SITE INVESTIGATION
WORK PLAN
FORMER D-F PROPERTY
2517 E. NORWICH AVE
ST. FRANCIS, WI 53235

Prepared for:

City of St. Francis

3400 E. Howard Ave

St. Francis, WI 53235

Prepared by:

LF Green Development, LLC

5600 W Brown Deer Road, Suite 120

Milwaukee, Wisconsin 53223

October 7, 2016

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Linda J. Fellenz
Environmental Manager

SUBMITTAL CERTIFICATION

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I, LINDA J. FELLENZ, declare that to the best of my professional knowledge and belief, I meet the definition of Environmental Professional as defined in 40 CFR 312.10 of this part.

I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. I have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR 312.

Linda Fellenz — October 6, 2016

LF Green Development, LLC. — Date

Linda J. Fellenz
Environmental Manager
414-254-4813

TABLE OF CONTENTS

FIGURES

TABLES

APPENDICES

1 INTRODUCTION

This Site Investigation Work Plan (SIWP) presents LF Green's planned scope for the Site Investigation of the former D-F Property (the "Site"), located at 2517 E. Norwich Avenue, St. Francis, Wisconsin. This work will be completed at the property prior to the sale of the property for redevelopment. The property is owned by the Community Development Authority, City of St. Francis.

The property is identified on BRRTS as Former D-F Inc. Property - ERP Site #02-41-097173.

The Site is bounded by Kitzinger Cooperage (Kitzinger) to the east and south, Pennsylvania Ave to the west, and Norwich Ave to the north. Auto Wreckers is located west of Pennsylvania Avenue.

Environmental Resource Management (ERM) conducted site investigations at the former D-F property between 1996 and 2002. Sigma Environmental Services, Inc. (Sigma) completed a Phase II Environmental Assessment of the Site and upgradient Kitzinger site in 2012. Sigma completed two soil borings with the footprint of the D-F manufacturing building, and two soil borings and two NR 141-compliant groundwater monitoring wells and one piezometer within the northwest corner of the adjoining Kitzinger property to the south (upgradient) of the D-F property.

On-site monitoring well sampling conducted between 1996 and 2002, including the most recent sampling event conducted in October 2012, show chlorinated volatile organic compound (CVOC) contamination above the NR 141 Enforcement Standards (ES) and free phase petroleum product in wells located on the property and wells located within Pennsylvania Avenue, adjacent to the property. Prior site investigation findings are discussed in further detail in Section 4.0 of this work plan.

The prior ERM and Sigma investigations demonstrated that both the Kitzinger and Auto Wreckers sites are sources of groundwater contamination that has migrated onto the subject

property. This work plan provides the scope, sampling plan, and schedule for the planned additional investigation. The intent of this work is to determine the nature and extent of contaminants and identify what, if any, further action is required to complete the NR 716 Site Investigation prior to the City applying for a brownfield clean-up grant to assist with remediation and prepare the Site for redevelopment.

The investigation will include soil and groundwater sampling. Additional mobilizations may be required if adequate Site information is not obtained to fully delineate the nature and extent of impacts.

1.1 Project Location

The address of the property is 2517 E. Norwich Avenue. The legal description of the property indicates the property is located as follows: NE ¼ of Section 22, Township 6 North, Range 22 East; City of St. Francis, Milwaukee County, State of Wisconsin.

1.2 Site Description

The property is rectangular in shape 500 ft. by 223 ft., approximately 2.9 acres in size. One large industrial building (41,130 square feet in size) remains on the Site and includes a partial basement with three sumps. ERM reported that the sump pumps were not operational at the time of their investigation, and the water level in the sumps appeared to have remained static for a long period of time. A 2,300 square foot metal frame, slab-on-grade warehouse, constructed in 1965, is located near the southwest property corner of the Site. A wood-frame building, which was razed in 2010, formerly connected the metal frame building to the main manufacturing building. The remaining buildings are in disrepair and currently unoccupied.

A former employee parking lot (the Upper Parking Lot) is approximately 4 to 7 feet higher than the remainder of the Site. The Upper Parking Lot is divided from the Lower Parking Lot by a retaining wall trending approximately north-south from the northern to the southern property boundary. A cinder block wall extends along the southern property boundary from the western end of the warehouse to the east end of the manufacturing building. The cinder block wall, reportedly constructed for building expansion planned in the 1960s. Given that the wall was intended to provide structural support, it is likely that the wall was constructed with a trench

footing founded at a depth of at least four feet below ground surface. These features, as well as shallow gas lines and subsurface sanitary and storm water utilities, influence contaminant migration pathways in the shallow groundwater.

1.3 Points of Contact

Property Owner, LF Green, and other points of contact (POC) for this project are provided as follows:

City of St. Francis
Mr. Mark Johnsrud
City Administrator
3400 East Howard Avenue
St. Francis, WI 53235
Website: https://wi-stfrancis.civicplus.com
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On-Site Environmental Services, Inc.
GeoProbe Contractor
Kim Kapugi
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E-mail: onsiteenvironmental@charter.net
Sun Prairie, WI 53590

Pace, Analytical Laboratory
Steve Mleczko
Project Manager
Green Bay Lab
920-321-9440
Steve.Mleczko@pacelabs.com

2 PROJECT BACKGROUND

2.1 Past Land Use Information

The City of St. Francis acquired the property in 2012 with the intent to demolish the buildings, investigate for environmental concerns, remediate any environmental impacts, and sell the property for redevelopment.

The property was utilized as a manufacturing facility for electronic and metal components, from the late 1940's to 1996. D.F. Corporation used and stored cutting oils, cooking fluids, solvents, degreasers and paint containing trichlorethene (TCE), trichloroethane (TCA), methylene chloride, xylene, toluene and methyl ethyl ketone (MEK). Additionally, the facility stored TCE in a 200-gallon aboveground storage tank (AST) that was situated in the southerly portion of the property and piped into the sheet metal building. The AST was reportedly used from the mid-1960s to early 1970s with no record of significant releases from the AST or piping conveyance.

2.2 Proximity of Site to Other Sources of Contamination

Historic and current property uses adjoin the former D-F property include used drum storage by Kitzinger Cooperage Corporation (currently operated by Mid-America Steel Drum Company, Inc.) to the south and an auto salvage yard operated by St. Francis Auto wreckers to the west/southwest across Pennsylvania Avenue. Both of these sites are considered to be sources of groundwater contamination found on the former D-F property.

The Kitzinger/Mid-America Steel Drum property (BRRTS # 02-41-560089) is over 10 feet higher than the former D-F property in most areas. In 2012, Sigma conducted Phase II sampling on the former D-F property and on the Kitzinger site just south (upgradient) of D-F and found elevated concentrations of both petroleum and chlorinated VOCs within soil and groundwater samples collected from the Kitzinger site. Soil impacts detected were highest at the soil/groundwater interface.

The St. Francis Auto Wreckers property is also identified on the ERP database (BRRTS #02-41-000269) pertaining to metal, PCB, and CVOC contamination in soil and groundwater. A review

of files maintained for the Auto Wrecker site indicates the area was a dump site for the former Town of Lake. St. Francis Auto Wreckers maintained a motor vehicle scrap operation since at least the early 1950s and is a source of petroleum contamination. Furthermore, during construction of the lake Parkway, drums were visible in the east sidewall of the excavation, but were not removed because the area was outside of the temporary easement. Based on a review of the Auto Wreckers site, more than 490 buried drums were found during the clean-up activities at the Auto Wreckers site.

3 PHYSICAL AND GEOLOGIC SETTING

This section details the topographic information, surface water features, soil, geologic and hydrogeologic conditions of the subject property as well as potential hazardous material migration routes.

3.1 Topography

The Site is located at an elevation ranging from approximately 666 MSL near the southwest corner of the property to approximately 657 MSL near the northeast corner. The upper (western) parking lot on the Site ranges from about 3 to 7 feet higher than the lower parking lot and building areas. The elevation of the ground surface on the Kitzinger site, located south and adjacent to the Site, is as much as 15 feet higher than the site and more than 10 feet higher than most areas of the Site.

3.2 Surface Water

The property is located within the watershed of minor streams and direct drainage area tributary to Lake Michigan, located approximately 1 ¼ mile east of the Site (SEWRPC, 1995). No wetlands were observed on the property.

3.3 General Nature and Distribution of Geologic Materials

Glacial (Pleistocene-age) till and outwash deposits, form the primary surficial (unconsolidated) deposits at the property and surrounding area. The glacial till (ground moraine) consists of clay, silt, sand, gravel, and boulders.

Historic grading and filling occurred at various times during development of the Site and adjacent areas to create level building areas, stabilize low and wet areas, and provide transportation grades. Fill at the Site includes the upper parking lot with less fill thickness in the lower parking lot and building areas. The thickness of the fill material present in the lower parking lot is approximately 4 feet below ground surface (bgs) and is underlain by topsoil in some locations. Underlying the topsoil and fill is silty clay interbedded with sand a gravely sand seams. The topsoil and top of the silty clay layer (where topsoil is absent) is the approximate

historic pre-fill land surface. Fill material was not found east of the main manufacturing building. The soil profile at the Site, beneath the fill layer, consists of interbedded units of silt, silty clay and fine to course sand seams with discontinuous silty and fine to coarse sand and gravel units at depth. ERM borings encountered a massive silty clay layer between 24 and 30 feet bgs in boring SB-21 in the northwest portion of the upper parking lot of the Site. The extent of this silty clay layer was not documented by other Site borings as none of the other historic soil borings extended deeper than 22 feet.

3.4 General Hydrogeologic Information

Shallow groundwater occurs within the top 4 to15 feet bgs relative to the variable surface elevation. Groundwater flow is generally north with an easterly component in the northeast area of the Site. Sigma calculated an average horizontal gradient of 0.035 ft/ft across the Site with a vertical downward gradient at upgradient, off-site monitoring well/piezometer SMW-4/SPW-4 of 0.8 ft/ft.

Local surface and subsurface features may also be affecting shallow groundwater conditions in this area, such as a 7-foot high cinder block wall along the southern property boundary and several large diameter storm sewers underneath E. Norwich and S. Pennsylvania Avenues. Regardless of these surface and subsurface features, the prevailing groundwater gradient has remained fairly consistent over a 14-year time period and groundwater flow directions have generally been to the northeast with strong horizontal and vertical gradients nearest the upgradient source areas.

The principal aquifers in the surrounding area are derived from unconsolidated sand and gravel deposits. Potable wells constructed in the vicinity of the Site (identified by ERM) indicate a thick sequence of clay overlying the water-bearing aquifer (carbonate rock). Regional groundwater flow direction is easterly toward Lake Michigan and follows the surface topography.

4 PRIOR SITE INVESTIGATION SUMMARY

Site investigations conducted at and adjacent to the Site between 1996 and 2012 are discussed below. Pertinent data collected by ERM is included in Appendix A, and Sigma data summaries are included in Appendix B for reference.

4.1 Soil Contaminant Distribution Summary

- The western parking lot was extensively filled and is 4 to 7 feet higher than other parts of the property. The western parking lot fill material consisting of foundry sand and mixed amounts of debris (i.e. glass, bricks, plastics, wire, wood chips, garbage).
- The thickness of the fill material present in the lower parking lot is approximately 4 feet bgs and is underlain by topsoil in some locations. The fill material is underlain by top soil and silty clays interbedded with sand and gravel seams.
- Laboratory analyses of soil samples collected from over 50 soil borings, two test pits, and several hand augers confirm that soil at the property shows contamination of chlorinated solvents, petroleum products, and arsenic (Appendix A). ERM noted that soil samples with the highest contaminant concentrations are located on the west side of the property near the saturated zone between the fill material and native soils (Appendix A). Historic ground water elevations indicate that the water table and a thick capillary fringe extend to or nearly to the ground surface over the contaminated areas of the site. ERM further demonstrated that both petroleum and chlorinated VOC concentrations and higher in groundwater samples than in soil samples obtained from the capillary fringe, indicating the on-site fill material is not a significant source of soil and groundwater contamination.
- Several of the on-site wells were sampled quarterly and/or semi-annually between 1996 and 2002, including the most recent sampling event conducted in October 2012. All contaminants detected in the groundwater were also detected in the soil samples, and the location of elevated soil impacts closely correlates to the contaminant levels detected in the groundwater. The soil contamination recently identified at the adjacent Kitzinger Cooperage Corp. /Mid-America Steel Drum Co. property is similar to the impacts at the property and the highest concentrations are also situated near the soil/groundwater

interface (Appendix B). The source of fill material encountered at the property and Kitzinger Cooperage Corp. /Mid-America Steel Drum Co. Property is unknown.

- Elevated concentrations of both petroleum and chlorinated VOCS, well above NR 720 RCLs, were found in soil samples collected from the adjacent and upgradient Kitzinger property at the soil/groundwater interface. Soil contaminant levels decrease significantly with distance from southwest to northeast, coinciding with the groundwater contaminant distribution.
- Sigma completed two soil probes within the footprint of the main industrial building on the Site and found only low-level petroleum constituents at concentrations below NR 720 residual contaminant levels. Given the correlation between soil and groundwater contaminant concentrations, these soil probes indicate that the extent of impacts is defined to the northeast of the source area.

4.2 Groundwater Contaminant Distribution Summary

- Since the late 1990's, almost twenty groundwater monitoring wells have been installed at and adjacent to the property. Several upgradient, off-site wells have only been sampled once, including three temporary wells at the St. Francis Auto Wreckers Property that were abandoned after sampling on November 14, 1996.
- On-site monitoring well sampling conducted between 1996 and 2002, including the most recent sampling event conducted in October 2012, show CVOC contamination above the ES and free phase petroleum products in wells located on the property and wells located within Pennsylvania Avenue, adjacent to the property. A thin layer of free-phase petroleum product occurs in upgradient well MW-15 and in on-site well MW-7. The highest concentrations of CVOCs occur in upgradient wells on the Kitzinger site and on-site well MW-2.
- Groundwater depths at the property vary widely, from 4 to 15 feet bgs, primarily due to changes in surface elevation in this area. Kitzinger Cooperage Corp. /Mid-America Steel Drum Co. property to the south is over 10 feet higher than the Site in most areas.
- Local surface and subsurface features may also be affecting shallow groundwater conditions in this area, such as a 7-foot high retaining wall along the southern property

boundary and several large diameter storm sewers underneath E. Norwich and S. Pennsylvania Avenues.

- Regardless of these surface and subsurface features, the prevailing groundwater gradient has remained fairly consistent over a 14-year time period and groundwater flow directions have generally been to the northeast. Strong horizontal and vertical gradients were observed nearest this upgradient source areas identified at Kitzinger and at on-site well MW-2 where the water table is mounded within the fill material.
- Groundwater contaminant levels decrease significantly with distance from southwest to northeast.

4.3 Prior Investigation Conclusions

Based on the proximity of historical dumping at St. Francis Auto Wreckers and the significant amount of contaminated fill material encountered and still remaining at all three properties, the source of soil/groundwater impacts identified along the west side of the property are most likely associated with off-site historical dumping and contaminant migration through groundwater.

The distinct chlorinated solvent and petroleum VOC "hot spots" identified in the soil and groundwater indicate that the source of these impacts appears to be the result of historic waste disposal that occurred in this general area and not a specific source area or release at the property or adjacent properties.

The prior investigations have adequately defined the extents of soil and shallow groundwater impacts across the Site. Groundwater impacts beneath the confining silty clay layer in the sand and gravel unit require further investigation.

Table 1 was prepared by LF Green and shows the distribution of groundwater impacts in the subsurface relative to groundwater elevations and stratigraphy.

4.4 Potential Migration Pathways

Potential hazardous substance migration pathways could include:

- Overland surface water flow from higher adjacent properties

- Laterally within sand and gravelly sand layers where the highest concentrations of petroleum and chlorinated VOCs were found in upgradient monitoring wells.
- Utility conduits, particularly those located below the water table.

Vapor migration through the uppermost unsaturated fill layers is likely. Given that the existing structures will be demolished, the vapor migration pathway will not be addressed until a new use is proposed for the Site. Should the existing building be rehabilitated, the vapor pathway will be further investigated and mitigated.

5 ADDITIONAL INVESTIGATION SCOPE

This work plan has been developed based on the prior investigation findings and WDNR comments regarding the July 10, 2016 Site Summary. A summary of the additional site investigation scope is provided as Table 2.

5.1 Interim Groundwater Investigation

The interim groundwater investigation proposed for the Site at this time will include locating and sampling accessible groundwater monitoring wells on the site. This sampling event will include an assessment of the condition of the on-site monitoring wells, groundwater level measurements, measurement of free product thickness to the extent possible, and sampling free product (if encountered) for future characterization and possible finger-printing. All monitoring wells will be purged prior to sampling. The water level indicator will be decontaminated between sampling locations. Additionally, to avoid cross-contamination between locations, the field protocol will include measuring water levels in the wells beginning with the least contaminated wells (north and northeast) and ending with the most contaminated wells identified by the 2012 sampling event.

Given the historic thickness of free product measured, free product will be purged from the monitoring wells to aid in determining product recharge rates, to the extent practicable. If free product does not accumulate within the existing monitoring wells after the wells are purged, the groundwater within the wells will be sampled.

Groundwater samples collected will be analyzed for VOCs. Low-flow sampling methods will be employed to the extent practicable, with new tubing used at each well to avoid cross-contamination of samples.

Only the monitoring wells located on the D-F property and within the public right-of-way will be accessed at this time. The Sigma monitoring wells installed on the Kitzinger site will not be accessed; however, WDNR may wish to contact the Kitzinger responsible party to schedule a concurrent groundwater sampling event.

Groundwater elevations and results will be compared to the 2012 Sigma sampling event to evaluate contaminant distribution across the Site.

5.2 Soil Investigation

The additional soil investigation will include the completion of four soil borings, each completed with a hydraulic probe, to aid in defining the vertical extent of groundwater impacts and to document the occurrence of the lower massive silty clay layer. Locations will be selected using the result from previous sampling conducted at the Site. The proposed boring locations are indicated on Figure 2.

Soil probes will be completed to depths up to 35 feet bgs or until refusal to characterize the soil column. One soil sample from each two-foot interval will be screened using a photoionization detector (PID) throughout the depth of the soil probe. We anticipate selecting two samples from each boring for laboratory analysis. One sample will be collected from 0-4 feet bgs to determine the direct contact conditions. The sample in the 0-2 foot section will be used unless it is topsoil or gravel. A second unsaturated sample will be collected to verify the soil conditions between 4 and 15 feet bgs, depending on the depth of the water table encountered during drilling and PID readings.

Soil samples will be submitted for analysis of VOCs by method 8260B, SVOCs by method 8270, and RCRA Metals by method 6010B. Samples will be submitted to a Wisconsin accredited laboratory for analysis. The laboratory chain of custody (COC) form will be prepared and soil samples will be securely packed in an ice-filled cooler and shipped to the laboratory for analysis.

If analytical concentrations are 20 times over the regulatory limit, Toxicity characteristic Leaching Procedure (TCLP) analysis will be performed on the soil samples.

5.3 Groundwater Investigation

NR 141 permanent monitor wells will be installed at three or more of the soil probe locations during the soil investigation described above. At this time, the well locations and depths are planned to consist of piezometers to evaluate the vertical extent of groundwater contamination within the water-bearing sand and gravel layers.

If the soil sampling described above indicates the potential for significant contamination or free product (such as strong odors, PID readings, product-saturated soil) at depth below the upper clay layer at any location, piezometers may be installed using specialized drilling techniques such as installing a pre-packed Geoprobe well within solid casing to avoid vertical transport of free product. Proposed well locations are indicated on Figure 2 with probable depths summarized in Table 1.

Monitor well locations will be surveyed to document location and top of casing and ground surface elevations. Groundwater elevations will be measured to confirm the ground water flow direction at the Site.

The newly installed and existing wells will be developed and sampled. Samples will be analyzed for VOCs (Method 8260) and RCRA Metals (Method 6010B). Low-flow sampling techniques will be used. Samples for metals analysis will be field filtered.

Samples will be submitted to a Wisconsin accredited laboratory for analysis. The laboratory chain of custody (COC) form will be prepared and water samples will be securely packed in an ice-filled cooler and shipped to the laboratory for analysis.

5.4 Tables Summarizing Contamination

Summary tables will be prepared following closure protocols to summarize all historic data collected from the Site, including the historic soil and groundwater data collected by others. The tables will include the date, depth, and analytical results for each sample. Sample results will then be evaluated to determine:

- Probable source(s) of the contamination
- The vertical and horizontal extent of each of these sources
- A determination whether additional sampling is warranted

5.5 Figures Summarizing Contamination

Similar to the summary tables, figures will be prepared following closure protocols to summarize current and historic data. Figures will be created showing the location of known and potential sources of contamination, soil sample locations, and groundwater wells. The figures will include

iso-concentration maps, sample results, cross sections that identify the contaminant sources and contaminant distribution, local geology, and water table/piezometric surface.

5.6 Investigative-Derived Waste

Investigative waste that is suspected or known to be contaminated will be stored in appropriately labeled 55-gallon drums on-site. Before any waste is transported off of site, LF Green will ensure that all waste profiles and manifests are reviewed and signed by the appropriate technical representative. Waste stream sampling and characterization will be done in accordance with appropriate Federal and State guidelines. Environmental sampling at the work Site will be accomplished by a qualified, competent individual with demonstrated experience in accepted scientific sampling techniques and sample handling and management. The Project Manager will ensure that all chemistry-related tasks are conducted in accordance with all requirements, and will be the point of contact on all chemistry-related issues ensuring that all data is of the highest quality.

5.7 Health and Safety

The LF Green Project Manager will oversee the performance of the project from a safety standpoint. The health and safety of all Site workers, including subcontractors and City of St. Francis personnel visiting the Site, will be the project manager's responsibility.

5.8 Quality Assurance and Control

Our Quality Control procedures will be followed to assure quality control of project implementation and preparation of project deliverables.

5.9 Reporting

The information from the Site Investigation will be submitted to the WDNR with the appropriate fee to gain WDNR concurrence on the completeness of the investigation or whether additional investigation and/or ongoing groundwater monitoring is required.

5.10 Schedule

LF Green's schedule for the D-F project is:

October 2016: Submit the work plan to WDNR for review, with fee

October 2016:	Complete the initial monitoring well assessment and sampling
November 2016	Evaluate historic and current data and complete the additional soil and groundwater sampling
December:	Evaluate laboratory results and prepare site investigation report
January 2017	Submit the SI Report to WDNR for review
March, April:	Receive feedback from WDNR Review

If ongoing monitoring is needed, we will prepare a revised schedule.

6 REFERENCES

1. American Society for Testing and Materials (2005). Standard Practice for Environmental Site Assessments: Phase I Environmental Assessment Process (E-1527-13)

2. Environmental Protection Agency (2005). Title 40, Code of Federal Regulations, Part 312 (40 CFR part 312) – Standard Practices for All Appropriate Inquiries (AAI).

3. USGS Topographic Map Milwaukee Quadrangle 7.5-Minute Series.

4. Triad Engineering, Inc., 1999 Phase I and Limited Phase II Environmental Site Assessment Easterday Paint Company. May

7 LIMITATIONS

Disclaimer

The conclusions and recommendations contained in this report represent our professional opinions. No warranty or guarantee is expressed or implied concerning the findings and/or conclusions of this site investigation. Rather, it is represented that the scope and performance of the professional services rendered are in accordance with the currently accepted environmental and engineering practices as conducted within the site region by similar qualified contractors.

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FIGURE 1

SITE LOCATION MAP

FIGURE 2

PROPOSED SAMPLE LOCATIONS

EAST NORWICH AVE.

4' DRAINAGE DITCH UNDERGROUND AT BREAKLINE

MW-4 (653.90)

MW-5 (652.85)

MW-9 (646.60)

652 651 650 649 648 647

Approximate extent of soil and groundwater impacts

SGP-6

Area D

BRICK, METAL & FRAME BUILDING

MW-1 (653.38)

S. PENNSYLVANIA AVE.

CONC. WALK

MW-6 (653.11)

653 654 655 656 657 658 659 660 661 662 663

Area B

MW-3 (651.87*)

MW-7 (Product)

SGP-5

Area C

SHEET METAL BLDG.

Area A

FRAME BUILDING (Razed)

MW-2 (659.05)

MW-8 (657.47)

Retaining Wall

MW-15 (Product)

SMW-4 (660.49)

SGP-1

SPM-4

SMW-3 (663.44)

SGP-2

MW-14 (652.00)

LEGEND

- Geoprobe Soil Boring
- Monitoring Well
- Piezometer
- (xxx.xx) Groundwater Elevation
- Groundwater Contour

Note: * indicates elevation not taken into account for contours

N

0 40 ft.

THE SIGMA GROUP
Single Source. Sound Solutions.

GROUNDWATER CONTOUR MAP (10/15/2012)

2517 EAST NORWICH
ST. FRANCIS, WISCONSIN

FIGURE 2

Date: 11/09/2012 | Created By: SLO | Filename: 13097_FIG 1.PDF | Directory: WDNR/DF | Project: 13097

TABLE 1

GROUNDWATER CONTAMINANT DISTRIBUTION SUMMARY

Table 1: Groundwater Contaminant Distribution Summary

Monitoring Well Identification	Date	Ground Surface Elevation (feet MSL)	Top of Casing Elevation (feet MSL)	Depth to Groundwater (feet from TOC)	Depth to Groudwater (feet bgs)	Groundwater Elevation (feet MSL)	Well Screen Interval (ft bgs and ft MSL)	Screen Interval Formation (Descending)	TCE	cis 1,2-DCE	VC	Projected Piezometer Depth and Probable Screen Formation (ft bgs and ft MSL)
SMW-3	**10/15/12**	668.98	668.32	4.88	5.54	663.44	8-18 660.98 - 650.98	1 ft Fill, silt, f-m sand, silt	1600	31100	9700	
SMW-4	**10/15/12**	667.78	667.24	6.75	7.29	660.49	8-18 659.78 - 649.78	1 ft of product-saturated fill, silt	36	640	122	
SPM-4	**10/15/12**	667.72	667.60	15.70	15.82	651.90	25-35 642.72 - 632.72	f-c sandy gravel, silt (bottom ft)	26000	283000	12600	
MW-1	**10/15/12**	657.10	659.23	5.85	3.72	653.38	4 - 14 654.90 - 644.90	(inferred from MW-9) 2 ft silty clay, 4 ft sand and gravelly sand, 4 ft silty clay	<0.47	<0.74	1.27	
MW-2	**10/15/12**	666.17	665.55	6.50	7.12	659.05	4 - 14 662.12 - 652.12	4.5 ft fill, 5.5 ft silty clay	1820	120000	1820	23 - 28 643 - 638 (SG)
MW-3	**10/15/12**	659.30	658.87	7.00	7.43	651.87	4 - 14 655.32 - 645.32	(inferred from SB-20) 2 ft fill, 4 ft silty clay, 4 ft sand and gravelly sand	<0.47	6.4	35	
MW-4	**10/15/12**	658.47	660.75	6.85	4.57	653.90	4 - 14 654.57 - 644.37	(inferred from SB-20) 2 ft fill, 4 ft silty clay, 4 ft sand and gravelly sand	6.5	1.75	2.73	
MW-5	**10/15/12**	662.64	662.16	9.31	9.79	652.85	4 - 14 658.66 - 648.66	1 ft fill, silty clay, sand and gravelly sand (bottom 3 ft)	35	30.7	17.5	
MW-6	**10/15/12**	663.83	663.61	10.50	10.72	653.11	5 - 15 658.85 - 648.85	2 ft fill, silty clay, sandy clay (bottom ft)	<4.7	<7.4	2.2	
MW-7	**10/15/12**	659.10	658.97	3.92	4.05	655.05	3 - 13 656.13 - 646.13	1 ft fill, 4 ft silty clay, 4 ft sand and gravelly sand, 1 ft silty clay	Free Petroleum Product (0.04 feet thick)			16 - 21 643 - 638 (SG) 29 - 34 630 - 625 (CL)
MW-8	**10/15/12**	659.76	663.40	5.93	2.29	657.47	3 -13 656.96 - 646.96	1 ft fill, 4 ft silty clay, 4 ft sand and gravelly sand, 1 ft silty clay	3	21.6	160	17-22 643 - 638 (SG)
MW-9	**10/15/12**	656.94	659.17	12.57	10.34	646.60	5 - 15 653.29 - 643.29	2 ft silty clay, 4 ft sand and gravelly sand, 4 ft silty clay	<0.47	<0.74	<0.18	
MW-11	**10/15/12**	Not Located										
MW-12	**10/15/12**											
MW-13	**10/15/12**											
MW-14	**10/15/12**	667.23	666.76	14.76	15.23	652.00	6 - 16 661.22 - 651.22	Clayey silt, sand and gravelly sand	102	<74	<18	
MW-15	**10/15/12**	665.60	665.00	11.70	12.30	653.30	5.5 - 15.5 660.11 - 650.11	4 ft fill, 1 ft silty clay, sand and gravelly sand	Free Product (0.07 ft thick)			

TABLE 2

ADDITIONAL SITE INVESTIGATION SUMMARY

Table 2: Additional Site Investigation Summary

Location	Map ID	Description	Additional Site Investigation Needs	Proposed Soil Investigation	Proposed Groundwater Investigation	Contingent Groundwater Investigation
South Property Boundary	A	CVOCs were detected at concentrations exceeding Enforcement Standardsin this location, including high levels of vinyl chloride. Other than historic fill, there is no specific source area in this location. MW-8 is immediately downgradient of the Kitzinger site.	Monitoring Well MW-8 was installed by ERM to assess contaminant migration from the Kitzinger site to the south. Need to assess contamination in the sand and gravel layer to determine potential upgradient migration within sand and gravel layer.	Soil probe to 35 feet bgs to evaluate vertical extent of impacts through PID screening and visual/olfactory observations.	Piezometer at 17 to 22 ft bgs at approximate Elevation 643 - 638 to assess contaminant migration through the lower sand and gravel layer.	
Lower Parking Lot North of Metal Shed (Former Solvent AST Area)	B	A thin layer of LNAPL (assumed to be petroleum) was encountered in MW-7. There is no known source of petroleum use or storage on the site.	Groundwater at MW-7 has not been analyzed. LNAPL must be characterized and groundwater sampled to determine groundwater quality and relationship to LNAPL. Need to assess contamination in the lower sand and gravel layer to determine vertical extent of groundwate impacts and to evaluate the possible contribution of upgradient contamination from the Kitzinger site.	Soil probe to 35 feet bgs to evaluate vertical extent of impacts through PID screening and visual/olfactory observations.	Sample and characterize LNAPL in MW7. Install piezometer at approximately 16-21 feet bgs in the sand and gravel layer at at approximate Elevation 644-649, which is approximately the same elevation that the CVOCs were found in Kitzinger SPM-4.	Depending on groundwater findings in sand and gravel layer, potentially install a deeper piezomter in the lower confining clay - if clay is not impacted, this shows that the lower massive clay is confining vertical flow from the contaminated sand and gravel layer.
Upper Parking Lot	C	The highest concentrations of CVOCs occur in upgradient wells on the Kitzinger site and on-site well MW-2. Petroleum free product was detected in upgradient MW-15.	Monitoring Well MW-2 was installed by ERM to evaluate contaminant migration from the west. CVOC contaminants were detected at high concentrations. Need to assess the vertical extent of contamination in the sand and gravel layer below the clay layer to assess the potential for off-site contribution of contaminant loads from the west and south.	Soil probe to 35 feet bgs to evaluate vertical extent of impacts through PID screening and visual/olfactory observations.	Piezometer at 23 to 28 feet bgs in the sand and gravel layer at approximate elevation 643 - 638.	Depending on groundwater findings in sand and gravel layer, potentially install a deeper piezomter in the lower confining clay - if clay is not impacted, this shows that the lower massive clay is confining vertical flow from the contaminated sand and gravel layer from upgradient source areas.
Lower Parking Lot - West Side of Main Manufacturing Plant	D	This area is near SB-20 where ERM terminated at 22 feet due to evidence of product. This is also the approximate northeast edge of the plume.	Soil boring SB-20 found evidence of a highly contaminated layer at approximately 20 to 22 feet bgs.	Soil Probe to 35 feet to document probable deep confining clay layer.	Install a monitoring well at approximately 3 - 13 bgs at approximate Elevation 656.13 - 646.13 to confirm the lateral extent of groundwater impacts.	Possibly install a piezometer here in sand and gravel layer at approximately 17 to 22 feet bgs at approximate Elevation 643 - 638 to assess contaminant migration through the lower sand and gravel layer.

Note: One sample will be collected from 0-4 feet bgs to determine the direct contact conditions. The sample in the 0-2 foot section will be used unless it is topsoil or gravel. A second unsaturated sample will be collected to verify the soil conditions between 4 and 15 feet bgs, depending on the depth of the water table.

Soil and groundwater samples will be submitted for analysis of VOCs by method 8260B, SVOCs by method 8270, and RCRA Metals by method 6010B.

APPENDIX A

ERM TABLES AND FIGURES

TABLE 3.2

MONITORING WELL GEOMETRY
D-F INCORPORATED
ST. FRANCIS, WISCONSIN

Well	Easting	Northing	Elevation TOC feet AMSL	Ground Surface feet AMSL	Well Screen				Sand Pack			
					Top feet BGS	Bottom feet BGS	Top feet AMSL	Bottom feet AMSL	Top feet BGS	Bottom feet BGS	Top feet AMSL	Bottom feet AMSL
MW-1	5322.99	4918.79	659.21	658.90	4	14	654.90	644.90	3	14	655.90	644.90
MW-2	4866.27	4852.51	665.58	666.12	4	14	662.12	652.12	3	14	663.12	652.12
MW-3	5041.79	4911.64	658.92	659.32	4	14	655.32	645.32	3	14	656.32	645.32
MW-4	4995.44	5052.72	660.81	658.57	4	14	654.57	644.57	3	14	655.57	644.57
MW-5	4833.94	5043.32	662.19	662.66	4	14	658.66	648.66	3	14	659.66	648.66
MW-6	4835.33	4962.79	663.60	663.85	5	15	658.85	648.85	3.5	15	660.35	648.85
MW-7	4940.16	4899.73	658.74	659.13	3	13	656.13	646.13	2	13	657.13	646.13
MW-8	5001.55	4852.52	663.08	659.96	3	8	656.96	651.96	2	8	657.96	651.96
MW-9	5316.51	5036.65	659.23	658.29	5	15	653.29	643.29	3.5	15	654.79	643.29
MW-14	4811.99	4778.76	666.69	667.22	6	16	661.22	651.22	3	16	664.22	651.22
MW-15	4812.48	4832.45	664.91	665.61	5.5	15.5	660.11	650.11	3	15.5	662.61	650.11

Notes:
1 MW-10 through MW-13 were temporary monitoring wells installed and abandoned by Maxim Technologies, Inc. in November, 1996.

Key:
TOC = Top of casing
BGS = Below ground surface
AMSL = Above mean sea level

TABLE 4.1

GROUND WATER LEVEL MEASUREMENT SUMMARY
D-F INCORPORATED
ST. FRANCIS, WISCONSIN

Well	Elevation of Water Table (feet above mean sea level)											
	4/24/96	4/25/96	9/13/96	11/14/96	2/25/97	7/24/97	8/22/97	9/11/97	10/10/97	11/25/97	2/24/98	3/23/98
MW-1	654.81	655.18	651.91	653.60	655.21	653.85	654.23	652.62	652.27	652.76	654.37	654.49
MW-2	660.70	661.02	659.65	659.42	659.53	660.37	659.99	660.04	659.96	659.46	661.28	661.50
MW-3	653.17	653.23	650.68	650.98	652.60	653.2	652.65	652.40	651.93	651.20	653.12	653.43
MW-4	653.70	653.90	652.36	652.96	653.81	653.91	653.85	653.12	653.07	652.49	654.19	654.04
MW-5	651.47	651.35	649.41	650.22	651.21	654.35	654.05	653.47	653.11	652.71	654.56	654.76
MW-6				653.96	654.95	655.67	654.67	654.44	653.90	653.45	655.88	656.09
MW-7				655.30	656.65	656.73	655.92	655.57	654.89	654.21	657.66	657.44
MW-8				657.23	656.92	657.63	657.69	656.83	656.58	656.02	658.26	658.12
MW-9				646.20	647.14	646.72	646.75	646.37	646.30	646.13	647.08	647.30
MW-14						657.88	656.96	656.88	656.37	656.37	657.13	657.43
MW-15						656.40	655.75	655.70	655.42	655.20	656.37	656.46
SUMP1												649.94
SUMP2												649.96
SUMP3												649.57

NOTES:

1 Elevations are in feet above mean sea level (amsl).

2 Sump top of rim elevations were determined from an approximate floor elevation of 650.65 feet.

KEY:

TOC = Top of Casing.

TABLE 4.2

HYDRAULIC CONDUCTIVITY TESTING RESULTS
D-F INCORPORATED
ST. FRANCIS, WISCONSIN

Well	Type of Test	Hydraulic Conductivity cm/s
MW-1 [1]	Rising Head	4.07E-05
MW-2 [1]	Rising Head	8.44E-04
MW-3 [1]	Rising Head	3.79E-05
MW-4 [1]	Rising Head	4.30E-05
MW-5 [1]	Rising Head	2.71E-05
MW-6 [1]	Rising Head	5.87E-05
MW-7 [1]	Rising Head	1.22E-04
MW-8 [1]	Rising Head	1.33E-04
MW-9 [1]	Rising Head	1.91E-04
MW-14 [2]	Rising Head	6.24E-05
MW-15 [2]	Rising Head	5.00E-05
GEOMETRIC MEAN		**8.00E-05**

Notes:

[1] Tests conducted by Maxim Technology, Inc. in February 1997.

[2] Tests conducted by ERM in September 1997.

TABLE 4.3

SOIL ANALYTICAL RESULTS[1]
D-F INCORPORATED
ST. FRANCIS, WISCONSIN
PAGE 1 OF 6

Sample Location[2]	SB01 [3]	SB02 [3]	SB03 [3]	SB04[3]	SB05 [3]	SB06 [3]	SB07 [3]	SB08 [3]	SB09 [3]	SB10 [3]	SB11 [3]
x-Coordinate	4869.91	4832.18	4833.91	4869.4	4870.54	4871.17	4873.34	4876.58	4838.1	4837.02	4835.91
y-Coordinate	4853.79	4852.9	4892.94	4893.13	4933.09	4973.05	5014	5052.49	5052.94	5013.15	4971.89
Ground Elevation	666.16	665.68	664.93	665.25	664.50	663.54	662.66	661.81	662.51	663.03	663.54
Date Sampled	7/21/97	7/21/97	7/21/97	7/22/97	7/22/97	7/22/97	7/22/97	7/22/97	7/22/97	7/22/97	7/22/97
Sample Depth	2-4'	2-4'	4-6'	4-6'	4-6'	1-2'	2-4'	4-6'	4-6'	2-4'	2-4'
Percent Solids	81	88	76	68	87	52	47	85	92	95	84
Parameters											
Diesel Range Organics (mg/kg)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Petroleum Volatile Orgnic Compounds											
Benzene	<2.4	<4.6	<13	<15	<46	<48	<22	<2.4	<4.4	<11	<12
Toluene	<6.0	<12	<33	<37	<120	<120	<55	<6.0	<11	<27	<30
Ethyl Benzene	<6.0	<12	<33	<37	<120	<120	<55	<6.0	<11	<27	<30
Total Xylenes	<18	<35	<98	<110	<350	<360	<165	<18	<33	<80	<90
m,p-xylenes	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene and Styrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	<12	<23	<65	<74	<230	<240	<110	<12	<22	<53	<60
1,3,5-Trimethylbenzene	<12	<23	<65	<74	<230	<240	<110	<12	<22	<53	<60
Chlorinated Ethenes											
Tetrachloroethene	35	44	86	<37	250	<120	<55	<6.0	<11	35	37
Trichloroethene	540	660	990	1,500	4,800	2,100	1,900	46	390	770	1,000
cis-1,2-Dichloroethene	120	160	250	1,600	3,300	1,700	<55	9.4	130	320	680
trans-1,2-Dichloroethene	<6.0	<12	<33	<37	<120	<120	<55	<6.0	<11	<27	<30
1,1-Dichloroethene	<6.0	<12	<33	<37	<120	<120	130	<6.0	<11	<27	<30
Vinyl Chloride	<6	<12	<33	<37	<120	<120	1,200	<6.0	<11	<27	<30
Chlorinated Ethanes											
1,1,1-Trichloroethane	40	41	140	59	140	<120	<55	<6.0	27	<27	<30
1,2-Dichloroethane	<6.0	<12	<33	<37	<120	<120	<55	<6.0	<11	<27	<30
1,1-Dichloroethane	27	13	72	130	<120	<120	1,500	<6.0	18	<27	<30
Chloroethane	<6.0	<12	<33	<37	<120	<120	<55	<6.0	<11	<27	<30
Other Volatile Organic Compounds											
Bromochloromethane	<6.0	<12	<33	<37	<120	<120	<55	<6.0	<11	<27	<30
Chloromethane	<6.0	<12	<33	<37	<120	<120	<55	<6.0	<11	<27	<30
Chloroform	<6.0	<12	<33	<37	<120	<120	<55	<6.0	<11	<27	<30
n-butylbenzene	<6.0	<12	<33	<37	<120	<120	<55	<6.0	<11	<27	<30
sec-Butylbenzene	<6.0	<12	<33	<37	<120	<120	<55	<6.0	<11	<27	<30
tert-Butylbenzene	<6.0	<12	<33	<37	<120	<120	<55	<6.0	<11	<27	<30
Isopropylbenzene	<6.0	<12	<33	<37	<120	<120	<55	<6.0	<11	<27	<30
n-Propylbenzene	<6.0	<12	<33	<37	<120	<120	<55	<6.0	<11	<27	<30
p-Isopropyltoluene	<6.0	<12	<33	<37	<120	<120	<55	<6.0	<11	<27	<30
Naphthalene	<30	<58	<160	<190	<580	<600	<275	<30	<55	<130	<150
Methylene Chloride	<6.0	<12	<33	<37	<120	<120	<55	<6.0	<11	<27	<30

Notes:

[1] All concentrations given in units of ug/kg (ppb).

[2] See Figure 2 for sampling location.

[3] Samples collected by ERM

[4] Samples collected by Maxim

Key:

NA = Not analyzed.

TABLE 4.3

SOIL ANALYTICAL RESULTS[1]
D-F INCORPORATED
ST. FRANCIS, WISCONSIN

Sample Location[2]	SB12 [3]	SB13 [3]	SB14 [3]	SB15 [3]	SB15	SB16 [3]	SB17 [3]	SB18 [3]	SB19 [3]	SB20[3]	SB21[3]
x-Coordinate	4833.44	4919.39	4912.59	4900.54	4900.54	4936.32	4950.98	4965.83	4937.35	5040.94	4840.19
y-Coordinate	4932.56	5051.41	5012.41	4968.52	4968.52	4916.19	4923.58	4923.87	4899.18	4944.98	5010.92
Ground Elevation	664.22	660.81	661.91	663.52	663.52	658.88	658.80	658.81	659.14	659.23	663.10
Date Sampled	7/22/97	7/22/97	7/23/97	7/23/97	7/23/97	7/24/97	7/24/97	7/24/97	7/24/97	7/24/97	7/24/97
Sample Depth	0-2'	0-2'	2-4'	2-4'	9-11'	0-2'	0-2'	0-2'	0-2'	16-17'	10-12'
Percent Solids	78	89	49	63	82	87	92	90	91	82	74
Parameters											
Diesel Range Organics (mg/kg)	NA	NA	NA	NA	NA	NA	NA	NA	NA	TOC=11,000	TOC=13,000
Petroleum Volatile Orgnic Compounds										NA	NA
Benzene	<13	<2.0	<20	<2.0	<100	<2.3	<2.2	<2.2	<2.2	NA	NA
Toluene	<32	<5.0	<50	<5.0	600	<5.8	<5.5	<5.6	<5.5	NA	NA
Ethyl Benzene	<32	<5.0	220	<5.0	3,400	<5.8	<5.5	<5.6	<5.5	NA	NA
Total Xylenes	<96	<15	<150	<15	18,000	<17	<16	<17	<17	NA	NA
m,p-xylenes	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene and Styrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	<64	<10	<100	<10	2,800	<12	<11	<11	<11	NA	NA
1,3,5-Trimethylbenzene	<64	<10	<100	<10	700	<12	<11	<11	<11	NA	NA
Chlorinated Ethenes										NA	NA
Tetrachloroethene	110	<5.0	770	<5.0	<250	6.7	<5.5	<5.6	<5.5	NA	NA
Trichloroethene	1,100	6.2	<50	350	<250	560	200	210	340	NA	NA
cis-1,2-Dichloroethene	620	<5.0	220	9.2	<250	160	210	82	240	NA	NA
trans-1,2-Dichloroethene	<32	<5.0	<50	<5.0	<250	16	<5.5	<5.6	<5.5	NA	NA
1,1-Dichloroethene	<32	<5.0	<50	<5.0	<250	33	<5.5	<5.6	<5.5	NA	NA
Vinyl Chloride	<32	<5	<50	<5.0	<250	120	<5.5	<5.6	<5.5	NA	NA
Chlorinated Ethanes										NA	NA
1,1,1-Trichloroethane	<32	<5.0	1,900	250	<250	6.9	8.9	<5.6	22	NA	NA
1,2-Dichloroethane	<32	<5.0	<50	<5.0	<250	<5.8	<5.5	<5.6	<5.5	NA	NA
1,1-Dichloroethane	<32	<5.0	590	290	<250	64	33	74	36	NA	NA
Chloroethane	<32	<5.0	<50	<5.0	<250	<5.8	<5.5	5.9	<5.5	NA	NA
Other Volatile Organic Compounds										NA	NA
Bromochloromethane	<32	<5.0	<50	<5.0	<250	<5.8	<5.5	<5.6	<5.5	NA	NA
Chloromethane	<32	<5.0	<50	<5.0	<250	<5.8	<5.5	<5.6	<5.5	NA	NA
Chloroform	<32	<5.0	<50	<5.0	<250	<5.8	<5.5	<5.6	<5.5	NA	NA
n-butylbenzene	<32	<5.0	<50	<5.0	<250	<5.8	<5.5	<5.6	<5.5	NA	NA
sec-Butylbenzene	<32	<5.0	<50	<5.0	1,200	<5.8	<5.5	<5.6	<5.5	NA	NA
tert-Butylbenzene	<32	<5.0	<50	<5.0	1,300	<5.8	<5.5	<5.6	<5.5	NA	NA
Isopropylbenzene	<32	<5.0	<50	<5.0	700	<5.8	<5.5	<5.6	<5.5	NA	NA
n-Propylbenzene	<32	<5.0	<50	<5.0	2,000	<5.8	<5.5	<5.6	<5.5	NA	NA
p-Isopropyltoluene	<32	<5.0	<50	<5.0	1,500	<5.8	<5.5	<5.6	<5.5	NA	NA
Naphthalene	<160	<25	<250	<25	<1300	<29	<27	<28	<28	NA	NA
Methylene Chloride	<32	<5.0	<50	<5.0	<250	<5.8	<5.5	<5.6	<5.5	NA	NA

Notes:

[1] All concentrations given in units of ug/kg (ppb).

[2] See Figure 2 for sampling location.

[3] Samples collected by ERM

[4] Samples collected by Maxim

Key:

NA = Not analyzed.

TABLE 4.3

SOIL ANALYTICAL RESULTS[1]
D-F INCORPORATED
ST. FRANCIS, WISCONSIN
PAGE 3 OF 6

Sample Location[2]	GP1[4]	GP2[4]	GP3[4]	GP4[4]	GP5[4]	GP6[4]	GP7[4]	GP8[4]	GP9[4]	GP10[4]	GP11[4]
x-Coordinate	4941	4942	5317.42	5299.48	5314.9	5039	4871.27	4869.27	4865	4894	4926.4
y-Coordinate	4887	4897	4891	4870.9	4853.86	4852	4852.51	4874.01	4964	4963	5058
Ground Elevation	659.00	659.00	657.59	657.59	657.59	660.00	665.44	665.44	663.70	663.70	657.81
Date Sampled	1/22/96	1/22/96	1/22/96	1/22/96	1/22/96	1/22/96	11/11/96	11/11/96	11/11/96	11/11/96	11/11/96
Sample Depth	3.5-5.5'	3.5-5.5'	3.5-5.5'	3.0-5.0'	0-6'	0-4'	4-5'	4-5'	4-5'	4-6'	2-6'
Percent Solids	82	77	89	83	85	85	81	91	66	86	39
Parameters											
Diesel Range Organics (mg/kg)	NA	NA	<10	<10	<10	460	NA	NA	NA	NA	NA
Petroleum Volatile Orgnic Compounds											
Benzene	<5000	<5100	139	<30	<29	<60	30	31	41	460	<13
Toluene	43,100	96,500	<29	<30	<29	<60	160	150	200	960	<9.0
Ethyl Benzene	31,200	53,800	29	<30	<29	<60	28	28	33	320	<8.0
Total Xylenes	160,500	313,400	86	40	46	122	156	161	226	1,870	182
m,p-xylenes	114,000	221,000	39.5	<30	<29	<60	110	110	130	1,300	120
o-Xylene and Styrene	46,500	92,400	46.2	39.9	45.9	122	46	51	96	570	62
Styrene	NA	NA	NA	NA	NA	NA	<8.0	<8.0	<8.0	<120	<8.0
1,2,4-Trimethylbenzene	64,400	121,000	<29	<30	<29	<60	29	39	63	440	16
1,3,5-Trimethylbenzene	14,700	34,900	<29	<30	<29	<60	27	28	68	330	<10
Chlorinated Ethenes											
Tetrachloroethene	24,100	<5100	<29	<30	<29	133	240	31	200	1,900	<11
Trichloroethene	176,000	<5100	<29	<30	<29	2,010	2,800	990	2,900	36,000	140
cis-1,2-Dichloroethene	338,000	572,000	141	<30	<29	<60	300	300	9,300	13,000	370
trans-1,2-Dichloroethene	<5000	<5100	<29	<30	<29	<60	<24	<24	230	<360	<24
1,1-Dichloroethene	<5000	7,280	<29	<30	<29	<60	<10	<10	<10	<150	<10
Vinyl Chloride	<5000	<5100	59	<30	<29	<60	<6.0	<6.0	130	<90	<6.0
Chlorinated Ethanes											
1,1,1-Trichloroethane	84,700	76,100	<29	<30	40	<60	93	72	320	1,700	23
1,2-Dichloroethane	<5000	<5100	1,040	<30	<29	<60	<6.0	<6.0	<6	<90	<6.0
1,1-Dichloroethane	6,640	16,000	<29	<30	<29	<60	31	<7.0	740	430	580
Chloroethane	<5000	<5100	<29	<30	<29	<60	<5.0	<5.0	<5.0	<75	<5.0
Other Volatile Organic Compounds											
Bromochloromethane	<5000	<5100	<29	<30	<29	<60	<8.0	<8.0	380	<120	<8.0
Chloromethane	<5000	<5100	<29	<30	<29	<60	<22	<22	<22	<330	<22
Chloroform	<5000	<5100	<29	<30	<29	<60	<9.0	<9.0	<9.0	<140	<9.0
n-butylbenzene	45,000	71,000	<29	<30	<29	<60	<11	<11	<11	<170	<11
sec-Butylbenzene	12,300	14,500	<29	<30	<29	<60	<6.0	<6.0	120	510	<6.0
tert-Butylbenzene	<5000	<5100	<29	<30	<29	<60	50	54	92	<150	<10
Isopropylbenzene	<5000	8,870	<29	<30	<29	<60	<6.0	<6.0	100	<90	<6.0
n-Propylbenzene	14,700	25,500	<29	<30	<29	<60	65	57	87	860	<6.0
p-Isopropyltoluene	7,830	17,700	<29	<30	<29	<60	<8.0	<8.0	51	<120	<8.0
Naphthalene	10,300	11,700	<29	<30	59	2,580	110	140	150	1,600	230
Methylene Chloride	<5000	<5100	<29	<30	<29	<60	<6.0	<6.0	<6.0	<90	<6.0

Notes:

[1] All concentrations given in units of ug/kg (ppb).

[2] See Figure 2 for sampling location.

[3] Samples collected by ERM

[4] Samples collected by Maxim

Key:

NA = Not analyzed.

TABLE 4.3

SOIL ANALYTICAL RESULTS[1]
D-F INCORPORATED
ST. FRANCIS, WISCONSIN
PAGE 4 OF 6

Sample Location[2]	GP12[4]	GP13[4]	GP14[4]	GP15[4]	GP16[4]	GP17[4]	GP18[4]	GP19[4]	GP20[4]	GP21[4]	MW-1/B-01[4]
x-Coordinate	4959	4994	4919	4919	4963	4963	4995	5094	4951	4905.94	5313.22
y-Coordinate	5000.5	4945	4885	4908	4886.81	4908.81	5037	5047	4852	4853.02	4908.88
Ground Elevation	657.25	657.50	659.00	659.00	659.00	659.00	659.23	659.23	659.00	659.00	658.90
Date Sampled	11/11/96	11/11/96	11/11/96	11/11/96	11/11/96	11/11/96	11/11/96	11/11/96	11/12/96	11/12/96	4/23/96
Sample Depth	4	4'	2-4'	4'	4'	4'	4'	5'	2'	2.1	6-8'
Percent Solids	64	83	52	52	69	64	83	72	80	44	87
Parameters											
Diesel Range Organics (mg/kg)	NA	NA	NA	NA	NA	NA	NA	NA	23	12,000	NA
Petroleum Volatile Orgnic Compounds											
Benzene	66	56	670	150	330	71	29	30	31	8,600	272
Toluene	270	250	1,100	840	17,000	300	150	45	200	270,000	<29
Ethyl Benzene	53	42	430	120	7,000	72	160	22	44	150,000	<29
Total Xylenes	224	232	2,390	690	42,000	370	1,430	139	290	570,000	NA
m,p-xylenes	160	160	1,600	470	23,000	260	940	90	180	340,000	NA
o-Xylene and Styrene	64	72	790	220	19,700	110	490	179	110	230,000	39
Styrene	<8.0	<16	<120	<32	700	<16	<8.0	130	<8.0	<800	NA
1,2,4-Trimethylbenzene	71	30	440	95	16,000	31	280	31	60	290,000	<29
1,3,5-Trimethylbenzene	76	50	600	140	9,100	62	170	28	41	83,000	<29
Chlorinated Ethenes											
Tetrachloroethene	<11	56	580	<44	<110	<22	73	<11	19	72,000	<29
Trichloroethene	1,100	4,800	56,000	13,000	<110	2,800	2,000	<11	180	1,100,000	69
cis-1,2-Dichloroethene	1,100	1,500	62,000	15,000	<790	2,800	210	<79	940	1,700,000	60
trans-1,2-Dichloroethene	<24	160	5,000	470	<240	140	<24	<24	<24	<240	<29
1,1-Dichloroethene	<10	210	17,000	1,400	<100	390	<10	<10	<10	17,000	<29
Vinyl Chloride	<6.0	460	17,000	2,900	<60	2,800	<6	<6	<6	9,400	<29
Chlorinated Ethanes											
1,1,1-Trichloroethane	110	99	1,300	1,000	230	97	<16	<16	1,100	<1600	NA
1,2-Dichloroethane	150	<12	7,000	4,000	<60	710	<6.0	<6.0	<6.0	17,000	587
1,1-Dichloroethane	790	1,000	11,000	12,000	2,000	2,700	<7.0	<7.0	63	91,000	<29
Chloroethane	<5.0	<10	<75	<20	<50	<10	<5.0	<5.0	<5.0	<500	<29
Other Volatile Organic Compounds											
Bromochloromethane	<8.0	<16	<120	890	<80	<16	<8.0	<8.0	<8.0	35,000	<29
Chloromethane	<22	<44	<330	<88	<220	<44	<22	<22	95	<2200	<44
Chloroform	<9.0	<18	<140	<36	<90	<18	<9.0	<9.0	<9.0	11,000	<18
n-butylbenzene	<11	<22	<170	<44	18,000	<22	46	<11	<11	100,000	<29
sec-Butylbenzene	120	<12	<90	<24	7,800	<12	77	56	50	48,000	<29
tert-Butylbenzene	62	<20	1,300	<40	6,700	130	75	73	<10	29,000	1,070
Isopropylbenzene	77	<12	<90	<24	6,300	<12	600	<6	<6	39,000	<29
n-Propylbenzene	94	120	1,500	370	5,700	<12	78	<6.0	68	56,000	<29
p-Isopropyltoluene	21	<16	<120	<32	20,000	<16	55	<8.0	<8.0	38,000	<29
Naphthalene	230	210	2,500	660	4,900	270	150	150	140	52,000	<29
Methylene Chloride	<6.0	<12	<90	<240	<60	<12	<6.0	<6.0	<6.0	<600	<29

Notes:

[1] All concentrations given in units of ug/kg (ppb).

[2] See Figure 2 for sampling location.

[3] Samples collected by ERM

[4] Samples collected by Maxim

Key:

NA = Not analyzed.

TABLE 4.3

SOIL ANALYTICAL RESULTS[1]
D-F INCORPORATED
ST. FRANCIS, WISCONSIN
PAGE 5 OF 6

Sample Location[2]	MW-1/B-01[4]	B-03/MW-2[4]	B-04[4]	B-05/MW-3[4]	B-06[4]	B-07[4]	B-08/MW-4[4]	B-09/MW-5[4]	B-09/MW-5[4]
x-Coordinate	5313.22	4866.27	4837.00	5041.79	4936.00	4994.86	4995.44	4833.94	4833.94
y-Coordinate	4908.88	4852.51	4858	4911.64	4960	5000.33	5052.72	5043.32	5043.32
Ground Elevation	658.90	666.12	665.44	659.32	659.00	659.00	658.57	662.66	662.66
Date Sampled	4/23/96	4/23/96	4/23/96	4/23/96	4/24/96	4/24/96	4/24/96	4/24/96	4/24/96
Sample Depth	12-14'	10-12'	6-8'	8-10'	2-4'	4-6'	12-14'	4-6'	12-14'
Percent Solids	77	71	71	88	46	68	83	90	85
Parameters									
Diesel Range Organics (mg/kg)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Petroleum Volatile Orgnic Compounds									
Benzene	<28	<5,507	<2,841	<29	<8,726	<564	41	920	<29
Toluene	<28	132,000	5,720	<29	26,000	2,980	<30	1,160	817
Ethyl Benzene	<28	101,000	60,400	<29	60,700	13,500	<30	574	1,340
Total Xylenes	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p-xylenes	<28	334,000	253,000	<29	294,000	76,800	<30	396	1,580
o-Xylene and Styrene	40	205,000	193,000	92	380,000	29,700	<30	634	860
Styrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	<28	89,000	85,000	<29	114,000	27,300	<30	737	<29
1,3,5-Trimethylbenzene	<28	23,500	25,400	<29	38,300	10,000	>30	179	<29
Chlorinated Ethenes									
Tetrachloroethene	<28	93,100	<2,841	<29	<8,726	<564	<30	<29	<29
Trichloroethene	43	3,310,000	<2,841	40	<8,726	<564	75	509	79
cis-1,2-Dichloroethene	<28	131,000	<2,841	112	<8,726	761	17,700	722	5,100
trans-1,2-Dichloroethene	<28	<5,507	<2,841	<29	<8,726	<564	178	<28	<29
1,1-Dichloroethene	<28	20,700	<2,841	<29	<8,726	<564	40	<29	<29
Vinyl Chloride	<28	<5,507	<2,841	<29	<8,726	<564	939	<29	1,830
Chlorinated Ethanes									
1,1,1-Trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	<28	28,600	<2,841	<29	<8,726	<564	51	<29	33
1,1-Dichloroethane	<28	19,000	<2,841	<29	<8,726	<564	956	73	863
Chloroethane	<28	<5,507	<2,841	<29	<8,726	<564	<30	<28	<29
Other Volatile Organic Compounds									
Bromochloromethane	<28	<5507	<2,841	<29	<8,726	<564	<30	<28	<29
Chloromethane	<28	<5507	<2,841	<29	<8,726	<564	30	<28	<29
Chloroform	<28	<5507	<2,841	<29	<8,726	<564	<30	<28	<29
n-butylbenzene	<28	42,400	63,600	<29	67,800	25,000	<30	482	<29
sec-Butylbenzene	<28	10,700	22,300	<29	15,000	7,060	<30	357	<29
tert-Butylbenzene	545	17,000	12,300	<29	<8,726	2,810	<30	333	<29
Isopropylbenzene	<28	6,510	11,300	<29	11,600	3,780	<30	188	<29
n-Propylbenzene	<28	21,400	26,700	<29	30,900	8,780	<30	404	<29
p-Isopropyltoluene	<28	8,940	29,500	<29	17,900	6,250	<30	231	<29
Naphthalene	<28	10,700	6,760	<29	<8,726	1,590	<30	428	<29
Methylene Chloride	<28	11,300	<2,841	<29	<8,726	<564	<30	<29	<29

Notes:

[1] All concentrations given in units of ug/kg (ppb).

[2] See Figure 2 for sampling location.

[3] Samples collected by ERM

[4] Samples collected by Maxim

Key:

NA = Not analyzed.

TABLE 4.3

SOIL ANALYTICAL RESULTS[1]
D-F INCORPORATED
ST. FRANCIS, WISCONSIN

Sample Location[2]	MW-6 [4]	MW-7[4]	MW-8[4]	MW-9[4]	MW-10 [4]	MW-11 [4]	MW-12[4]	MW-13 [4]
x-Coordinate	4835.33	4940.16	5001.55	5318.49	4829	4768	4770	4770
y-Coordinate	4962.79	4899.73	4852.52	5044.04	4760	4810	4918	5045
Ground Elevation	663.85	659.13	663.35	659.2	668.4	667.8	665.2	664.9
Date Sampled	11/13/96	11/13/96	11/12/96	11/13/96	11/11/96	11/12/96	11/12/96	11/11/96
Sample Depth	6-8'	2-4'	4'	6-10'	4'	5-6'	4'	4'
Percent Solids	85	60	81	87	86	85	87	86
Parameters	TOC=69000					TOC = 142,000	TOC = 84,000	
Diesel Range Organics (mg/kg)	<0.61	NA	150	NA	NA	<0.61	130	NA
Petroleum Volatile Orgnic Compounds								
Benzene	52	2,900	240	23	27	29	27	42
Toluene	330	120,000	1,700	37	50	150	59	170
Ethyl Benzene	50	260,000	410	<8.0	25	25	32	31
Total Xylenes	306	430,000	3,700	111	NA	131	NA	NA
m,p-xylenes	210	1,000,000	2,000	71	95	91	120	130
o-Xylene and Styrene	96	430,000	2,390	120	108	41	114	63
Styrene	<16	<400	690	80	61	<8.0	48	<8.0
1,2,4-Trimethylbenzene	82	1,100,000	16,000	20	41	23	110	55
1,3,5-Trimethylbenzene	57	430,000	9,000	22	31	27	45	35
Chlorinated Ethenes								
Tetrachloroethene	410	2,600	<110	<11	150	<11	<11	20
Trichloroethene	6,200	5,800	<110	<11	530	<11	<11	<11
cis-1,2-Dichloroethene	2,000	370,000	<790	<79	99	<79	<79	<79
trans-1,2-Dichloroethene	<48	<1200	<240	<24	<24	<24	<24	<24
1,1-Dichloroethene	<20	5,300	<100	<10	<10	<10	<10	<10
Vinyl Chloride	<12	780	<60	<6.0	<6.0	<6.0	<6.0	<6.0
Chlorinated Ethanes								
1,1,1-Trichloroethane	780	120,000	<160	<16	<16	<16	<16	<16
1,2-Dichloroethane	<12	<300	<60	<6.0	<6.0	<6.0	<6.0	<6.0
1,1-Dichloroethane	450	16,000	<70	<7.0	<7.0	<7.0	<7.0	<7.0
Chloroethane	<10	<250	<50	<5.0	<5.0	<5.0	<5.0	<5.0
Other Volatile Organic Compounds								
Bromochloromethane	<16	18,000	<80	<8.0	<8.0	<8.0	<8.0	<8.0
Chloromethane	<44	<1100	<220	<22	<22	85	<22	94
Chloroform	<18	1,300	<90	<9.0	<9.0	<9.0	<9.0	<9.0
n-butylbenzene	<22	740,000	17,000	<11	<11	<11	<11	<11
sec-Butylbenzene	<12	420,000	22,000	<10	47	<6	41	40
tert-Butylbenzene	<20	210,000	8,800	53	72	<10	61	<10
Isopropylbenzene	<12	310,000	3,100	<6.0	<6	<6	57	54
n-Propylbenzene	130	280,000	7,100	<6.0	63	58	63	66
p-Isopropyltoluene	<16	690,000	25,000	<8.0	<8	<8	<8	<8
Naphthalene	230	170,000	4,900	120	160	110	220	250
Methylene Chloride	<12	<300	<60	<6.0	<6.0	<6.0	<6.0	<6.0

Notes:

[1] All concentrations given in units of ug/kg (ppb).

[2] See Figure 2 for sampling location.

[3] Samples collected by ERM

[4] Samples collected by Maxim

Key:

NA = Not analyzed.

TABLE 4.10

AVERAGE TOTAL CONCENTRATIONS OF PVOCS, CHLORINATED ETHENES AND CHLORINATED ETHANES IN GROUND WATER[1] D-F INCORPORATED, ST. FRANCIS, WISCONSIN

MONITORING WELL	PVOCS	CHLORINATED ETHENES	CHLORINATED ETHANES
MW-2	12,730	155,611	65,255
MW-3	98	380	53
MW-4	314	533	575
MW-5	109	4,659	544
MW-6	6,486	18,898	2,324
MW-7	18,976	280,897	27,879
MW-8	180	83	58
MW-14	4	628	40
MW-15	18,067	9,605	3,048

NOTES

1 Average of the total concentration of each group of constituents. Non-detected concentrations for individual constituents are reported as one-half the detection limit. Units are in micrograms per liter (ug/l).

N
W E
S

WISDOT NORWICH PROPERTY
SOLSTICE PROPERTY
PCB AREA
MW-2
TCE TREATMENT AREA
RESIDENTIAL
MW-4
MW-5
DEAD END
RESIDENTIAL
KITZINGER COOPERAGE CORP. WAREHOUSE
TRUCK DOCKS
DRIVE
TRUCK & TRAILER PARKING
FENCE
LAUNDRY
EAST NORWICH AVENUE
MW-3
LAKE ARTERIAL HIGHWAY PROJECT
(FORMER CHICAGO & NORTHWESTERN RAILROAD)
VACANT PROPERTY
MW-13
MW-12
SF-9
DRAINAGE SWALE
ST. FRANCIS AUTO WRECKERS
MW-11
BW-13A
DRAINAGE SWALE
SALVAGE YARD
SF-8
BRIDGE
RAILROAD EMBANKMENT
SOUTH PENNSYLVANIA AVENUE
GRASS
MW-5
ASPHALT PARKING LOT
STEEL STAIRWAY
SLOPE
GRASS
MW-6
STEEL STAIRWAY
MW-7
ASPHALT PARKING LOT
MW-3
MW-2
MW-15
GRASS/BRUSH
MW-14
MW-10
KITZINGER DRUM STORAGE AREA
GRASS
PROPERTY LINE
MW-4
PARKING
GRASS
D.F. INC.
CONCRETE BLOCK WALL
PROPERTY LINE
MW-9
PROPERTY LINE
MW-1
KITZINGER COOPERAGE CORP. OFFICES & DRUM PROCESSING PLANT
KITZINGER GARAGE
WATER TREATMENT
RAILROAD EMBANKMENT

APPROX. SCALE (ft.)
0 100

SYMBOL LEGEND
- PLUGGED AND ABANDONED MONITORING WELLS
- OFFSITE MONITORING WELLS INSTALLED BY OTHERS
- PERMANENT MONITORING WELL FOR D.F. INCORPORATED
- PROPERTY LINE

P.D. S:\CPFILES\PAC\96351\03\ACAD\REPORT\FIG2-5.DWG OCTOBER 09, 1998 9:25AM
DRAWN NAM

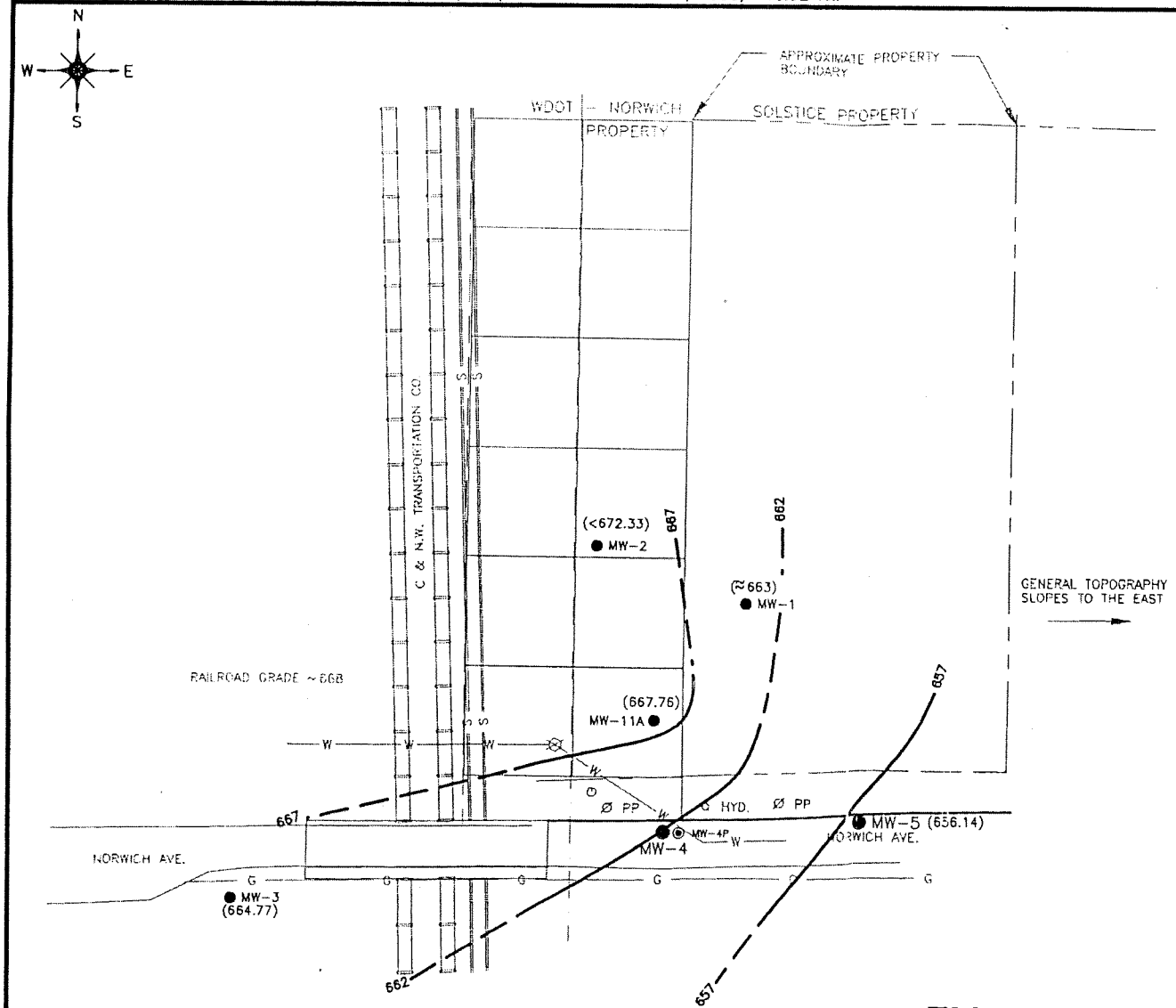
FIGURE 2.5

USE AND OCCUPANCY OF ADJACENT PROPERTIES
D-F INCORPORATED
ST. FRANCIS, WISCONSIN

ERM

DRAWN: NAM

FILE: S:\CPFILES\ERM\PAC\96351\07\ACAD\CBS\FIG2-5.DWG JUNE 19, 1998, 10:52 AM



LEGEND

S	SEWAGE LINE
W	WATER LINE
G	GAS LINE
HYD.	HYDRANT
PP	POWER POLE
(656.14) MW-5	MONITORING WELL LOCATION
MW-4P	PIEZOMETER LOCATION
657	GROUNDWATER ELEVATION CONTOUR (CONTOUR INTERVAL = 5FT.)

NOTES

1. MONITORING WELL LOCATIONS ARE BASED ON SURVEYS PREFORMED BY RMT INC.
2. WATER LEVEL DATA BASED ON NOVEMBER 15, 1994 DATA.
3. WATER LEVEL IN MW-1 IS EXTRAPLATED FROM PREVIOUS GROUNDWATER ELEVATION DATA (SEE TEXT).

WATER TABLE CONTOUR MAP
NOVEMBER 15, 1994
WISDOT-NORWICH PROPERTY

0 50 100

NOTE: MAP OBTAINED FROM RMT INC. OF MADISON

FIGURE 2.6

LOCATION OF MONITORING WELLS AND APPARENT PIEZOMETRIC SURFACE WIDOT SITE INVESTIGATION ST. FRANCIS, WI

RMT, INC.

DWN. BY:	RBN
APPROVED BY:	
DATE:	APRIL 1995
PROJ. #	10428.06
FILE #	0609

ERM

EAST NORWICH AVE.

N
W E
S

4' DRAINAGE DITCH
UNDERGROUND
AT BREAKLINE

S. PENNSYLVANIA AVE.

CONC. WALK

MW-13
MW-12
MW-11
MW-14
MW-15
MW-10
MW-5
MW-6
MW-4
MW-7
MW-2
MW-8
MW-3
MW-1
MW-9

SB-9
SB-8
SB-13
SB-10
SB-21
SB-7
SB-14
SB-6
SB-11
SB-15
SB-12
SB-5
SB-17
SB-16
SB-18
SB-19
SB-4
SB-3
SB-1
SB-2
SB-22
SB-20

GP-11
GP-18
GP-19
GP-12
B-7
GP-9
GP-10
B-6
GP-13
GP-15
GP-17
GP-2
GP-14
GP-1
GP-16
GP-8
B-4
GP-7
GP-21
GP-20
GP-6
GP-3
GP-4
GP-5

HA-2
HA-1

BRICK, METAL & FRAME
BUILDING

SHEET METAL BLDG.

FRAME BUILDING

SYMBOL LEGEND

- TRENCH SAMPLE
- GEOPROBE BORING
- SOIL BORING
- MONITORING WELL
- PROPERTY LINE

APPROX. SCALE (ft.)
0 40

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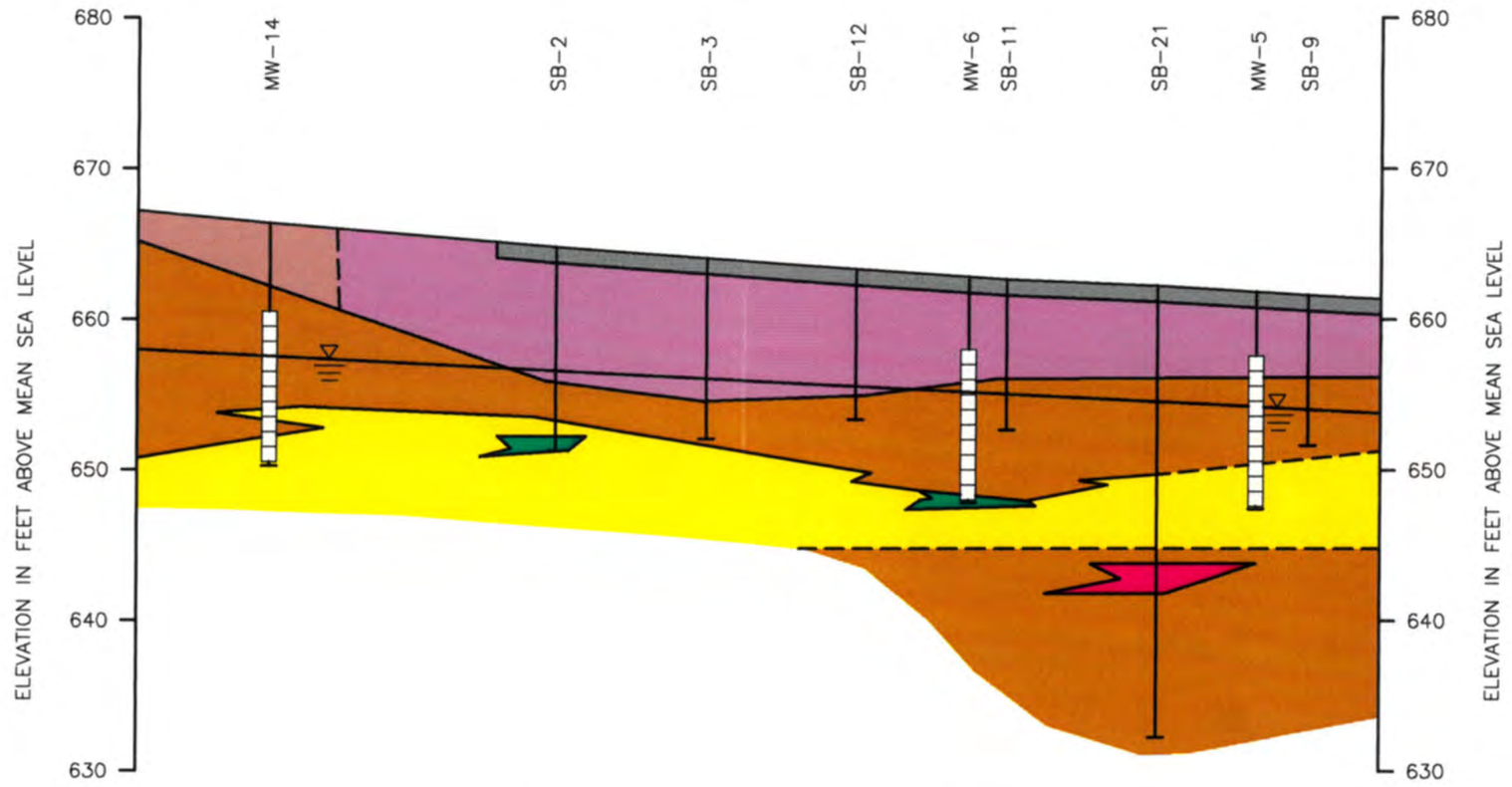
FIGURE 3.1

SOIL BORING AND MONITORING WELL LOCATION MAP
D-F INCORPORATED
ST. FRANCIS, WISCONSIN

ERM

A'
SOUTH

A
NORTH



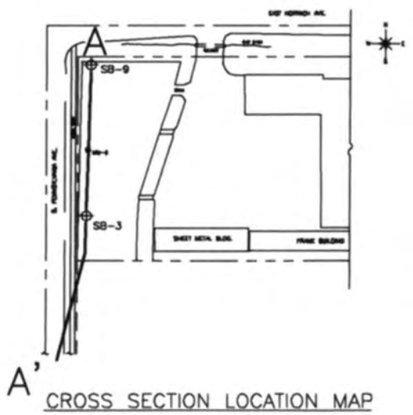
NOTE: WATER ELEVATIONS FROM SEPTEMBER 11, 1997

SYMBOL LEGEND

- WATER TABLE
- CONTACT
- INFERRED CONTACT
- BORING
- SCREENED INTERVAL
- BOTTOM OF BORING
- ASPHALT/ CONCRETE
- UPPER PARKING LOT FILL
- ROAD BASE AND FILL
- CLAYEY SILT
- SILTY CLAY WITH SAND SEAMS
- SANDY CLAY
- SAND AND GRAVELLY SAND

10'
0
40'
SCALE

VERTICAL EXAGGERATION = 4



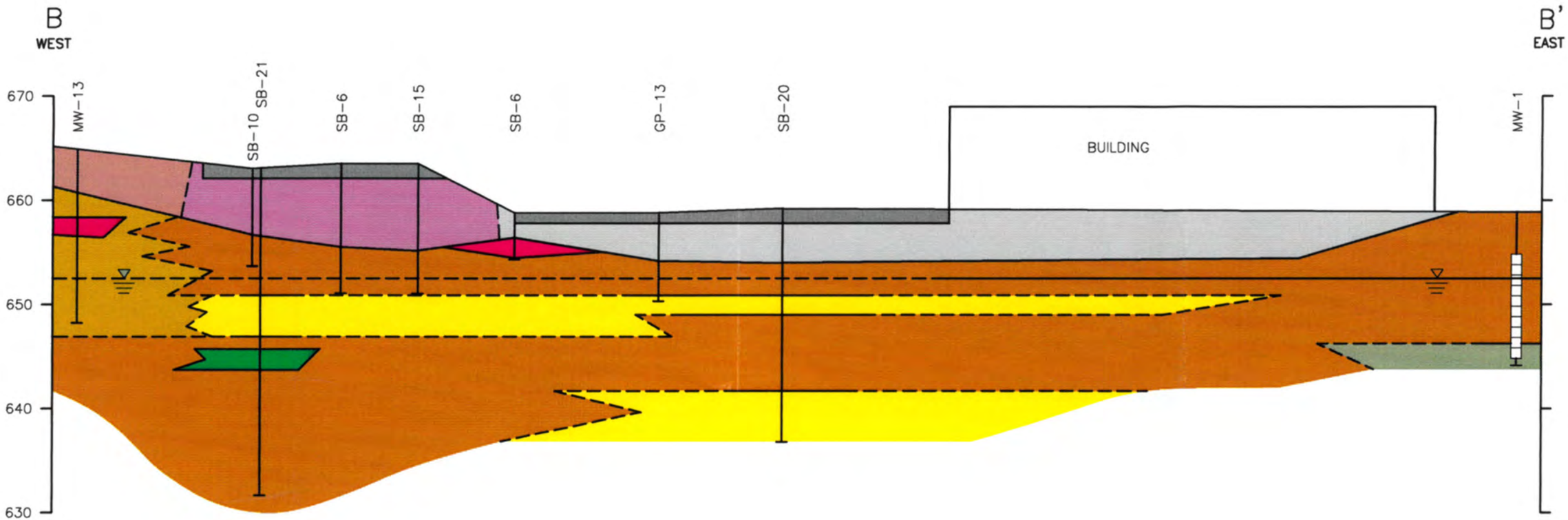
CROSS SECTION LOCATION MAP

FIGURE 4.1

GEOLOGIC CROSS SECTION A-A'
D-F INCORPORATED
ST. FRANCIS, WI

ERM

Drawn: NAM
FILE: S:\CPFILES\PAC\96351\03\ACAD\REPORT\FIG4-1.DWG OCTOBER 09, 1998 9:25AM



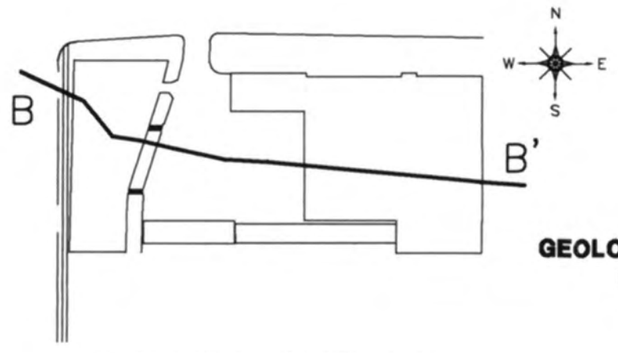
SYMBOL LEGEND

- UPPER PARKING LOT FILL
- ROAD BASE & FILL
- WATER TABLE
- CONTACT
- INFERRED CONTACT
- INFERRED WATER TABLE
- BORING
- SCREENED INTERVAL
- BOTTOM OF BORING
- ASPHALT/ CONCRETE
- LOWER PARKING LOT FILL
- CLAY
- CLAYEY SILT
- SILTY CLAY
- SANDY CLAY
- SILTY SAND
- SAND AND GRAVELLY SAND

NOTE: WATER ELEVATIONS FROM SEPTEMBER 11, 1997

10'
0
40'
SCALE

VERTICAL EXAGGERATION = 4



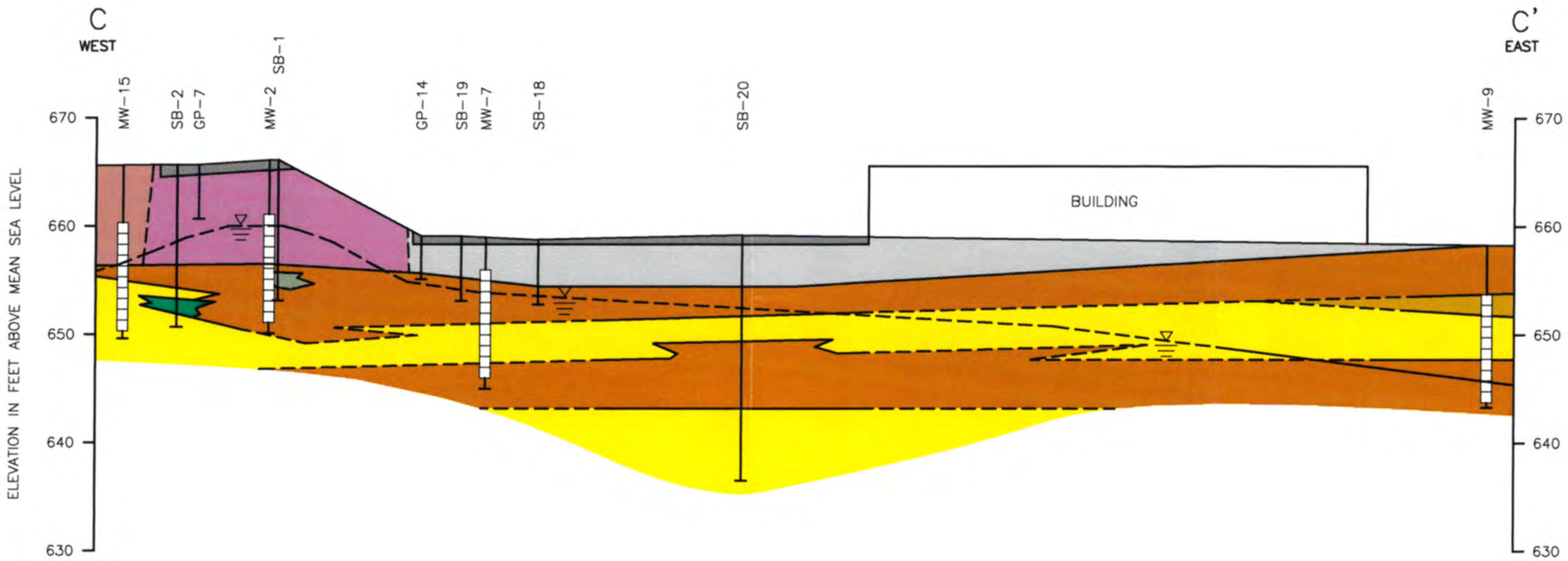
CROSS SECTION LOCATION MAP

FIGURE 4-2

GEOLOGIC CROSS SECTION B-B'
D-F INCORPORATED
ST. FRANCIS, WI

ERM

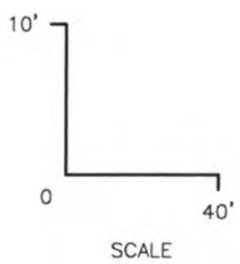
DWN: NAM PJD: S:\CPFILES\PAC\96351\03\ACAD\REPORT\FIG4-2.DWG OCTOBER 09, 1998 9:25AM



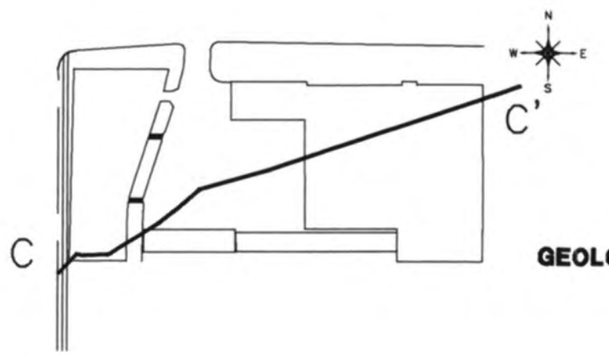
SYMBOL LEGEND

- UPPER PARKING LOT FILL
- ROAD BASE & FILL
- WATER TABLE
- CONTACT
- INFERRED CONTACT
- INFERRED WATER TABLE
- BORING
- SCREENED INTERVAL
- BOTTOM OF BORING
- ASPHALT/ CONCRETE
- LOWER PARKING LOT FILL
- CLAY
- CLAYEY SILT
- SILTY CLAY WITH SAND SEAMS
- SANDY CLAY
- SILTY SAND
- SAND AND GRAVELLY SAND

NOTE: WATER ELEVATIONS FROM SEPTEMBER 11, 1997



VERTICAL EXAGGERATION = 4



CROSS SECTION LOCATION MAP

FIGURE 4-3

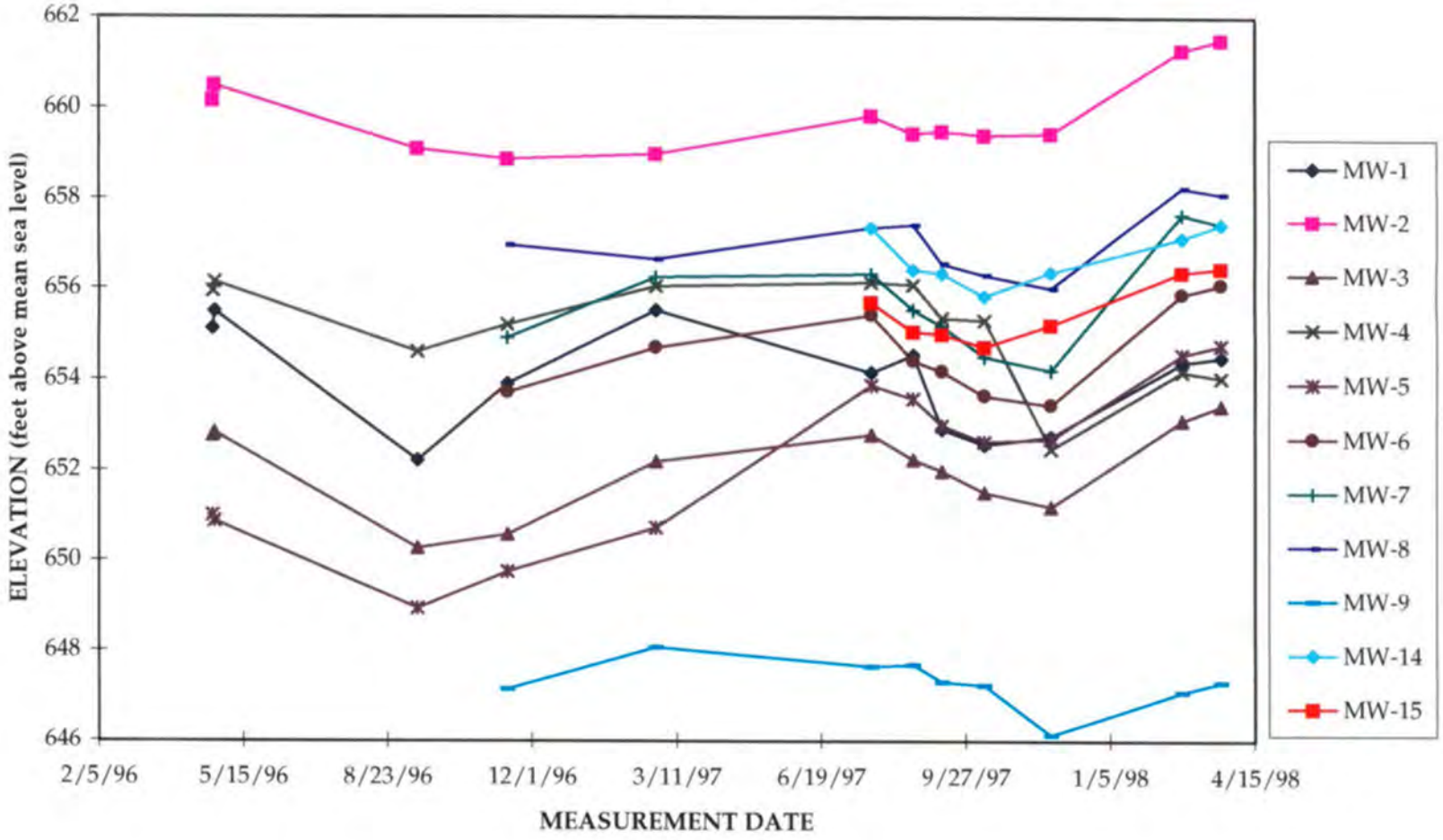
GEOLOGIC CROSS SECTION C-C'
D-F INCORPORATED
ST. FRANCIS, WI

ERM

DRWN NAM PAD S:\CPFILES\PAC\96351\03\ACAD\REPORT\FIG4-3.DWG OCTOBER 09, 1998 9:25AM

FIGURE 4.4

GROUND WATER ELEVATION HYDROGRAPHS
D-F INCORPORATED, ST. FRANCIS, WISCONSIN



LEVELS2.XLS

ERM

EAST NORWICH AVE.

S. PENNSYLVANIA AVE.

CONC. WALK

4' DRAINAGE DITCH UNDERGROUND AT BREAKLINE

BURIED CONCRETE CULVERT

MW-5 651.35

MW-4 653.90

MW-9

MW-6

MW-3 653.23

MW-1 655.18

MW-7

MW-2 661.02

MW-8

MW-15

MW-14

SUMP-3

SUMP-1

SUMP-2

BASEMENT

BRICK, METAL & FRAME BUILDING

SHEET METAL BLDG.

FRAME BUILDING

654.00

655.00

656.00

657.00

658.00

653.00

652.00

N

W

E

S

SYMBOL LEGEND	
—655.00—	CONTOUR LINES
⊠	BASEMENT SUMP
◔	MONITORING WELL
———	PROPERTY LINE

APPROX. SCALE (ft.)

0 40

NOTE: ONLY MONITORING WELLS MW-1 THROUGH MW-5 EXISTED ON THIS DATE

FIGURE 4.5

GROUND WATER ELEVATION CONTOURS
FOR APRIL 25, 1996
D-F INCORPORATED
ST. FRANCIS, WISCONSIN

ERM

DRWN: NAM FILE: S:\CPFILES\PAC\96351\03\ACAD\REPORT\FIG4-5.DWG OCTOBER 09, 1998 9:25AM

APPENDIX B

SIGMA TABLE AND FIGURES

TABLE 1
SUMMARY OF STATIC GROUNDWATER ELEVATIONS
Former D-F Incorporated Property
St. Francis, Wisconsin
Project Reference # 13097

Monitoring Well Identification	Date	Ground Surface Elevation (feet MSL)	Top of Casing Elevation (feet MSL)	Depth to Groundwater (feet from TOC)	Depth to Groundwater (feet bgs)	Groundwater Elevation (feet MSL)	Well Screen Interval (feet bgs) (feet MSL)
SMW-3	10/15/12	668.98	668.32	4.88	5.54	663.44	8 - 18 660.98 - 650.98
SMW-4	10/15/12	667.78	667.24	6.75	7.29	660.49	8 - 18 659.78 - 649.78
SPM-4	10/15/12	667.72	667.60	15.70	15.83	651.90	25 - 35 642.72 - 632.72
MW-1	10/15/12	657.10	659.23	5.85	3.73	653.38	
MW-2	10/15/12	666.17	665.55	6.50	7.12	659.05	
MW-3	10/15/12	659.30	658.87	7.00	7.43	651.87	
MW-4	10/15/12	658.47	660.75	6.85	4.57	653.90	
MW-5	10/15/12	662.64	662.16	9.31	9.79	652.85	
MW-6	10/15/12	663.83	663.61	10.50	10.72	653.11	
MW-7	10/15/12	659.10	658.97	3.92 (free product at 3.88) 0.04	4.05	655.05	
MW-8	10/15/12	659.76	663.40	5.93	2.30	657.47	
MW-9	10/15/12	656.94	659.17	12.57	10.34	646.60	
MW-11	10/15/12			well not found			
MW-12	10/15/12			well not found			
MW-13	10/15/12			well not found			
MW-14	10/15/12	667.23	666.76	14.76	15.23	652.00	
MW-15	10/15/12	665.60	665.00	11.70 (free product at 11.63) 0.07	12.30	653.30	

Notes:
feet MSL = feet above Mean Sea Level
feet from TOC = feet below top of casing
feet bgs = feet below ground surface

TABLE 1
SUMMARY OF SOIL ANALYTICAL RESULTS
VOLATILE ORGANIC COMPOUNDS
Former D-F Incorporated Property
St. Francis, Wisconsin
Project Reference #13097

Soil Boring Identification:					SGP-1	SGP-2	SMW-3	SMW-4	SGP-5	SGP-6
Sample Depth (ft):					9 -10	7.5 - 10	9 - 10	9 - 10	3.5 - 6.5	3 - 6
Parameter	Unit	NR 720 / NR 720.19	NR 746		Collection Date					
		(1) RCL	(2) Table 1	(3) Table 2	09/17/12	09/17/12	09/17/12	09/17/12	10/02/12	10/02/12
Benzene	µg/kg	5.5	8,500	1,100	<890	<890	<890	<890	<8.9	<8.9
Bromobenzene	µg/kg	NS	NS	NS	<1400	<1400	<1400	<1400	<14	<14
Bromodichloromethane	µg/kg	0.24 GW	NS	NS	<1200	<1200	<1200	<1200	<12	<12
Bromoform	µg/kg	45 GW	NS	NS	<2000	<2000	<2000	<2000	<20	<20
tert-Butylbenzene	µg/kg	NS	NS	NS	<5400	<5400	<5400	<5400	<54	<54
sec-Butylbenzene	µg/kg	NS	NS	NS	<5100	**10400 J**	<5100	**6800 J**	<51	<51
n-Butylbenzene	µg/kg	NS	NS	NS	**6600 J**	**19900**	**8000 J**	**13900 J**	<48	<48
Carbon tetrachloride	µg/kg	5.0 GW	NS	NS	<1200	<1200	<1200	<1200	<12	<12
Chlorobenzene	µg/kg	150 GW	NS	NS	<940	<940	<940	<940	<9.4	<9.4
Chloroethane	µg/kg	NS	NS	NS	<14200	<14200	<14200	<14200	<142	<142
Chloroform	µg/kg	39 GW	NS	NS	<4600	<4600	<4600	<4600	<46	<46
Chloromethane	µg/kg	2.7 GW	NS	NS	<20700	<20700	<20700	<20700	<207	<207
2-Chlorotoluene	µg/kg	2700 GW	NS	NS	<8400	<8400	<8400	<8400	<84	<84
4-Chlorotoluene	µg/kg	2700 GW	NS	NS	<7600	<7600	<7600	<7600	<76	<76
1,2-Dibromo-3-chloropropane	µg/kg	24 GW	NS	NS	<7700	<7700	<7700	<7700	<77	<77
Dibromochloromethane	µg/kg	760 DC	NS	NS	<950	<950	<950	<950	<9.5	<9.5
1,4-Dichlorobenzene	µg/kg	110 GW	NS	NS	<5200	<5200	<5200	<5200	<52	<52
1,3-Dichlorobenzene	µg/kg	NS	NS	NS	<5300	<5300	<5300	<5300	<53	<53
1,2-Dichlorobenzene	µg/kg	1800 GW	NS	NS	<5100	<5100	<5100	<5100	<51	<51
Dichlorodifluoromethane	µg/kg	21972 GW	NS	NS	<1200	<1200	<1200	<1200	<12	<12
1,2-Dichloroethane	µg/kg	4.9	600	540	<1300	<1300	**(1,2,3) 2220 J**	<1300	<13	<13
1,1-Dichloroethane	µg/kg	2900 GW	NS	NS	<1100	**(1) 4400**	**(1) 11900**	<1100	<11	<11
1,1-Dichloroethene	µg/kg	5.0 GW	NS	NS	<2200	<2200	**(1) 2900 J**	<2200	<22	<22
cis-1,2-Dichloroethene	µg/kg	55 GW	NS	NS	**(1) 17400**	**(1) 116000**	**(1) 264000**	**(1) 3300 J**	<14	**25.8 J**
trans-1,2-Dichloroethene	µg/kg	98 GW	NS	NS	<2200	<2200	<2200	<2200	<22	<22
1,2-Dichloropropane	µg/kg	1.9 GW	NS	NS	<1100	<1100	<1100	<1100	<11	<11
2,2-Dichloropropane	µg/kg	NS	NS	NS	<3300	<3300	<3300	<3300	<33	<33
1,3-Dichloropropane	µg/kg	640 GW	NS	NS	<1100	<1100	<1100	<1100	<11	<11
Di-isopropyl ether	µg/kg	NS	NS	NS	<4700	<4700	<4700	<4700	<47	<47
EDB (1,2-Dibromoethane)	µg/kg	0.033 GW	NS	NS	<1700	<1700	<1700	<1700	<17	<17
Ethylbenzene	µg/kg	2,900	4,600	NS	**(1,2) 17100 J**	**(1,2) 106000**	**(1,2) 55000**	**(1,2) 21300**	**205**	<55
Hexachlorobutadiene	µg/kg	120 GW	NS	NS	<9500	<9500	<9500	<9500	<95	<95
Isopropylbenzene	µg/kg	NS	NS	NS	<5300	**9600 J**	<5300	<5300	<53	<53
p-Isopropyltoluene	µg/kg	NS	NS	NS	<4500	**11500 J**	<4500	**5300 J**	<45	<45
Methylene chloride	µg/kg	1.6 GW	NS	NS	<11900	<11900	<11900	<11900	<119	<119
Methyl-tert-butyl-ether	µg/kg	6270000 DC	NS	NS	<1200	<1200	<1200	<1200	<12	<12
Naphthalene	µg/kg	427 GW	2,700	NS	<10700	**(1,2) 14700 J**	**(1,2) 11100 J**	**(1,2) 16000 J**	<107	<107
n-Propylbenzene	µg/kg	NS	NS	NS	<5300	**18800**	**8100 J**	**10400 J**	<53	<53
1,1,2,2-Tetrachloroethane	µg/kg	0.1 GW	NS	NS	<2000	<2000	<2000	<2000	<20	<20
1,1,1,2-Tetrachloroethane	µg/kg	7.4 GW	NS	NS	<4100	<4100	<4100	<4100	<41	<41
Tetrachloroethene	µg/kg	4.1 GW	NS	NS	**(1) 2500 J**	**(1) 4200 J**	**(1) 390000**	**(1) 4200 J**	<24	<24
Toluene	µg/kg	1,500	38,000	NS	**(1) 30400**	**(1,2) 126000**	**(1,2) 70000**	**(1) 11700 J**	**189**	<50
1,2,4-Trichlorobenzene	µg/kg	540 GW	NS	NS	<7400	<7400	<7400	<7400	<74	<74
1,2,3-Trichlorobenzene	µg/kg	NS	NS	NS	<12900	<12900	<12900	<12900	<129	<129
1,1,1-Trichloroethane	µg/kg	280 GW	NS	NS	**(1) 62000**	**(1) 3400 J**	**(1) 305000**	**(1) 2150 J**	<11	<11
1,1,2-Trichloroethane	µg/kg	11 GW	NS	NS	<1600	<1600	<1600	<1600	<16	<16
Trichloroethene	µg/kg	3.7 GW	NS	NS	**(1) 3300 J**	<1700	**(1) 330000**	**(1) 3400 J**	<17	<17
Trichlorofluoromethane	µg/kg	29000 GW	NS	NS	<4300	<4300	<4300	<4300	<43	<43
1,2,4-Trimethylbenzene	µg/kg	28000 GW	83,000	NS	**(1) 29400**	**(1,2) 112000**	**(1) 59000**	**(1) 49000**	**182 J**	<80
1,3,5-Trimethylbenzene	µg/kg	13000 GW	11,000	NS	**7200 J**	**(1,2) 34000**	**(1,2) 16000**	**(1,2) 14300 J**	**70 J**	<48
Vinyl chloride	µg/kg	0.13 GW	NS	NS	<1600	**(1) 11300**	**(1) 2590 J**	<1600	<16	<16
Total Xylenes	µg/kg	4,100	42,000	NS	**(1,2) 80200**	**(1,2) 415000**	**(1,2) 269000**	**(1,2) 91900**	**1170**	<86

Notes:
J = analyte detected between Limit of Detection and Limit of Quantitation
µg/kg = micrograms per kilogram (equivalent to parts per billion)
NA = Not Analyzed NS = No Standard
NR 720 RCL = DNR, Chapter NR 720, Generic Residual Contaminat Levels Based on Protection of Groundwater Quality.
NR 746 Table 1 = DNR, Chapter NR 746, Table 1 soil screening level: Indicators of Residual Petroleum Products in Soil Pores.
NR 746 Table 2 = DNR, Chapter NR 746, Table 2: Protection of Human Health from Direct Contact with Contaminated Soil.
NR 720.19 RCL = RCLs calculated in accordance with Ch. NR 720.19 and WDNR document PUB-RR-682 and present in EPA approved QAPP (October 2010). Most strigent pathway (**groundwater [GW]** or **direct contact [DC]**) presented when state standards are not available.

Exceedances:
BOLD = detected compound
(1) = concentration exceeds suggested NR 720 Generic RCLs for VOC Compounds in Soil
(2) = concentration exceeds suggested NR 746 Indicators of Residual Petroleum Product in Soil Pores (Table 1)
(3) = concentration exceeds suggested NR 746 Protection of Human Health from Direct Contact with Contaminated Soil (Table 2)

TABLE 3

SUMMARY OF GROUNDWATER BIOCHEMICAL RESULTS

Former D-F Incorporated Property

St. Francis, Wisconsin

Project Reference # 13097

Monitoring Well Identification:		SMW-3	SMW-4	SPM-4	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7	MW-8	MW-9	MW-11	MW-12	MW-13	MW-14	MW-15
Field Parameters	Unit	Collection Date																
		10/15/12	10/15/12	10/15/12	10/15/12	10/15/12	10/15/12	10/15/12	10/15/12	10/15/12	10/15/12	10/15/12	10/15/12	10/15/12	10/15/12	10/15/12	10/15/12	10/15/12
Dissolved Oxygen	mg/L	0.60	0.90	0.70	1.00	0.90	0.50	1.20	1.20	0.90	Free Product - Not Tested	0.90	1.30	Well Not Found - No Site Access	Well Not Found - No Site Access	Well Not Found - No Site Access	not enough	Free Product - Not Tested
Redox	mV	-93	-80	-78	-20	-71	-113	-155	-76	-115		-100	-22				not enough	
pH	S.U.	6.8	7.3	6.7	7.0	6.8	7.0	7.8	7.3	7.2		6.9	6.9				not enough	
Ferrous Fe	mg/L	2.0	1.6	5.0	2.8	4.0	4.0	4.6	0.0	3.8		4.6	0.0				not enough	
Temperature	^{o}C	12.0	11.9	10.5	14.6	13.5	19.0	15.0	6.5	15.7		12.7	13.3				not enough	

Notes:

mg/l = milligrams per liter
mV = millivolts
S.U. = standard pH unit
Degree C = Degree Celsius
NA = Not Analyzed

TABLE 3
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS
VOLATILE ORGANIC COMPOUNDS
Former D-F Incorporated Property
St. Francis, Wisconsin
Project Reference # 13097

Monitoring Well Identification:		NR 140		SMW-3	SMW-4	SPM-4	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7	MW-8	MW-9	MW-11	MW-12	MW-13	MW-14	MW-15
Parameter	Unit	ES	PAL	Collection Date																
				10/15/12	10/15/12	10/15/12	10/15/12	10/15/12	10/15/12	10/15/12	10/15/12	10/15/12	10/15/12	10/15/12	10/15/12	10/15/12	10/15/12	10/15/12	10/15/12	10/15/12
Benzene	µg/L	5.0	0.5	<250	**(1,2) 5.8 J**	<2500	<0.5	<1000	**(2) 0.91 J**	**(2) 2.22**	**(2) 1.96**	**(1,2) 5.4 J**	Free Product - Not Sampled	<2.5	<0.5	Well Not Found - No Site Access	Well Not Found - No Site Access	Well Not Found - No Site Access	<50	Free Product - Not Sampled
Bromobenzene	µg/L	NS	NS	<370	<7.4	<3700	<0.74	<1480	<0.74	<0.74	<0.74	<7.4		<3.7	<0.74				<74	
Bromodichloromethane	µg/L	0.6	0.06	<340	<6.8	<3400	<0.68	<1360	<0.68	<0.68	<0.68	<6.8		<3.4	<0.68				<68	
Bromoform	µg/L	4.4	0.44	<215	<4.3	<2150	<0.43	<860	<0.43	<0.43	<0.43	<4.3		<2.15	<0.43				<43	
tert-Butylbenzene	µg/L	NS	NS	<355	<7.1	<3550	<0.71	<1420	**1.48 J**	<0.71	<0.71	<7.1		<3.55	<0.71				<71	
sec-Butylbenzene	µg/L	NS	NS	<500	<10	<5000	<1	<2000	<1	<1	<1	<10		**16.9**	<1				<100	
n-Butylbenzene	µg/L	NS	NS	<450	**17.9 J**	<4500	<0.9	<1800	<0.9	<0.9	<0.9	<9		**5.7 J**	<0.9				<90	
Carbon Tetrachloride	µg/L	5.0	0.5	<235	<4.7	<2350	<0.47	<940	<0.47	<0.47	<0.47	<4.7		<2.35	<0.47				<47	
Chlorobenzene	µg/L	100	10	<255	<5.1	<2550	<0.51	<1020	<0.51	**2.8**	<0.51	<5.1		<2.35	<0.51				<51	
Chloroethane	µg/L	400	80	<700	**48**	<7000	<1.4	<2800	**2.93 J**	**27**	<1.4	**(1,2) 400**		**9.8 J**	<1.4				<140	
Chloroform	µg/L	6.0	0.6	<245	<4.9	<2450	<0.49	<980	<0.49	<0.49	<0.49	<4.9		<2.45	<0.49				<49	
Chloromethane	µg/L	30	3.0	<950	<19	<9500	<1.9	<3800	<1.9	<1.9	<1.9	<19		<9.5	<1.9				<190	
2-Chlorotoluene	µg/L	NS	NS	<350	<7	<3500	<0.7	<1400	<0.7	<0.7	<0.7	<7		<3.5	<0.7				<70	
4-Chlorotoluene	µg/L	NS	NS	<220	<4.4	<2200	<0.44	<880	<0.44	<0.44	<0.44	<4.4		<2.2	<0.44				<44	
1,2-Dibromo-3-Chloropropane	µg/L	0.2	0.02	<1400	<28	<14000	<2.8	<5600	<2.8	<2.8	<2.8	<28		<14	<2.8				<280	
Dibromochloromethane	µg/L	60	6.0	<275	<5.5	<2750	<0.55	<1100	<0.55	<0.55	<0.55	<5.5		<2.75	<0.55				<55	
1,4-Dichlorobenzene	µg/L	75	15	<490	<9.8	<4900	<0.98	<1960	<0.98	<0.98	<0.98	<9.8		<4.9	<0.98				<98	
1,3-Dichlorobenzene	µg/L	600	120	<435	<8.7	<4350	<0.87	<1740	<0.87	<0.87	<0.87	<8.7		<4.35	<0.87				<87	
1,2-Dichlorobenzene	µg/L	600	60	<380	<7.6	<3800	<0.76	<1520	<0.76	<0.76	<0.76	<7.6		<3.8	<0.76				<76	
Dichlorodifluoromethane	µg/L	1,000	200	<900	<18	<9000	<1.8	<3600	<1.8	<1.8	<1.8	<18		<9	<1.8				<180	
1,2-Dichloroethane	µg/L	5.0	0.5	**(1,2) 320 J**	**(1,2) 30.1**	<2500	**(1,2) 9.3**	<1000	**(2) 0.55 J**	**(2) 2.31**	**(2) 0.92 J**	<5		<2.5	<0.5				<50	
1,1-Dichloroethane	µg/L	850	85	**(1,2) 1840**	**(2) 116**	**(1,2) 12800 J**	<0.98	**(1,2) 4500 J**	**2.59 J**	**14.1**	**35**	<9.8		**67**	<0.98				<98	
1,1-Dichloroethene	µg/L	7.0	0.7	<300	<6	<3000	<0.6	<1200	<0.6	<0.6	<0.6	<6		<3	<0.6				<60	
cis-1,2-Dichloroethene	µg/L	70	7.0	**(1,2) 31100**	**(1,2) 640**	**(1,2) 283000**	<0.74	**(1,2) 120000**	**6.4**	**1.75 J**	**(2) 30.7**	<7.4		**(2) 21.6**	<0.74				<74	
trans-1,2-Dichloroethene	µg/L	100	20	<395	**16.6 J**	<3950	<0.79	<1580	<0.79	<0.79	<0.79	<7.9		<3.95	<0.79				<79	
1,2-Dichloropropane	µg/L	5.0	0.5	<200	<4	<2000	<0.4	<800	<0.4	<0.4	<0.4	<4		<2	<0.4				<40	
2,2-Dichloropropane	µg/L	NS	NS	<950	<19	<9500	<1.9	<3800	<1.9	<1.9	<1.9	<19		<9.5	<1.9				<190	
1,3-Dichloropropane	µg/L	NS	NS	<355	<7.1	<3550	<0.71	<1420	<0.71	<0.71	<0.71	<7.1		<3.55	<0.71				<71	
Di-isopropyl ether	µg/L	NS	NS	<345	<6.9	<3450	<0.69	<1380	<0.69	<0.69	<0.69	<6.9		<3.45	<0.69				<69	
EDB (1,2-Dibromoethane)	µg/L	0.05	0.005	<315	<6.3	<3150	<0.63	<1260	<0.63	<0.63	<0.63	<6.3		<3.15	<0.63				<63	
Ethylbenzene	µg/L	700	140	**(1,2) 950 J**	**(2) 199**	<3900	<0.78	<1560	<0.78	<0.78	<0.78	<7.8		<3.9	<0.78				<78	
Hexachlorobutadiene	µg/L	NS	NS	<1100	<22	<11000	<2.2	<4400	<2.2	<2.2	<2.2	<22		<11	<2.2				<220	
Isopropylbenzene	µg/L	NS	NS	<460	**15.2 J**	<4600	<0.92	<1840	**1.44 J**	**0.95 J**	<0.92	<9.2		**11.8 J**	<0.92				<92	
p-Isopropyltoluene	µg/L	NS	NS	<460	**12.8 J**	<4600	<0.92	<1840	<0.92	<0.92	<0.92	<9.2		<4.6	<0.92				<92	
Methylene Chloride	µg/L	5.0	0.5	<550	<11	<5500	<1.1	<2200	<1.1	<1.1	<1.1	<11		<5.5	<1.1				<110	
Methyl Tert Butyl Ether (MTBE)	µg/L	60	12	<400	<8	<4000	<0.8	<1600	<0.8	<0.8	<0.8	<8		<4	<0.8				<80	
Naphthalene	µg/L	100	10	<1050	**(1,2) 135**	<10500	<2.1	<4200	<2.1	<2.1	<2.1	<21		<10.5	<2.1				<210	
n-Propylbenzene	µg/L	NS	NS	<295	**22.7**	<2950	<0.59	<1180	<0.59	<0.59	<0.59	<5.9		**9.4 J**	<0.59				<59	
1,1,2,2-Tetrachloroethane	µg/L	0.2	0.02	<265	<5.3	<2650	<0.53	<1060	<0.53	<0.53	<0.53	<5.3		<2.65	<0.53				<53	
1,1,1,2-Tetrachloroethane	µg/L	70	7.0	<500	<10	<5000	<1	<2000	<1	<1	<1	<10		<5	<1				<100	
Tetrachloroethene	µg/L	5.0	0.5	**(1,2) 820**	<4.4	<2200	<0.44	<880	<0.44	<0.44	<0.44	<4.4		<2.2	<0.44				<44	
Toluene	µg/L	800	160	**(1,2) 2500**	**(2) 320**	**(1,2) 19000**	<0.53	**(1,2) 1740 J**	<0.53	<0.53	<0.53	<5.3		<2.65	<0.53				<53	
1,2,4-Trichlorobenzene	µg/L	70	14	<750	<15	<7500	<1.5	<3000	<1.5	<1.5	<1.5	<15		<7.5	<1.5				<150	
1,2,3-Trichlorobenzene	µg/L	NS	NS	<650	<13	<6500	<1.3	<2600	<1.3	<1.3	<1.3	<13		<6.5	<1.3				<130	
1,1,1-Trichloroethane	µg/L	200	40	**(1,2) 6700**	**(2) 77**	**(1,2) 96000**	<0.85	**(1,2) 17900**	<0.85	**1.28 J**	**3.3**	<8.5		<4.25	<0.85				<85	
1,1,2-Trichloroethane	µg/L	5.0	0.5	<235	<4.7	<2350	<0.47	<940	<0.47	<0.47	<0.47	<4.7		<2.35	<0.47				<47	
Trichloroethene (TCE)	µg/L	5.0	0.5	**(1,2) 1600**	**(1,2) 36**	**(1,2) 26000**	<0.47	**(1,2) 1820 J**	<0.47	**(1,2) 6.5**	**(1,2) 35**	<4.7		**(2) 3 J**	<0.47				**(1,2) 102 J**	
Trichlorofluoromethane	µg/L	3,490	698	<850	<17	<8500	<1.7	<3400	<1.7	<1.7	<1.7	<17		<8.5	<1.7				<170	
1,2,4-Trimethylbenzene	µg/L	**	**	**440 J**	**257**	<4000	<0.8	<1600	<0.8	<0.8	<0.8	**13.9 J**		<4	<0.8				<80	
1,3,5-Trimethylbenzene	µg/L	**	**	<370	**76**	<3700	<0.74	<1480	<0.74	<0.74	<0.74	<7.4		<3.7	<0.74				<74	
Total Trimethylbenzenes	µg/L	480	96	**(1,2) 440 J**	**(2) 333**	<4000	<0.8	<1600	<0.8	<0.8	<0.8	**13.9 J**		<4	<0.8				<80	
Vinyl Chloride	µg/L	0.2	0.02	**(1,2) 9700**	**(1,2) 122**	**(1,2) 12600**	**(1,2) 1.27**	**(1,2) 1820**	**(1,2) 35**	**(1,2) 2.73**	**(1,2) 17.5**	**(1,2) 2.2 J**		**(1,2) 160**	<0.18				<18	
Xylenes (total)	µg/L	2,000	400	**(1,2) 4790**	**(2) 1380**	**(1,2) 8800 J**	<1.1	<2200	<1.1	<1.1	<1.1	**92**		<5.5	<1.1				<110	

Notes:
J = analyte detected between Limit of Detection and Limit of Quantitation
µg/L = micrograms per liter (equivalent to parts per billion)
NA = Not Analyzed NS =No Standard
NR 140 ES = Wisconsin Administrative Code, Chapter NR 140 Enforcement Standard
NR 140 PAL = Wisconsin Administrative Code, Chapter NR 140 Preventive Action Limit
Exceedances: **BOLD** = detected compound
(1) = concentration exceeds Chapter NR 140 ES
(2) = concentration exceeds Chapter NR 140 PAL

FIGURES

EAST NORWICH AVE.

4' DRAINAGE DITCH
UNDERGROUND
AT BREAKLINE

MW-4

MW-5

MW-9

CONC. WALK

S. PENNSYLVANIA AVE.

MW-6

SGP-6

BRICK, METAL & FRAME
BUILDING

MW-1

MW-3

MW-7

SGP-5

SHEET METAL BLDG.

FRAME BUILDING
(Razed)

MW-2

MW-8

MW-15

SMW-4

SPM-4

SGP-1

SMW-3

SGP-2

MW-14

N

0 40 ft.

LEGEND

- Geoprobe Soil Boring
- Monitoring Well
- Piezometer

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Single Source. Sound Solutions.

SOIL BORING, MONITORING WELL, & PIEZOMETER LOCATION MAP

2517 EAST NORWICH
ST. FRANCIS, WISCONSIN

FIGURE
1

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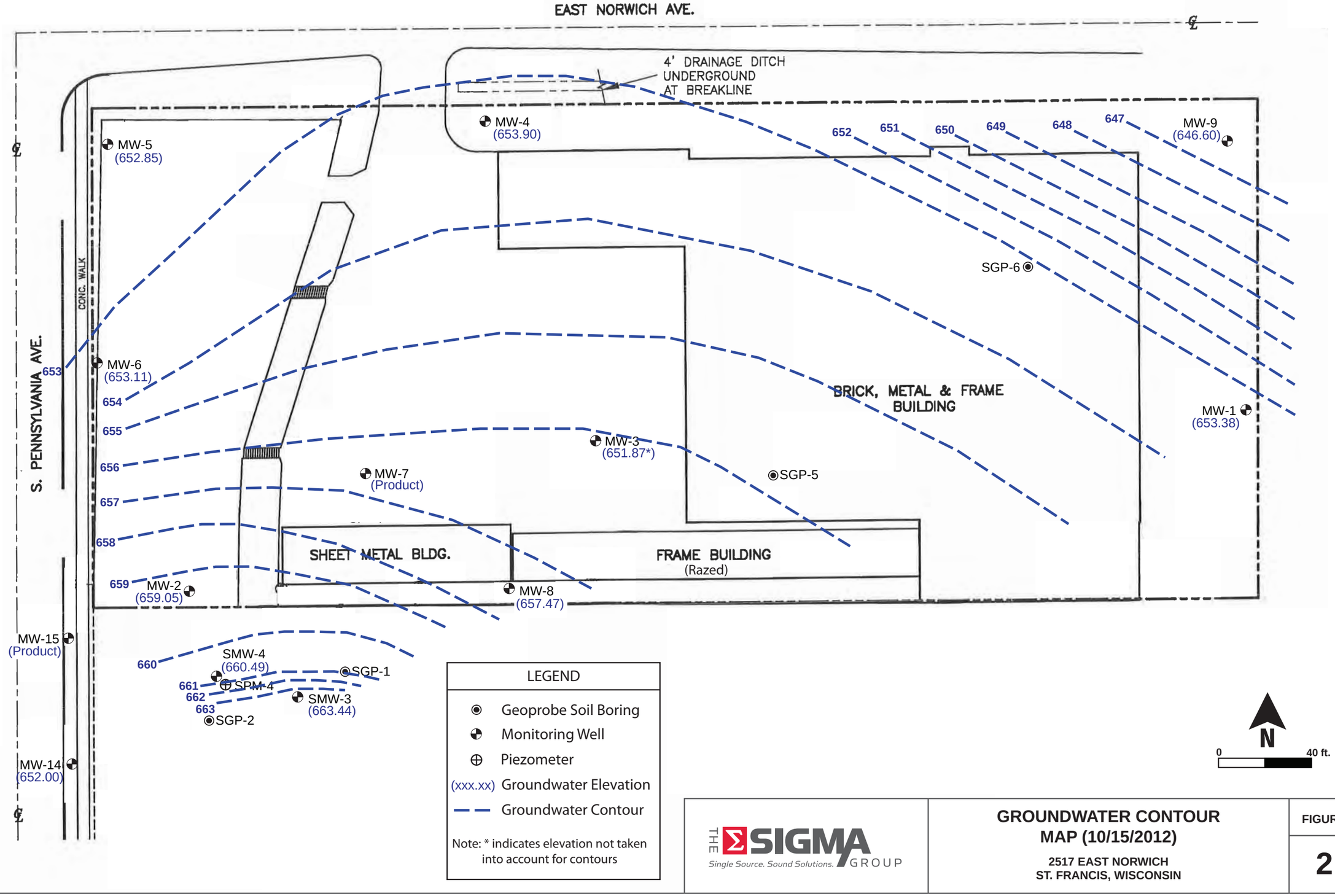

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GROUNDWATER CONTOUR MAP (10/15/2012)

2517 EAST NORWICH
ST. FRANCIS, WISCONSIN

FIGURE
2

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