NEWFIELDS

November 8, 2004

Wisconsin Department of Natural Resources
3911 Fish Hatchery Road
Madison, Wisconsin 53711

Attn: Mr. Hank Kuehling

RE: NewFields Project No. 0451-002-800
WDNR BRRTs No. 03-28-176509
Work Plan for Hydrogeologic Site Investigation
and Evaluation of Potential Remedial Responses
D.B. Oaks Facility, 700-710 Oak Street, Ft. Atkinson, Wisconsin

Dear Mr. Kuehling:

NewFields has prepared this work plan for the completion of a hydrogeologic site investigation at the above referenced facility, and the evaluation of potential remedial responses. This work plan addresses the issues we discussed during our July 9, 2004 meeting, along with information we obtained from Agency files following our review completed on November 3, 2004. This work plan includes a brief site history, a scope of work, and a schedule.

1.0 SITE HISTORY

NewFields understands that Thomas Industries previously owned and operated a manufacturing facility at 700 Oak Street in Ft. Atkinson, Wisconsin (see Figure 1). Residential lighting fixtures were manufactured at the facility by Moe Brothers Manufacturing beginning in 1939; Moe Brothers Manufacturing changed its name to Moe Lighting in 1939 and was acquired by Thomas Industries in 1948. Lighting fixtures continued to be manufactured at the facility until 1985 when Thomas sold the facility. The Wand Corporation (Wand) subsequently utilized the facility to manufacture storm doors and windows in 1985, but vacated the building by 1992. Two other businesses (Gross EMO and Wisconsin Packaging Corporation) occupied portions of the property between 1986 and 1994. Miller Machining began operating a portion of the property in 1994. The building is currently occupied by Miller Machining and Five Alarm Fire and Safety Equipment. The building is owned by D.B. Oaks.

In an August 28, 1985 letter to Wand, RMT, Inc. identified a 10,000 gallon above ground storage tank (AST) that was used to store tetrachloroethene (PCE), and an 18,000 gallon underground storage tank (UST) that held No. 2 fuel oil. The Wisconsin Department of Natural Resources (WDNR) subsequently performed a generator inspection on March 27, 1986, completed at the time Wand had occupied the property. The inspection was completed by Wendell Wojner of the WDNR

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and described in an April, 1986 memo. As described in that memo, no hazardous waste was observed during the inspection. The inspection report indicated that the site had been decontaminated prior to remodeling the building. Decontamination included the removal of all hazardous waste stored on site, and the decontamination and removal of wastewater treatment tanks and degreasers. An electroplating line had been dismantled, and a new concrete floor installed; the old concrete floor had also been removed and transported off-site for disposal. A foundation for a large AST remained on site at the rear of the building, but the tank had been removed.

During the March 16, 1994 Phase I Environmental Site Assessment (ESA), Gabriel Midwest could not any find evidence of the fuel oil UST. They also observed that the AST that held PCE was gone, and confirmed that the concrete AST cradle remained on-site. In March 1995 ATEC Associates Inc. (ATEC) completed a Phase II ESA of the D.B. Oaks facility to identify potential releases from the former fuel oil UST, PCE AST, and a former 500 gallon gasoline UST; the latter was not identified in previous reports. The Phase II ESA consisted of the collection of soil and groundwater samples from Geoprobe borings. Trace levels of petroleum constituents (ethylbenzene, toluene, and xylenes) along with low concentrations of metals (arsenic, barium, chromium, and lead) were detected in soil and groundwater samples at various locations on the facility property. However, PCE and associated degradation products were detected in soil and groundwater samples along the east and south sides of the facility building. These compounds were detected at concentrations several orders of magnitude above regulatory standards. Results of the Phase II ESA were presented by ATEC in a Phase II ESA report dated April, 1995.

The WDNR was subsequently notified of the release. Internal discussions between Thomas Industries and the WDNR subsequently followed. However, the WDNR delayed action until March 2004. At that time, the WDNR issued a letter requesting an immediate site investigation. The WDNR stated in that letter that the current owner of the property informed the Agency that it never used nor caused a release of PCE during its operations. Consequently, the Agency requested that Thomas Industries complete a site investigation to identify the lateral and vertical extent of subsurface contamination associated with the PCE release.

2.0 TECHNICAL APPROACH

NewFields will perform a hydrogeologic investigation at the D.B. Oaks facility in Fort Atkinson, Wisconsin. The purpose of the investigation will be to identify the lateral and vertical extent of chlorinated hydrocarbons (PCE and its degradation products) in groundwater, and obtain data necessary to evaluate potential remedial responses. The hydrogeologic site investigation will consist of the installation of five water table observation wells and two piezometers, the measurement of water levels, in-situ hydraulic conductivity tests, and the collection of groundwater samples.

All monitoring wells will be installed in boreholes advanced with hollow stem augers utilizing a truck mounted rotary drill rig. Soil samples will be collected with a split-barrel sampler (split spoon), visually classified in accordance with the Unified Soil Classification System, and recorded on soil boring logs. Monitoring wells will be constructed with 2-inch diameter schedule 40 PVC well casings and screens. Water table observation wells will be installed at a depth between 17 and 23 feet below ground surface with a well screen 10 feet in length placed between 7 and 8 feet below the water table; the water table lies between 10 and 15 feet below ground surface. Piezometers will be constructed with well screens 5-feet in length at depths 25 feet below the water table observation wells (between 42 and 48 feet below ground surface). Soil cuttings will be placed in 55-gallon drums, and temporarily stored on site until arrangements can be made for disposal.

Following well installation, the monitoring wells will be developed, and groundwater samples will be collected a minimum of one week following well development. After groundwater samples are collected, in-situ hydraulic conductivity tests will be performed to determine the hydraulic conductivity around the well screen. Depth to water measurements in these wells prior to the collection of groundwater samples will be used to determine lateral and vertical groundwater flow conditions. Purge water will be placed in 55-gallon drums, and temporarily stored on site until arrangements can be made for disposal.

Upon receipt of the groundwater sample results, NewFields will prepare a brief status report summarizing hydrogeologic conditions and groundwater quality results. Recommendations for the installation of additional monitoring wells (on or off-site) and the collection of soil samples may be made at that time. Site investigation results will then be used to evaluate potential remedial alternatives. Based on our experience with geologic conditions at the site, and our experience with chlorinated hydrocarbons at other sites, potential remedial responses that will be evaluated may include the following:

- Natural attenuation as a final remedial response;
- Hot spot removal by excavation and off-site disposal;
- In-situ chemical treatment by reagent injection;
- Groundwater extraction with on-site treatment,
- Groundwater extraction and off-site disposal; and
- Ozone sparging.

In the event that chlorinated hydrocarbons are detected at low concentrations, and site investigation results are not migrating off-site, NewFields will recommend natural attenuation as a final remedial response in lieu of completing the remedial alternatives evaluation. Natural attenuation will require the collection of 4 to 8 rounds of groundwater samples collected quarterly. If groundwater quality standards are exceeded at the property line, an off-site well will be required.

3.0 SCOPE OF WORK

NewFields recommends that the following tasks be completed.

Task 1 - Project Preparation

NewFields will prepare a site specific health and safety plan, and make arrangements for drilling and laboratory services needed to complete the project.

Task 2 – Hydrogeologic Investigation

NewFields will coordinate the installation of five water table observation wells and two piezometers at the D.B. Oaks facility at locations shown on Figure 2. Water table observation wells MW-1 and MW-2 will be installed on the south side of the facility building as down gradient monitoring wells. Well MW-3 and MW-4 will be installed on the east side of the facility building; well MW-3 will be installed down gradient (south) from the former PCE tank, and well MW-4 will be installed in the vicinity of the former PCE tank. Well MW-5 will be installed on the north side of the facility building up gradient from the former PCE tank. Piezometer MW-2A will be installed adjacent to MW-2, and MW-4A will be installed adjacent to MW-4. Samples collected from MW-4A will be used to evaluate the vertical extent of contamination in the vicinity of the former PCE tank; samples collected from MW-2A will be used to evaluate the vertical extent of contamination down gradient from the former PCE tank.

All wells will be installed in boreholes advanced with 4 ¼ -inch ID hollow stem augers utilizing a truck mounted drill rig. Soil samples will be collected at 2 ½ -foot intervals to a depth of 20 feet, and at 5-foot intervals below 20 feet. Subsurface soil units will be visually classified in accordance with the Unified Soil Classification System. The water table observation wells will be constructed with 2-inch diameter schedule 40 PVC well casing and screen, and installed at a depth between 17 and 23 feet below ground surface (between 7 and 8 feet below the water table) with a 10-foot well screen with 0.010-inch slot size openings. Both piezometers will be constructed with 2-inch diameter schedule 40 PVC well casing and screen, and installed 25 feet below the shallow wells with 5-foot well screens having 0.010-inch slot size openings. A sand pack will be placed around each well screen as the augers are removed. A bentonite seal will be placed above each sand pack, and the annular space above the seals will be backfilled with bentonite. All wells will be encased in flush mount protective well casings cemented in place. Soil cuttings will be placed in 55-gallon drums, and temporarily stored on-site until arrangements for disposal can be made.

Following well installation, NewFields will develop each well by surging and purging 10-well volumes. In the event that the wells bail dry, five well volumes will be removed. Purge water will

be placed in 55 gallon drums, and temporarily stored on-site until arrangements for disposal can be made. The reference elevation of each new well will also be surveyed by NewFields relative to existing site datum. Soil boring logs, well construction forms, and well development forms will be completed for each proposed well. All drilling, well abandonment, well construction, and well development will be completed in accordance with Wisconsin Administrative Code NR 141 requirements.

NewFields will collect groundwater samples from all proposed wells a minimum of one week following well development. Prior to sample collection, groundwater elevations will be measured in all site wells to determine groundwater elevations at the time of groundwater collection. All groundwater samples will be submitted to a Wisconsin certified laboratory and analyzed for VOCs by Method 8260. In accordance with WDNR guidance, one duplicate sample and a trip blank will also be analyzed for VOCs each round.

In addition to the collection of groundwater samples, NewFields will perform in-situ hydraulic conductivity tests on each monitoring well. Hydraulic conductivity values derived from these field tests will be used to estimate groundwater flow rates.

Task 3 – Status Report

NewFields will summarize the results of the hydrogeologic site investigation in a status report. This report will include, but may not be limited to, a description of site activities completed, soil boring logs, well construction forms, well development forms, tabulated field data, and tabulated lab results. Figures showing groundwater elevations and isoconcentration contours will also be included as needed. At that time, NewFields may recommend additional site investigation if further site characterization is needed, or if additional data is needed to evaluate a potential remedial response (e.g. additional soil samples to define a hot spot).

Task 4 –WDNR Meeting

Following completion of the status report, NewFields will meet with the WDNR to discuss results and subsequent work as needed. Depending on the meeting outcome, additional site investigation may be needed. In that event, a revised scope of work will be submitted to the Agency for review and approval.

Task 5 – Site Investigation and Evaluation of Potential Remedial Options Report

NewFields will prepare a final site investigation report following completion of the hydrogeologic investigation. Per Wisconsin Administrative Code ch. NR 716 requirements, this report will include

soil boring logs, well construction forms, well development forms, and site maps showing well locations, groundwater elevations, and isoconcentration contours. Laboratory results for groundwater samples will be tabulated; all laboratory reports will be appended to the report. The report will also include an evaluation of remedial options in accordance with the ch. NR 722 criteria. The range of options will be initially screened, and options that obviously cannot be implemented will be excluded. Those retained will be evaluated in accordance with the required regulatory criteria, along with detailed cost estimates. Each retained option will be ranked according to a qualified scale, the rankings tabulated and the resultant score listed.

3.0 SCHEDULE

NewFields will make arrangements for well installation within two weeks following submittal of this work plan. Groundwater samples will be collected a minimum of one week following well development; the subsequent three weeks will be required for laboratory analysis. The status report will be prepared within two weeks following receipt of the groundwater sample analyses results. The site investigation and remedial alternatives report will be prepared within four weeks of Agency concurrence that the field investigation is complete.

Please contact us at (608) 442-5223 should you have any questions.

Sincerely,

NewFields

Mark S. McColloch, P.G.
Senior Geologist

Dave Trainor, P.E., P.G.
Principal

cc: Mr. John Novak, Thomas Industries
Mr. William Mulligan, Davis & Kuelthau, S.C.

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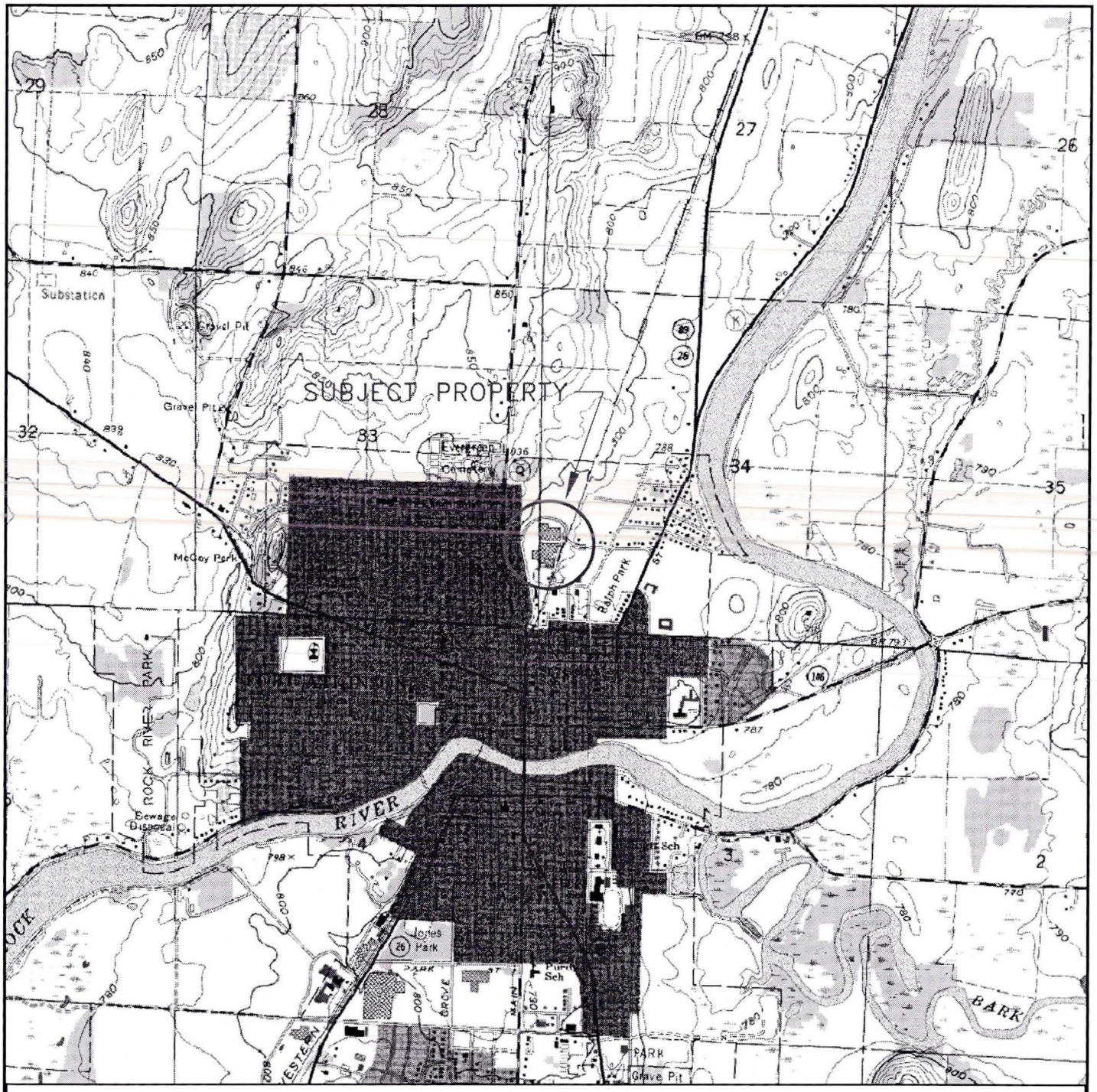
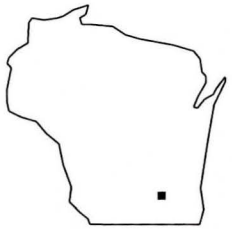
FIGURES



BASE MAP SOURCE: USGS 7.5 MINUTE TOPOGRAPHIC QUADRANGLE, FORT ATKINSON, WISCONSIN, DATED 1987.



QUADRANGLE LOCATION

NORTH
SCALE: 1''=2400'

FORMER THOMAS FACILITY
FORT ATKINSON, WISCONSIN

FIGURE 1
SITE LOCATION

DRN. BY DDZ	PROPOSAL NO. 80-0704-001
DATE 14.JULY.2004	NEWFIELDS

C:\PROJECTS\THOMAS - FT ATKINSON\FIG1

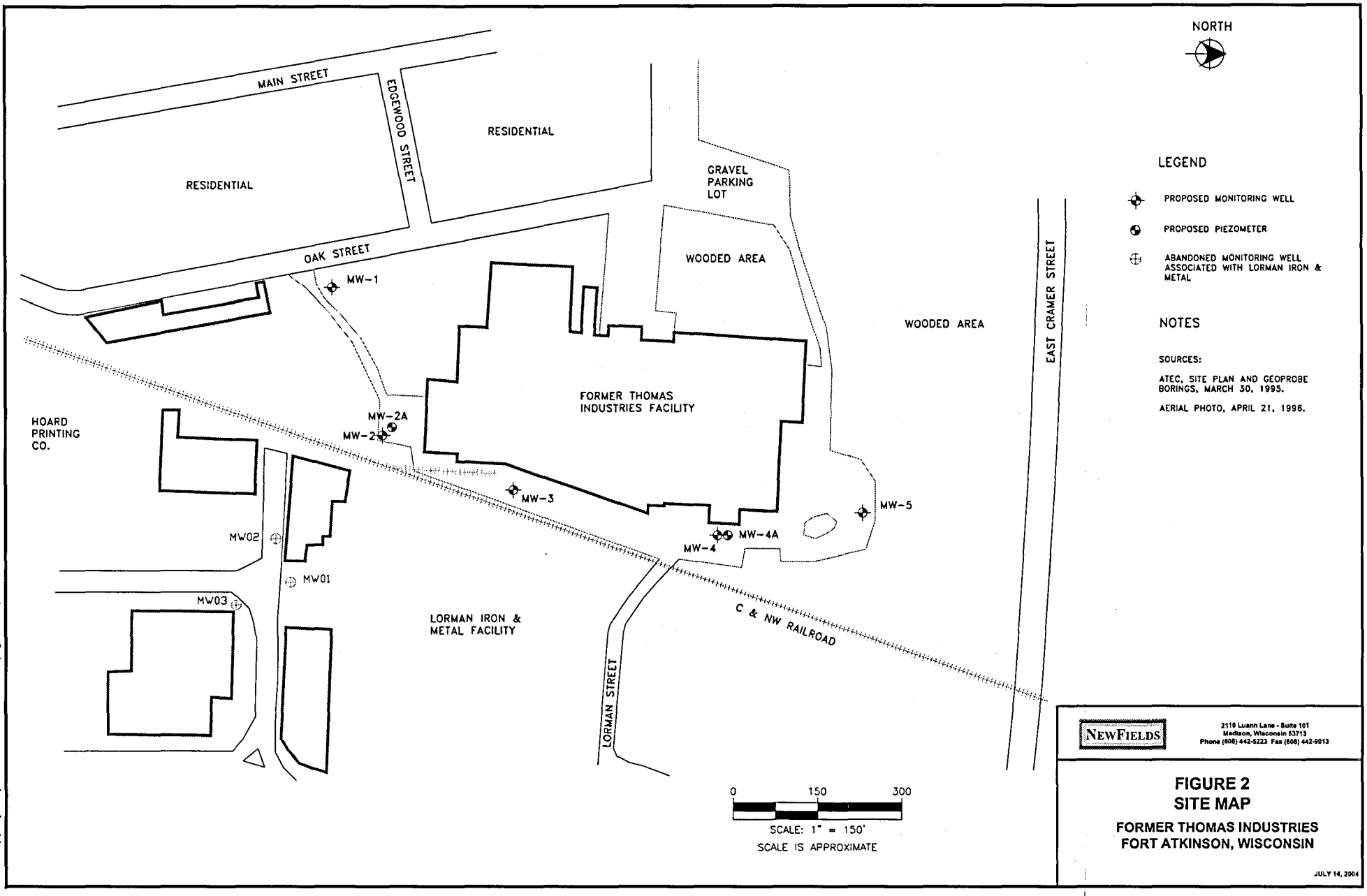


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FIGURE 2
SITE MAP
FORMER THOMAS INDUSTRIES
FORT ATKINSON, WISCONSIN

JULY 14, 2004