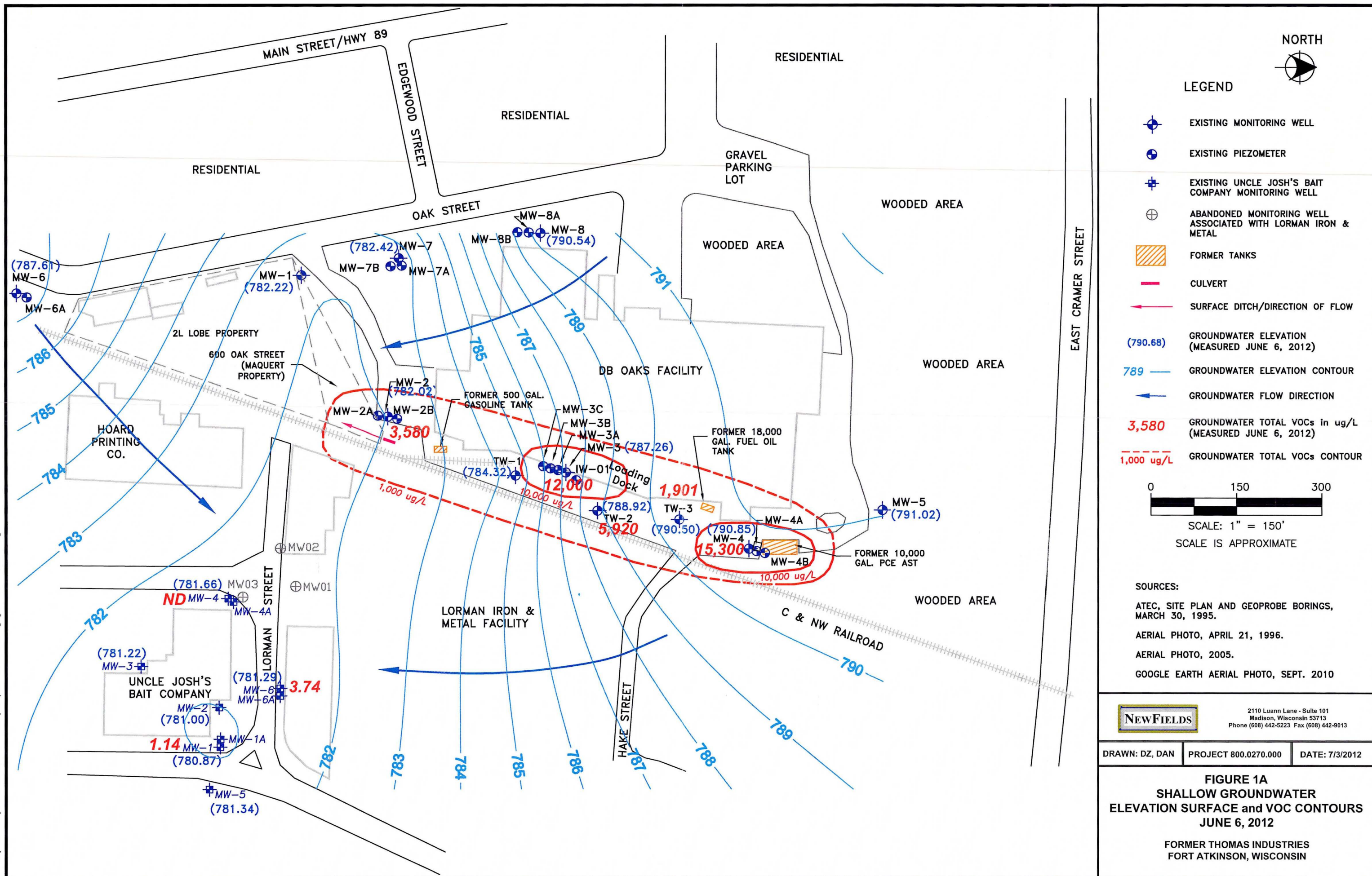
**Table 3**  
**Modified Groundwater Monitoring Program**  
**DB Oak Facility, Fort Atkinson, Wisconsin**

<b>Sampling Event</b>	<b>Treatment Area Wells</b>	<b>Down Gradient Wells</b>	<b>Perimeter Wells</b>
June 2012	TW-02 -03 MW-3, -3A, -3B MW-4	MW-2, -2A MW-7A	
September 2012	IW-01 TW-01, -02, -03 MW-3, -3A, -3B, -3C MW-4, -4A, -4B	MW-2, -2A, -2B MW-7, -7A, -7B	
December 2012	TW-02 -03 MW-3, -3A, -3B MW-4	MW-2, -2A MW-7A	
March 2013	IW-01 TW-01, -02, -03 MW-3, -3A, -3B, -3C MW-4, -4A, -4B	MW-2, -2A, -2B MW-7, -7A, -7B	MW-1 MW-6 - 6A

Water levels will be measured at all well locations during each sampling event, including perimeter wells MW-1, MW-5, MW-6, MW-6A, MW-8, MW-8A, and MW-8B which may not be sampled.

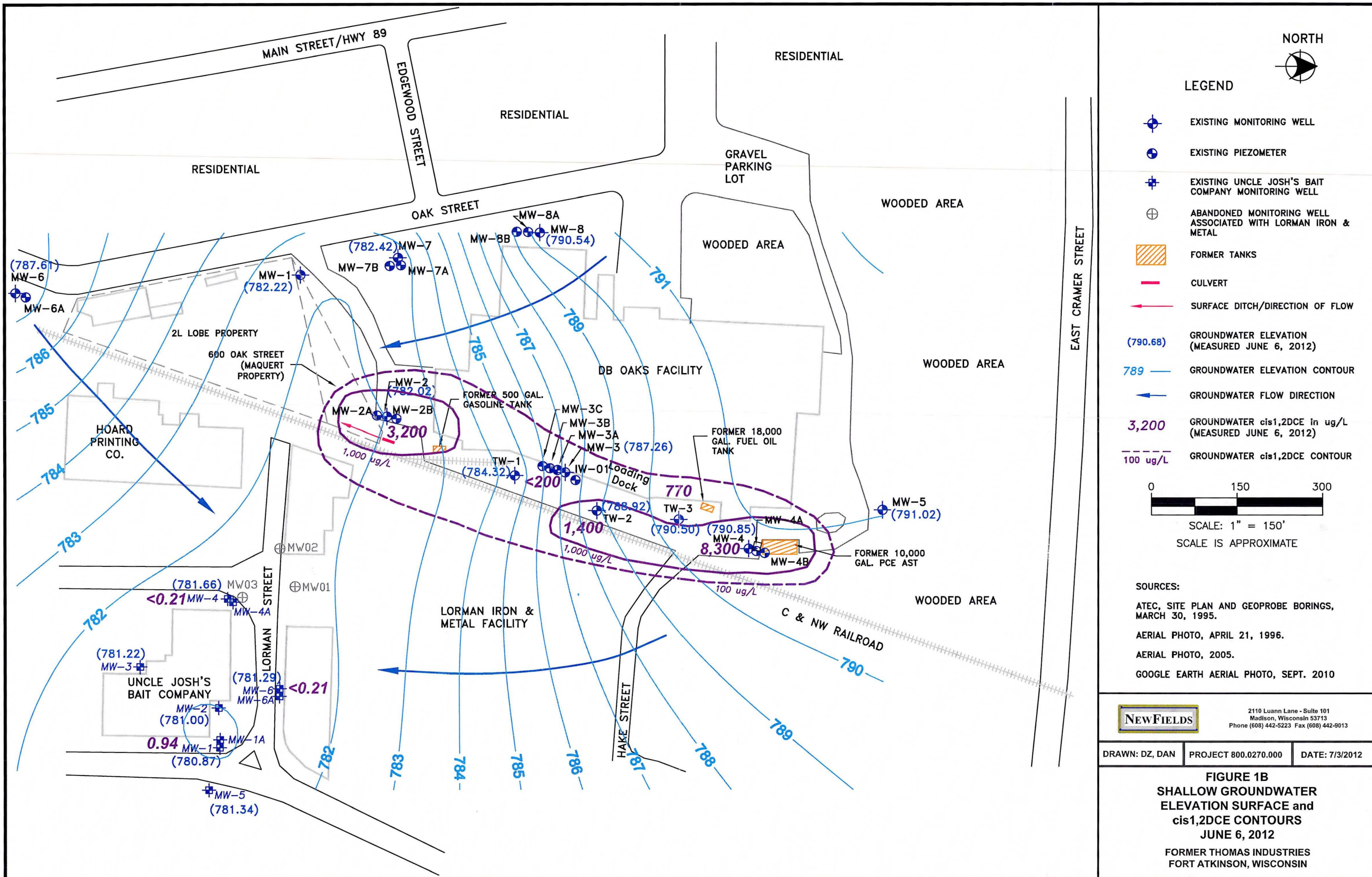


C:\PROJECTS\GARDNER\ENR-DB OAKS\CAD\SITE-DB OAK.DWG [Figure 1A - June 2012]



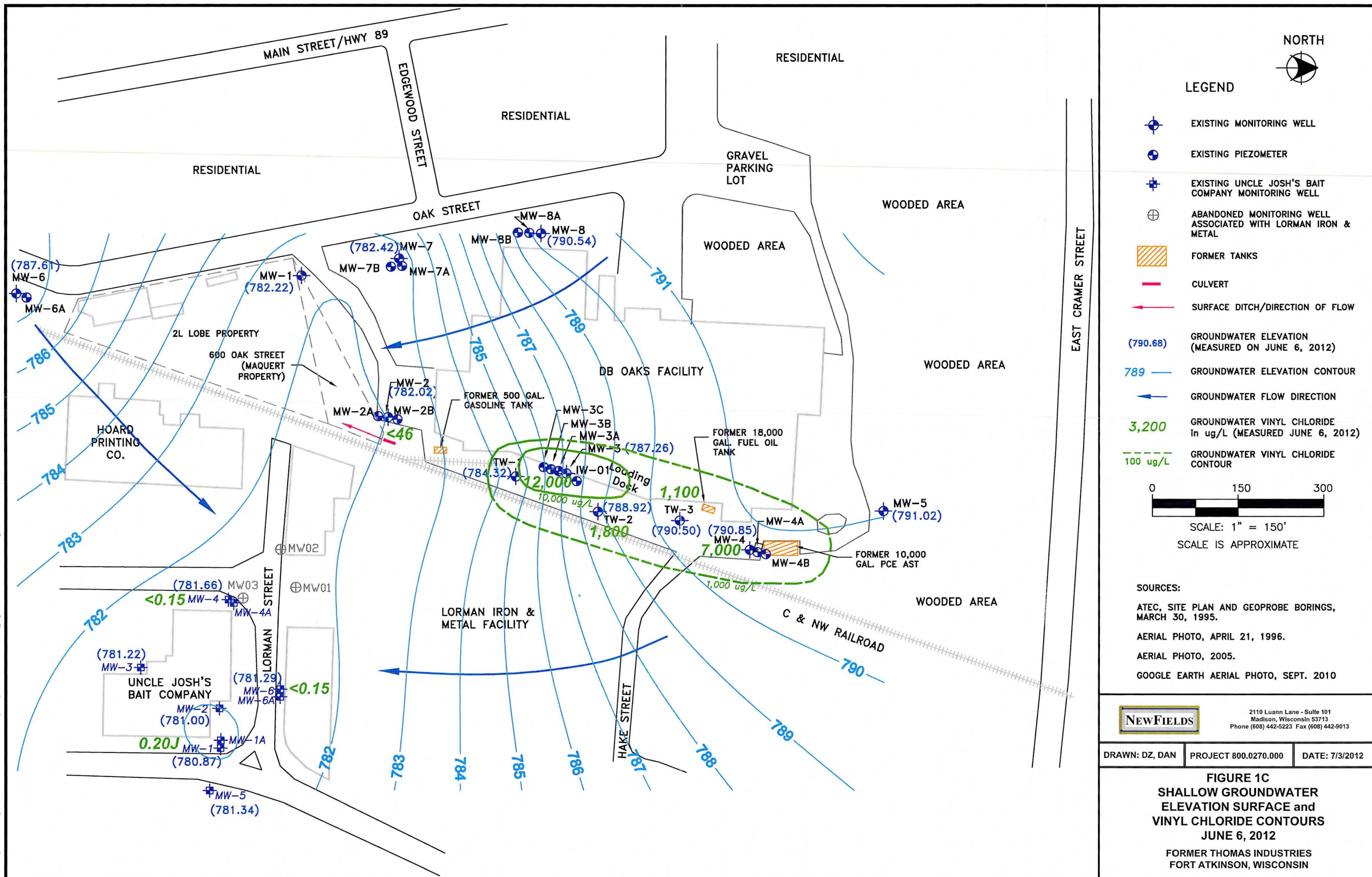


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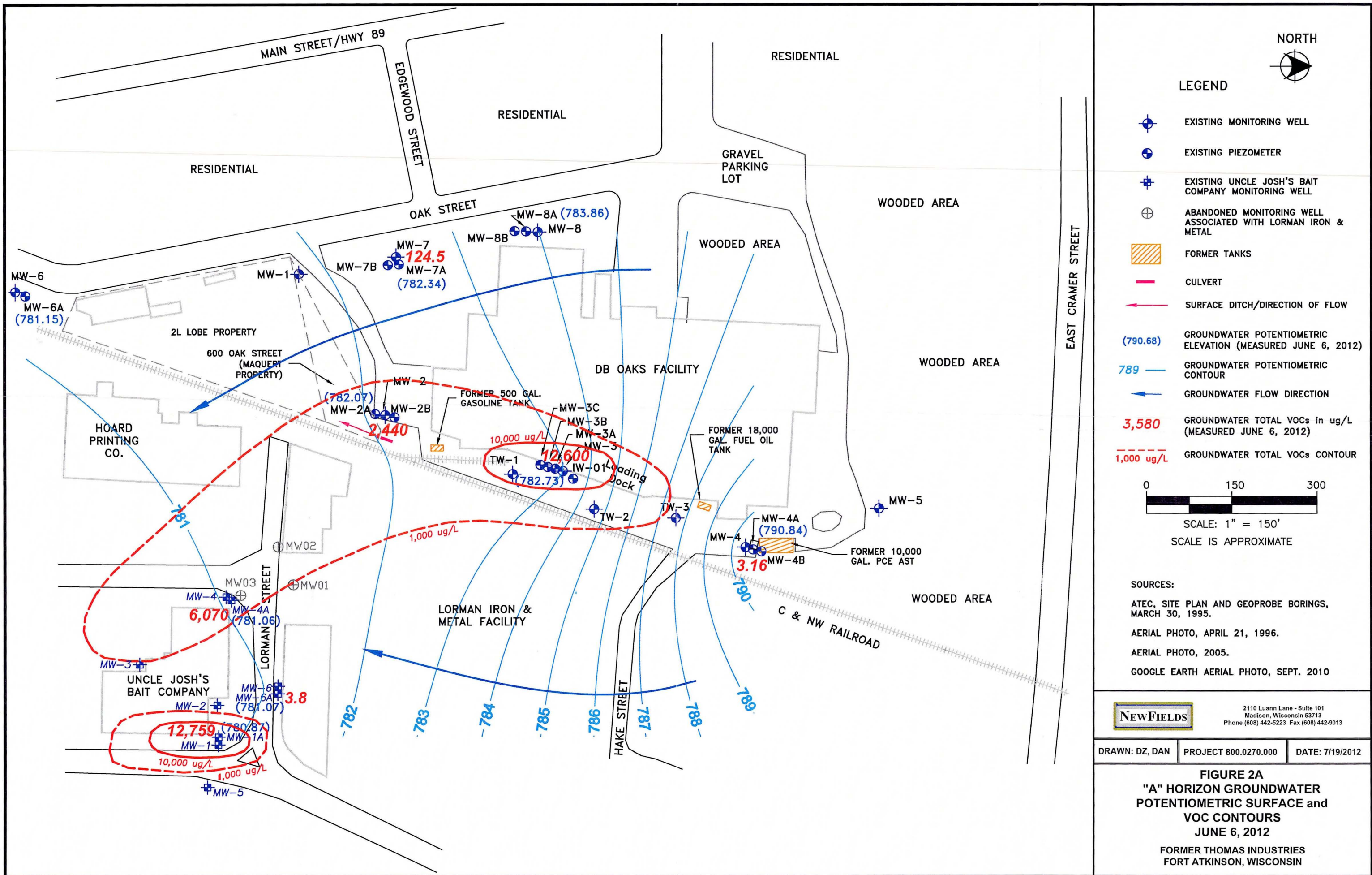


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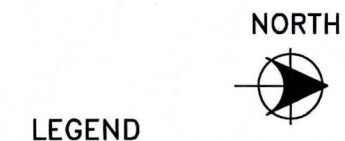
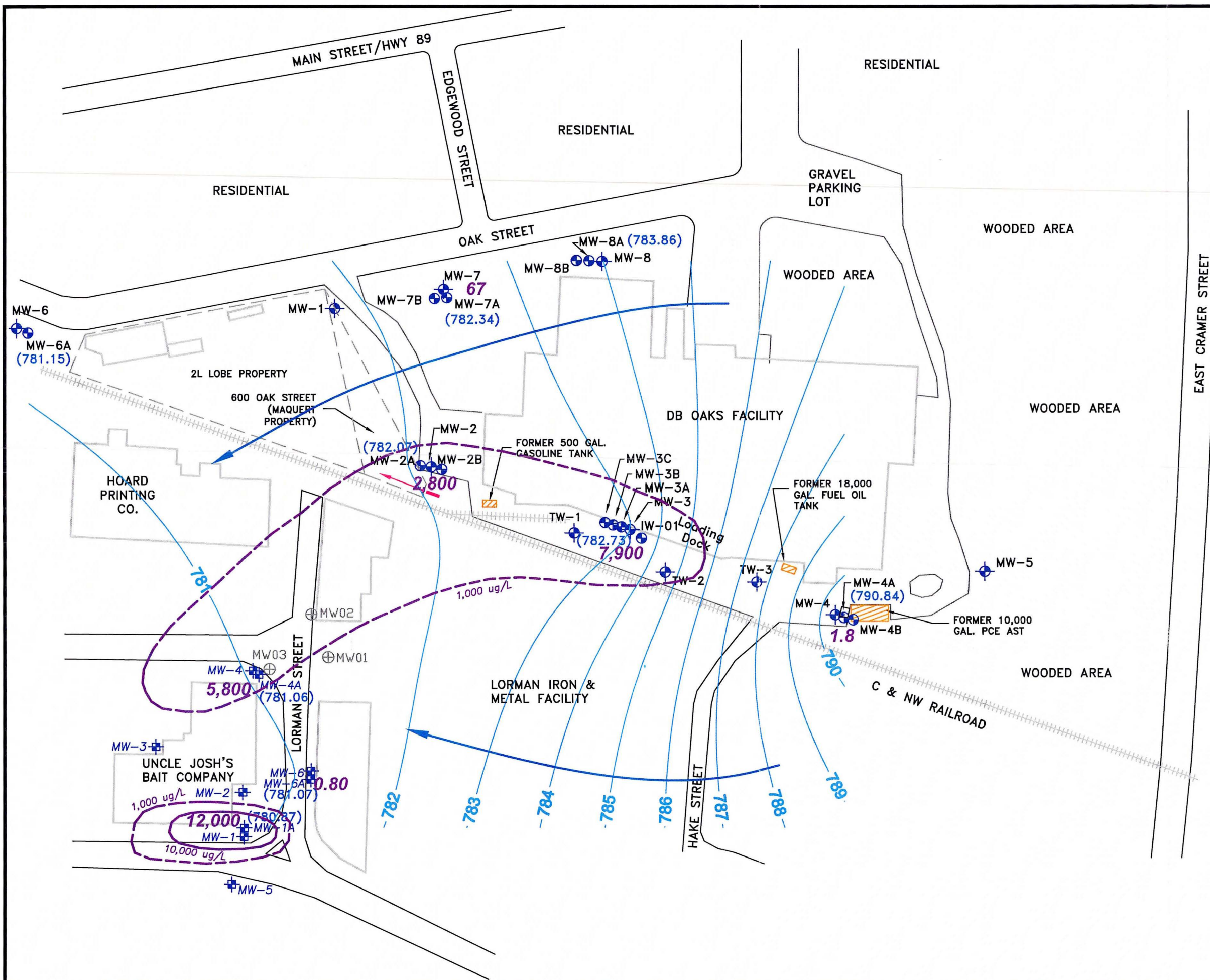


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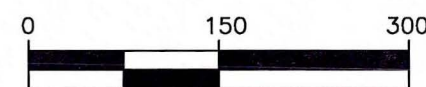


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LEGEND

- EXISTING MONITORING WELL
- EXISTING PIEZOMETER
- EXISTING UNCLE JOSH'S BAIT COMPANY MONITORING WELL
- ABANDONED MONITORING WELL ASSOCIATED WITH LORMAN IRON & METAL
- FORMER TANKS
- CULVERT
- SURFACE DITCH/DIRECTION OF FLOW
- (790.68) GROUNDWATER POTENTIOMETRIC ELEVATION (MEASURED JUNE 6, 2012)
- 789 GROUNDWATER POTENTIOMETRIC CONTOUR
- GROUNDWATER FLOW DIRECTION
- 3,200 GROUNDWATER cis1,2DCE in ug/L (MEASURED JUNE 6, 2012)
- 1,000 ug/L GROUNDWATER cis1,2DCE CONTOUR



SCALE: 1" = 150'  
SCALE IS APPROXIMATE

SOURCES:

- ATEC, SITE PLAN AND GEOPROBE BORINGS, MARCH 30, 1995.
- AERIAL PHOTO, APRIL 21, 1996.
- AERIAL PHOTO, 2005.
- GOOGLE EARTH AERIAL PHOTO, SEPT. 2010



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DRAWN: DZ, DAN PROJECT 800.0270.000 DATE: 7/19/2012

FIGURE 2B  
"A" HORIZON GROUNDWATER  
POTENTIOMETRIC SURFACE and  
cis1,2DCE CONTOURS  
JUNE 6, 2012  
FORMER THOMAS INDUSTRIES  
FORT ATKINSON, WISCONSIN



