

December 27, 2013

Project Reference #14411

Mr. Gerald L DeMers, P.E.
Engineer
Wisconsin Dept. of Natural Resources
2300 N. Martin Luther King Drive
Milwaukee, WI 53212

RE.: Village of Whitefish Bay Landfill
License Number 356
5201 W. Good Hope Road
Milwaukee, WI 53223

Dear Mr. DeMers:

In response to the letter from the Wisconsin Department of Natural Resources (WDNR) to Mr. Daniel Naze, Village of Whitefish Bay, dated October 28, 2013, the Village of Whitefish Bay retained The Sigma Group, Inc. (Sigma) to implement the activities listed in the WDNR letter. The following is a summary of activities completed to date and a scope of activities proposed for the site as requested by the WDNR.

ACTIVITIES COMPLETED

In accordance with the WDNR request, all wells and piezometers located on the Good Hope Road Landfill property (**Figure 1**) as well as wells located at downgradient locations south of the landfill (**Figure 2**) were inspected during the week of December 2, 2013. A total of 37 wells and piezometers are associated with the landfill project site (18 of which are located on the landfill property, 11 of which are located on the MPS property and eight on the residential subdivision and Graceland Cemetery). The location of each well was inspected based on the site map, re-labeled to identify the well designation in accordance with the WDNR letter, and assessed for damage by measuring the depth of water and well depth. Based on the in-field inspection, the majority of the sampling well locations were found to be in good condition for future monitoring activities with the exception of the following locations:

MW-B (Plugged w/debris/damaged)
PZ-B (Plugged w/debris/damaged)

W-MW-5S (Could Not Locate)
MPS: MW-1 (Could Not Locate)
MPS: P-1 (Could Not Locate)

The damaged wells will be properly abandoned during the upcoming groundwater monitoring activities. The need for replacement of the damaged and lost wells will be evaluated following the first round of groundwater monitoring scheduled in December 2013.

SCOPE OF PROPOSED ACTIVITIES

In response to the October 28, 2013 WDNR letter, the following activities are proposed to assess the current landfill cap, evaluate current subsurface groundwater quality conditions, and further define subsurface soil conditions in an impacted area at the site.

- **Review of Landfill Cap** – Sigma has reviewed available information from the Village of Whitefish Bay regarding the closure of the Good Hope Landfill in 1972. Based on an initial review of the documents a clean soil cover was reportedly placed over the entire landfill property sometime in 1980. Additional WDNR file review activities would be prudent as well as requesting relevant information from the former village consultant (STS Consultant, currently AECOM) to fully assess areas of fill and cover thickness. Methods of further evaluation of the landfill cap thickness will be discussed with Village staff as more information is accumulated.
- **Groundwater Monitoring** – Following the monitoring wells identification, Sigma will initiate groundwater monitoring activities the week of December 16, 2013. The groundwater monitoring will include a measurement of water level and in situ field parameters (DO, REDOX, pH, conductivity and temperature) to assess the groundwater conditions. The wells will then be purged and sampled for laboratory analysis. All groundwater samples collected from on- and off-site wells will be preserved and submitted to a Wisconsin certified laboratory for analysis of VOCs and select parameters listed in the WDNR letter. In accordance with the WDNR letter two rounds of sampling will be performed.
- **Source Area Delineation** – An area of high soil impact has been identified near the southwest corner of the property. This area likely functions as a source of chlorinated volatile organic compounds to the local groundwater system. Sigma has reviewed the historical soil and groundwater quality data and developed a plan to perform additional soil borings to more precisely evaluate the degree and extent of the soil impacts. The data gathered during the source area investigation will be used to evaluate potential remedial options for the site.

Sigma's plan includes the installation of 36 Geoprobe soil borings near the southwestern quadrant of the property. Each Geoprobe boring will be extended to a depth of 15 feet and sampled continuously to perform field screening and determine the lithology of the subsurface materials. A Photoionization Detector (PID) will be used to scan each sample for the presence of volatile organic compounds. One to two samples from each boring location will be preserved for further laboratory analysis based on the PID screening. The selected samples will be preserved and shipped to the project laboratory for VOC analysis. Following completion of the Geoprobe drilling the borings will be properly abandoned and locations surveyed to update the source area map. The proposed Geoprobe locations are depicted on **Figure 3**.

- **Data Analysis and Reporting** – Both the soil and groundwater data will be compiled and tabulated for WDNR submittal. A thorough evaluation will be performed to assess the current subsurface groundwater quality conditions and delineation of the soil source area near the southwest corner of the property.

Mr. Gerald L. DeMers /WDNR
Village of Whitefish Bay Landfill
December 27, 2013
Page 3

SCHEDULE

The first round of groundwater monitoring from the accessible wells is scheduled for the week of December 16, 2013. The laboratory analytical results are expected within four to six weeks of the completion of the monitoring activities. The first round of groundwater sampling data will be provided to the WDNR by March 31, 2014. The second round of groundwater monitoring activities is scheduled to be performed in March of 2014. The source area soil investigation is tentatively scheduled to be completed in February, 2014 pending reasonable site access. The results of the soil investigation are expected within four to six weeks of the completion of the field work. A report summarizing the groundwater monitoring activities and source area soil investigation will be submitted to the WDNR by July 31, 2014. Information regarding the landfill cap thickness will be provided as it becomes available.

Please do not hesitate to contact either of the undersigned at 414-643-4200 if you have any questions.

Sincerely,

THE SIGMA GROUP, INC.


Mafizul Islam, P.E.
Senior Project Engineer


Randy E. Boness, P.G.
Geoscience Group Manager

cc: Patrick DeGrave / Village of Whitefish Bay
Daniel Naze / Village of Whitefish Bay

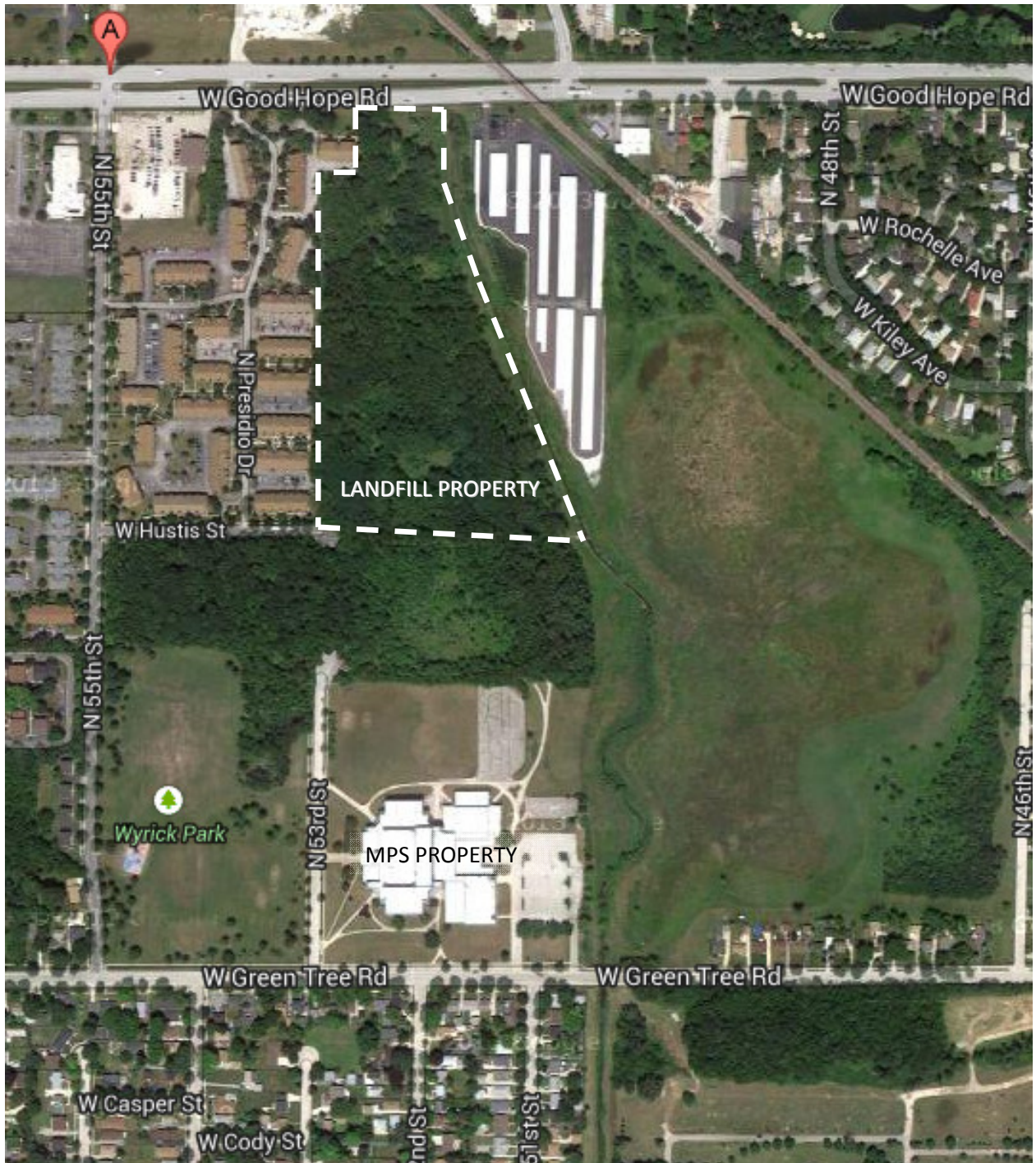





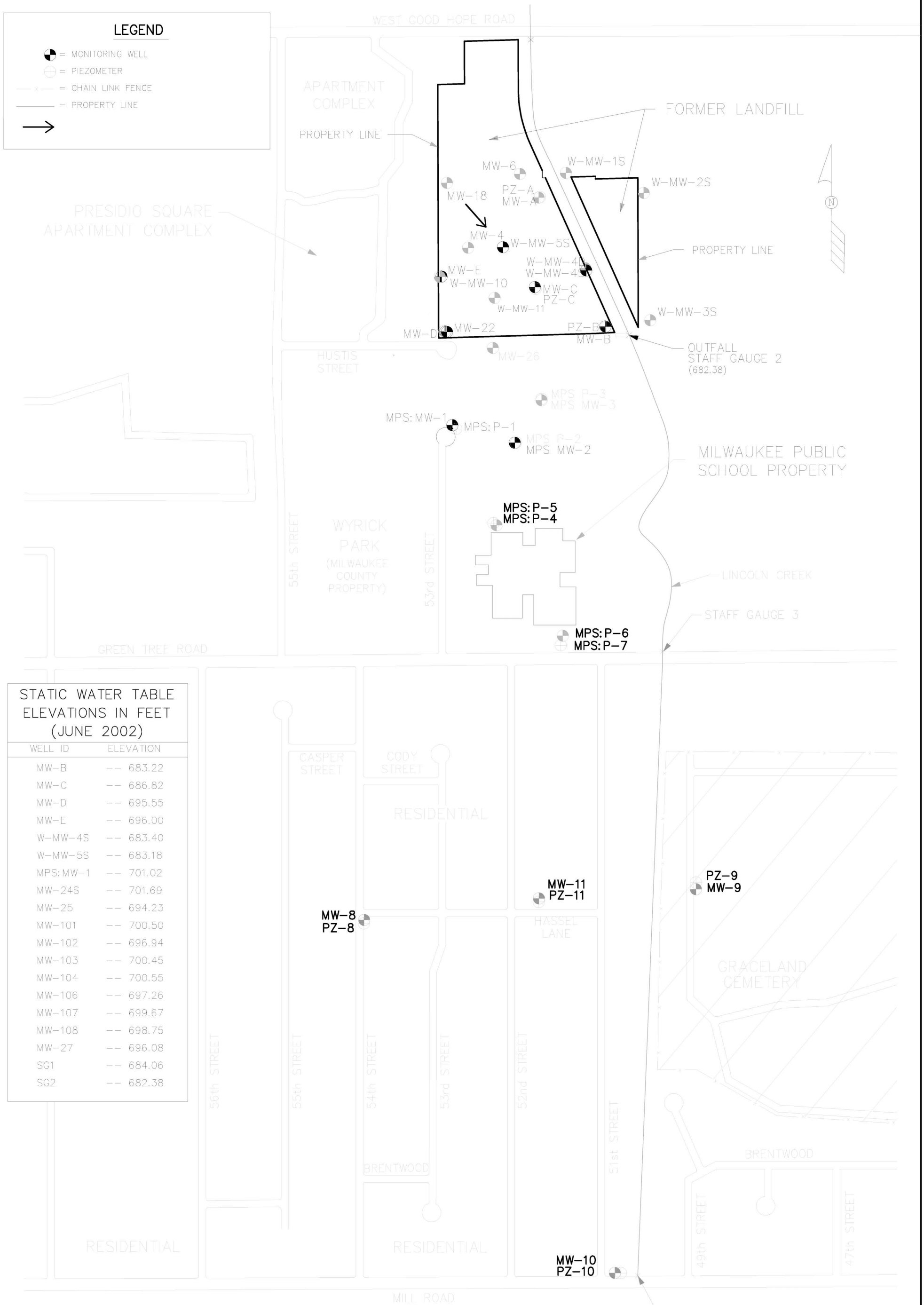


FIGURE 1
WEST GOOD HOPE ROAD PROPERTY AND THE VICINITY
5201 WEST GOOD HOPE ROAD
MILWAUKEE, WISCONSIN

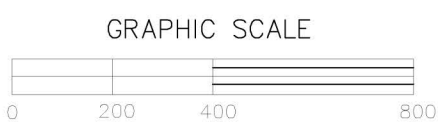
LEGEND

-  = MONITORING WELL
-  = PIEZOMETER
-  = CHAIN LINK FENCE
-  = PROPERTY LINE
- 




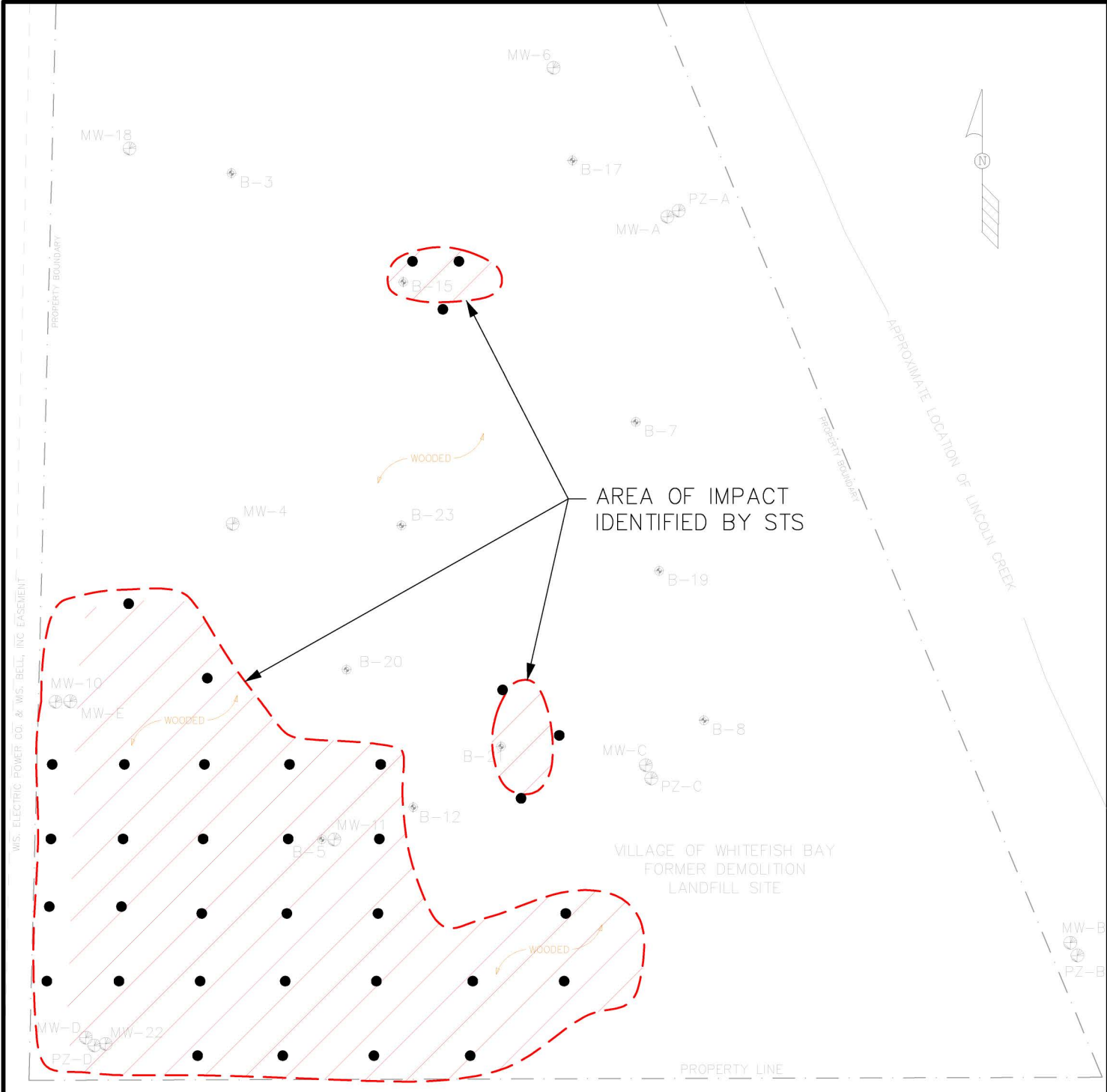
STATIC WATER TABLE ELEVATIONS IN FEET (JUNE 2002)

WELL ID	ELEVATION
MW-B	-- 683.22
MW-C	-- 686.82
MW-D	-- 695.55
MW-E	-- 696.00
W-MW-4S	-- 683.40
W-MW-5S	-- 683.18
MPS: MW-1	-- 701.02
MW-24S	-- 701.69
MW-25	-- 694.23
MW-101	-- 700.50
MW-102	-- 696.94
MW-103	-- 700.45
MW-104	-- 700.55
MW-106	-- 697.26
MW-107	-- 699.67
MW-108	-- 698.75
MW-27	-- 696.08
SG1	-- 684.06
SG2	-- 682.38



- NOTES:**
1. BOUNDARIES ARE APPROXIMATE.
 2. THIS MAP WAS DEVELOPED FROM A MILWAUKEE COUNTY MAP, THIENSVILLE QUADRANGLE TOPOGRAPHIC MAP, AND SURVEY DATA.

VILLAGE OF WHITEFISH BAY MILWAUKEE, WI			 ENVIRONMENTAL SERVICES INC.
DATE: 8-30-02	DR. BY: BEB	DR.# 3125-064	SCALE: 1" = 400'
GROUNDWATER MONITORING WELL NETWORK			FIGURE 2



AREA OF IMPACT IDENTIFIED BY STS

VILLAGE OF WHITEFISH BAY
FORMER DEMOLITION
LANDFILL SITE

MILWAUKEE
PUBLIC SCHOOL
PROPERTY

LEGEND	
●	PROPOSED SOIL BORINGS
B-⊕	SOIL BORINGS (INSTALLED BY STS MAY/1992)
MW/PZ-⊕	EXISTING MONITORING WELL/PIEZOMETER

NOTE:
DIMENSIONS DEPICTED ON MAP ARE FOR REFERENCE
ONLY - SITE HAS NOT BEEN SURVEYED.

WEST HUSTIS STREET

GRAPHIC SCALE



VILLAGE OF WHITEFISH BAY GOOD HOPE ROAD LANDFILL MILWAUKEE, WISCONSIN			
DATE: 10-18-02	REVISED BY: MI	DR.# 3125-062	SCALE: 1" = 100'
PROPOSED SOIL BORING LOCATIONS FOR SOURCE AREA DELINEATION			FIGURE 3