

GIS REGISTRY

Cover Sheet

March, 2010
(RR 5367)

Source Property Information

BRRTS #:

02-60-449752

ACTIVITY NAME:

Sheboygan Lakefront - Bulge Property

PROPERTY ADDRESS:

E of Fisherman's Rd

MUNICIPALITY:

City of Sheboygan

PARCEL ID #:

59281300040

CLOSURE DATE: May 17, 2010

FID #:

460195890

DATCP #:

COMM #:

*WTM COORDINATES:

X: 704754

Y: 366165

** Coordinates are in
WTM83, NAD83 (1991)*

WTM COORDINATES REPRESENT:

Approximate Center Of Contaminant Source

Approximate Source Parcel Center

Please check as appropriate: (BRRTS Action Code)

Contaminated Media:

Groundwater Contamination > ES (236)

Contamination in ROW

Off-Source Contamination

*(note: for list of off-source properties
see "Impacted Off-Source Property" form)*

Soil Contamination > *RCL or **SSRCL (232)

Contamination in ROW

Off-Source Contamination

*(note: for list of off-source properties
see "Impacted Off-Source Property" form)*

Land Use Controls:

N/A (Not Applicable)

Soil: maintain industrial zoning (220)

*(note: soil contamination concentrations
between non-industrial and industrial levels)*

Structural Impediment (224)

Site Specific Condition (228)

Cover or Barrier (222)

*(note: maintenance plan for
groundwater or direct contact)*

Vapor Mitigation (226)

Maintain Liability Exemption (230)

*(note: local government unit or economic
development corporation was directed to
take a response action)*

Monitoring Wells:

Are all monitoring wells properly abandoned per NR 141? (234)

Yes No N/A

** Residual Contaminant Level*

***Site Specific Residual Contaminant Level*

This Adobe Fillable form is intended to provide a list of information that is required for evaluation for case closure. It is to be used in conjunction with Form 4400-202, Case Closure Request. The closure of a case means that the Department has determined that no further response is required at that time based on the information that has been submitted to the Department.

NOTICE: Completion of this form is mandatory for applications for case closure pursuant to ch. 292, Wis. Stats. and ch. NR 726, Wis. Adm. Code, including cases closed under ch. NR 746 and ch. NR 726. The Department will not consider, or act upon your application, unless all applicable sections are completed on this form and the closure fee and any other applicable fees, required under ch. NR 749, Wis. Adm. Code, Table 1 are included. It is not the Department's intention to use any personally identifiable information from this form for any purpose other than reviewing closure requests and determining the need for additional response action. The Department may provide this information to requesters as required by Wisconsin's Open Records law [ss. 19.31 - 19.39, Wis. Stats.].

BRRTS #: PARCEL ID #:
ACTIVITY NAME: WTM COORDINATES: X: Y:

CLOSURE DOCUMENTS (the Department adds these items to the final GIS packet for posting on the Registry)

- Closure Letter**
- Maintenance Plan** (if activity is closed with a land use limitation or condition (land use control) under s. 292.12, Wis. Stats.)
- Continuing Obligation Cover Letter** (for property owners affected by residual contamination and/or continuing obligations)
- Conditional Closure Letter**
- Certificate of Completion (COC)** (for VPLE sites)

SOURCE LEGAL DOCUMENTS

- Deed:** The most recent deed as well as legal descriptions, for the **Source Property** (where the contamination originated). Deeds for other, off-source (off-site) properties are located in the **Notification** section.
Note: If a property has been purchased with a land contract and the purchaser has not yet received a deed, a copy of the land contract which includes the legal description shall be submitted instead of the most recent deed. If the property has been inherited, written documentation of the property transfer should be submitted along with the most recent deed.
- Certified Survey Map:** A copy of the certified survey map or the relevant section of the recorded plat map for those properties where the legal description in the most recent deed refers to a certified survey map or a recorded plat map. (lots on subdivided or platted property (e.g. lot 2 of xyz subdivision)).
Figure #: **Title:**
- Signed Statement:** A statement signed by the Responsible Party (RP), which states that he or she believes that the attached legal description accurately describes the correct contaminated property.

MAPS (meeting the visual aid requirements of s. NR 716.15(2)(h))

Maps must be no larger than 11 x 17 inches unless the map is submitted electronically.

- Location Map:** A map outlining all properties within the contaminated site boundaries on a U.S.G.S. topographic map or plat map in sufficient detail to permit easy location of all parcels. If groundwater standards are exceeded, include the location of all potable wells within 1200 feet of the site.
Note: Due to security reasons municipal wells are not identified on GIS Packet maps. However, the locations of these municipal wells must be identified on Case Closure Request maps.
Figure #: 1 **Title: Site Location Map**
- Detailed Site Map:** A map that shows all relevant features (buildings, roads, individual property boundaries, contaminant sources, utility lines, monitoring wells and potable wells) within the contaminated area. This map is to show the location of all contaminated public streets, and highway and railroad rights-of-way in relation to the source property and in relation to the boundaries of groundwater contamination exceeding a ch. NR 140 Enforcement Standard (ES), and/or in relation to the boundaries of soil contamination exceeding a Residual Contaminant Level (RCL) or a Site Specific Residual Contaminant Levels (SSRCL) as determined under s. NR 720.09, 720.11 and 720.19.
Figure #: 2 **Title: Site Plan**
- Soil Contamination Contour Map:** For sites closing with residual soil contamination, this map is to show the location of all contaminated soil and a single contour showing the horizontal extent of each area of contiguous residual soil contamination that exceeds a Residual Contaminant Level (RCL) or a Site Specific Residual Contaminant Level (SSRCL) as determined under s. NR 720.09, 720.11 and 720.19.
Figure #: **Title:**

BRRTS #: 02-60-449752

ACTIVITY NAME: Sheboygan Lakefront - Bulge Property

MAPS (continued)

- Geologic Cross-Section Map:** A map showing the source location and vertical extent of residual soil contamination exceeding a Residual Contaminant Level (RCL) or a Site Specific Residual Contaminant Level (SSRCL). If groundwater contamination exceeds a ch. NR 140 Enforcement Standard (ES) when closure is requested, show the source location and vertical extent, water table and piezometric elevations, and locations and elevations of geologic units, bedrock and confining units, if any.

Figure #: 2 **Title: Proposed Topography & Cross Section Location Map**

Figure #: 3 **Title: Cross Section A-A' and Typical Details**

- Groundwater Isoconcentration Map:** For sites closing with residual groundwater contamination, this map shows the horizontal extent of all groundwater contamination exceeding a ch. NR140 Preventive Action Limit (PAL) and an Enforcement Standard (ES). Indicate the direction and date of groundwater flow, based on the most recent sampling data.

Note: This is intended to show the total area of contaminated groundwater.

Figure #: 4 **Title: Groundwater Quality Map**

- Groundwater Flow Direction Map:** A map that represents groundwater movement at the site. If the flow direction varies by more than 20° over the history of the site, submit 2 groundwater flow maps showing the maximum variation in flow direction.

Figure #: 7 **Title: Groundwater Contour Map (May 2003)**

Figure #: **Title:**

TABLES (meeting the requirements of s. NR 716.15(2)(h)(3))

Tables must be no larger than 11 x 17 inches unless the table is submitted electronically. Tables must not contain shading and/or cross-hatching. The use of **BOLD** or *ITALICS* is acceptable.

- Soil Analytical Table:** A table showing remaining soil contamination with analytical results and collection dates.
Note: This is one table of results for the contaminants of concern. Contaminants of concern are those that were found during the site investigation, that remain after remediation. It may be necessary to create a new table to meet this requirement.

Table #: 1, 4 **Title: '92-'96 Soil Sampling Summary, Subsurface Soil Analytical Results**

- Groundwater Analytical Table:** Table(s) that show the most recent analytical results and collection dates, for all monitoring wells and any potable wells for which samples have been collected.

Table #: 2 **Title: Groundwater Quality Results - Detected Compounds**

- Water Level Elevations:** Table(s) that show the previous four (at minimum) water level elevation measurements/dates from all monitoring wells. If present, free product is to be noted on the table.

Table #: 1 **Title: Static Water Level Measurements**

IMPROPERLY ABANDONED MONITORING WELLS

For each monitoring well not properly abandoned according to requirements of s. NR 141.25 include the following documents.

Note: If the site is being listed on the GIS Registry for only an improperly abandoned monitoring well you will only need to submit the documents in this section for the GIS Registry Packet.

- Not Applicable**

- Site Location Map:** A map showing all surveyed monitoring wells with specific identification of the monitoring wells which have not been properly abandoned.

Note: If the applicable monitoring wells are distinctly identified on the Detailed Site Map this Site Location Map is not needed.

Figure #: 2 **Title: Site Plan Map**

- Well Construction Report:** Form 4440-113A for the applicable monitoring wells.

- Deed:** The most recent deed as well as legal descriptions for each property where a monitoring well was not properly abandoned.

- Notification Letter:** Copy of the notification letter to the affected property owner(s).

BRRTS #: 02-60-449752

ACTIVITY NAME: Sheboygan Lakefront - Bulge Property

NOTIFICATIONS

Source Property

Not Applicable

Letter To Current Source Property Owner: If the source property is owned by someone other than the person who is applying for case closure, include a copy of the letter notifying the current owner of the source property that case closure has been requested.

Return Receipt/Signature Confirmation: Written proof of date on which confirmation was received for notifying current source property owner.

Off-Source Property

Group the following information per individual property and label each group according to alphabetic listing on the "Impacted Off-Source Property" attachment.

Not Applicable

Letter To "Off-Source" Property Owners: Copies of all letters sent by the Responsible Party (RP) to owners of properties with groundwater exceeding an Enforcement Standard (ES), and to owners of properties that will be affected by a land use control under s. 292.12, Wis. Stats.

Note: Letters sent to off-source properties regarding residual contamination must contain standard provisions in Appendix A of ch. NR 726.

Number of "Off-Source" Letters:

Return Receipt/Signature Confirmation: Written proof of date on which confirmation was received for notifying any off-source property owner.

Deed of "Off-Source" Property: The most recent deed(s) as well as legal descriptions, for all affected deeded **off-source property(ies)**. This does not apply to right-of-ways.

Note: If a property has been purchased with a land contract and the purchaser has not yet received a deed, a copy of the land contract which includes the legal description shall be submitted instead of the most recent deed. If the property has been inherited, written documentation of the property transfer should be submitted along with the most recent deed.

Letter To "Governmental Unit/Right-Of-Way" Owners: Copies of all letters sent by the Responsible Party (RP) to a city, village, municipality, state agency or any other entity responsible for maintenance of a public street, highway, or railroad right-of-way, within or partially within the contaminated area, for contamination exceeding a groundwater Enforcement Standard (ES) and/or soil exceeding a Residual Contaminant Level (RCL) or a Site Specific Residual Contaminant Level (SSRCL).

Number of "Governmental Unit/Right-Of-Way Owner" Letters:



State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Jim Doyle, Governor
Matthew J. Frank, Secretary
Ronald W. Kazmierczak, Regional Director

Oshkosh Service Center
625 East County Road Y
Suite 700
Oshkosh, Wisconsin 54901-9731
FAX 920-424-4404

May 17, 2010

CHAD PELISHEK
REDEVELOPMENT AUTHORITY
CITY OF SHEBOYGAN
828 CENTER AVENUE SUITE 104
SHEBOYGAN WI 53081

SUBJECT: Final Case Closure for Sheboygan Lakeshore – Bulge Property located at East of former Fisherman's Road, Sheboygan, WI
WDNR BRRTS Activity #: 02-60-449752

Dear Mr. Pelishek:

On May 17, 2010, the Department of Natural Resources (DNR) reviewed your request for closure of the case described above. The DNR reviews environmental remediation cases for compliance with state rules and statutes to maintain consistency in the closure of these cases.

On May 17, 2010 the Department received information or documentation indicating that you have complied with the requirements for final closure. The property known as "The Bulge" is currently a community park, and has been adequately capped to provide protection of soil and groundwater in the area.

Based on the correspondence and data provided, it appears that your case meets the closure requirements in ch. NR 726, Wisconsin Administrative Code. The Department considers this case closed and no further investigation or remediation is required at this time.

Please be aware that this case may be reopened pursuant to s. NR 726.09, Wisconsin Administrative Code, if additional information regarding site conditions indicates that contamination on or from the site poses a threat to public health, safety or welfare, or the environment.

GIS Registry

The conditions of case closure set out below in this letter require that this site be listed on the Remediation and Redevelopment Program's GIS Registry. The specific reasons are summarized below:

- Residual soil contamination exists that must be properly managed should it be excavated or removed
- Groundwater contamination is present above Chapter NR 140 enforcement standards

- One or more monitoring wells were not located and must be properly abandoned if found

This letter and information that was submitted with your closure request application will be included on the GIS Registry. To review the sites on the GIS Registry web page, visit the RR Sites Map page at: <http://dnr.wi.gov/org/aw/rr/gis/index.htm>. If the property is listed on the GIS Registry because of remaining contamination and you intend to construct or reconstruct a well, you will need prior Department approval in accordance with s. NR 812.09(4)(w), Wis. Adm. Code. To obtain approval, Form 3300-254 needs to be completed and submitted to the DNR Drinking and Groundwater program's regional water supply specialist. This form can be obtained on-line <http://dnr.wi.gov/org/water/dwg/3300254.pdf> or at the web address listed above for the GIS Registry.

The Department appreciates your efforts to restore the environment at this site. If you have any questions regarding this closure decision or anything outlined in this letter, please contact me at (920) 424-0399.

Sincerely,



Kathleen M. Sylvester, Hydrogeologist
Remediation & Redevelopment Program

cc: Case File – OSH
Adam Roder – Sigma (via email)
Paulette Enders – City of Sheboygan (via email)

**CAP MAINTENANCE PLAN
HARBOR CENTRE SOUTH PIER DISTRICT
SHEBOYGAN LAKEFRONT – BULGE PROPERTY
EAST OF FORMER FISHERMAN’S ROAD, SHEGOYGAN, WISCONSIN 53081
BRRTS #02-60-449752
FID #460195890
MARCH 2010**

The former Bulge Property, which was a narrow strip of shoreline between the former Fisherman’s Road and Lake Michigan (refer to attached “Site Conditions Prior to 2003/2004 Redevelopment” figure), was developed under the direction of the Redevelopment Authority of the City of Sheboygan in conjunction with former C. Reiss Coal Company Property #1 (referred to as 1011 S. 8th Street; BRRTS #06-60-202664). The former Bulge Property was improved with a buried limestone riprap revetment (south portion), an exposed limestone riprap revetment (north portion), a portion of an asphalt parking lot/drive area (north portion), grass-vegetated green space (north portion), dune grass-vegetated sand dunes (central and south portions), a restored sand beach (central and south portions), a concrete and asphalt path, and a corded boardwalk loop.

These site improvements that serve as engineered barriers are depicted on the enclosed “Engineered Barrier Map for Former Bulge Property” and cannot be disturbed without prior approval from the Wisconsin Department of Natural Resources (WDNR). The normal operation of the engineered barriers will serve as a physical barrier between underlying soil and typical, non-invasive users of the site. The engineered barriers are expected to function as intended unless disturbed.

Disturbance Management

The City of Sheboygan and any subsequent property owner will take the following steps to assure that uncontrolled disturbances of the engineered barrier do not occur:

- The WDNR’s case closure documents and/or Geographic Information System (GIS) Registry will establish any future land use, development, and management restrictions for the site. This Cap Maintenance Plan will be incorporated into the case closure documents and/or GIS Registry, which will together identify the environmental impacts, the nature of the engineered barriers, and the requirements regarding the management of impacted soils.
- A copy of this Cap Maintenance Plan will be available from the City of Sheboygan (and any subsequent property owner) to all interested parties.
- A copy of this Cap Maintenance Plan will be provided to all utility companies seeking easements for the purpose of installing utilities at the site.
- A copy of this Cap Maintenance Plan will be provided to all contractors and repair workers, including utility and landscaping services, for construction and repair activities that may disturb the subsurface soil.

Inspections of Engineered Barriers

Inspections will be performed by the City of Sheboygan or its agents to assure that the engineered barriers are functioning as planned:

- Inspections of the engineered barriers will be performed on an approximately annual basis for all accessible areas. Inspections should be completed when the ground surface is readily visible and free of visual impediments (e.g., snow, parking lots completely filled with parked vehicles, etc.).
- As necessary, the engineered barriers will be repaired to maintain integrity. Repairs may include, but are not limited to, the following:
 - Patching, sealing, or replacing asphalt and concrete pavements or sidewalks where it has cracked or otherwise broken to expose underlying soil;
 - Filling low spots in greenspace areas with clean topsoil and stabilizing the area with vegetation to match the surrounding ground cover; and
 - Filling abnormally low spots in the sand dunes with clean sand and stabilizing the area with dune grass. Low spots in the dune may develop due to the shifting nature of dune sand, but they shall be monitored to ensure that underlying soil does not become exposed.
- An inspection log will be maintained to record any disturbances of the engineered barriers and the steps that have been taken to maintain the integrity of the engineered barriers. The inspection log will be made available for inspection by representatives of the WDNR upon reasonable prior request. The on-site inspection log will be maintained by the City of Sheboygan and any subsequent property owner as long as inspection and maintenance of the engineered barriers are required. An example inspection log page is included with this Cap Maintenance Plan.

Planned Breaches of Engineered Barriers

In the event an engineered barrier is breached, the following precautions shall be taken:

- The excavation zone and any soils excavated will be secured from public access until the engineered barrier is restored.
- The City of Sheboygan (or subsequent property owner) will make soil data available to workers who will penetrate the engineered barrier to allow for appropriate health and safety planning.
- All material excavated from beneath an engineered barrier will be returned to the excavation prior to the restoration of the engineered barrier. While on-site, the excavated soil will be placed on an impervious surface (e.g., asphalt pavement, concrete pavement, or plastic) and covered with plastic. Excess soil that cannot be returned to the excavation will be sampled and disposed of at a licensed landfill facility in accordance with applicable solid and/or hazardous waste rules and regulations.

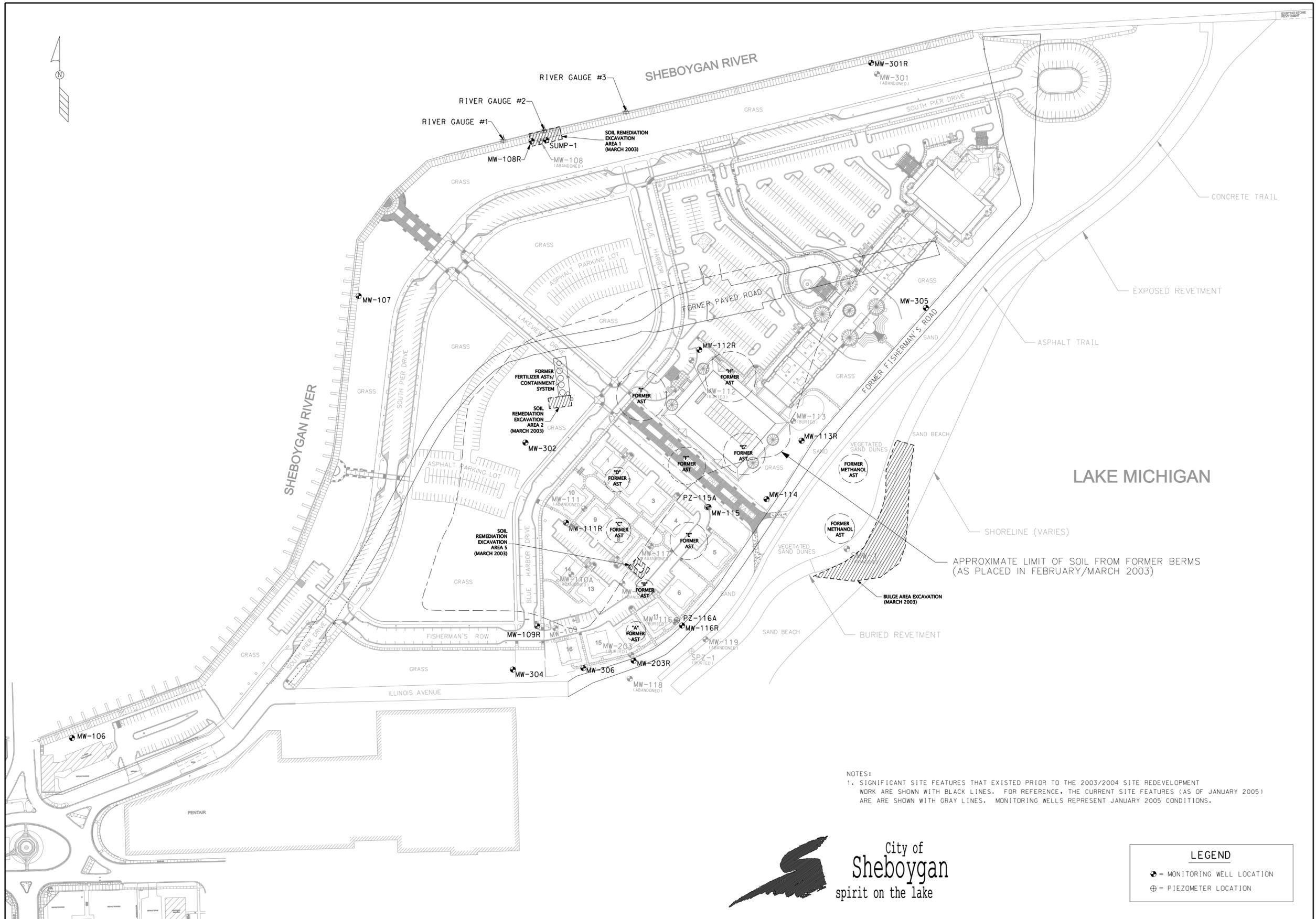
- The engineered barrier will be restored in accordance with the “Material Handling & Engineered Barrier Plan...” dated May 19, 2003 (as approved by the Wisconsin Department of Natural Resources on May 21, 2003) and as summarized within this Cap Maintenance Plan to meet original conditions as soon as possible.
- Details of the engineered barrier breach, the handling of excavated soils, individuals responsible for the work, and the restoration of the engineered barrier shall be recorded in the engineered barrier maintenance log.

Amendments

The Cap Maintenance Plan may be amended or withdrawn upon written approval from the WDNR or its successor agency.

Contact Information

- For responsible party and owner information contact:
 Redevelopment Authority of the City of Sheboygan
 c/o Department of City Development
 828 Center Avenue, Suite 104
 Sheboygan, WI 53081
 Telephone: (920) 459-3379
 Contact: Ms. Paulette Enders, Director of Planning and Development
- For environmental consultant information contact:
 Sigma Environmental Services, Inc.
 1300 West Canal Street
 Milwaukee, WI 53233
 Telephone: (414) 643-4200
 Contact: Mr. Adam Roder, P.E.
- For Wisconsin Department of Natural Resources information contact:
 Wisconsin Department of Natural Resources
 Plymouth Service Center
 11555 Pilgrim Parkway
 Plymouth, WI 53073
 Telephone: (920) 892-8756 x 3025
 Contact: Ms. Nancy Ryan



NOTES:
 1. SIGNIFICANT SITE FEATURES THAT EXISTED PRIOR TO THE 2003/2004 SITE REDEVELOPMENT WORK ARE SHOWN WITH BLACK LINES. FOR REFERENCE, THE CURRENT SITE FEATURES (AS OF JANUARY 2005) ARE SHOWN WITH GRAY LINES. MONITORING WELLS REPRESENT JANUARY 2005 CONDITIONS.



LEGEND	
⊕	= MONITORING WELL LOCATION
⊕	= PIEZOMETER LOCATION

SIGMA
 ENVIRONMENTAL SERVICES INC.
 1300 W. CANAL STREET
 MILWAUKEE, WISCONSIN 53233
 PHONE : (414) 643-4200
 1-800-732-4671

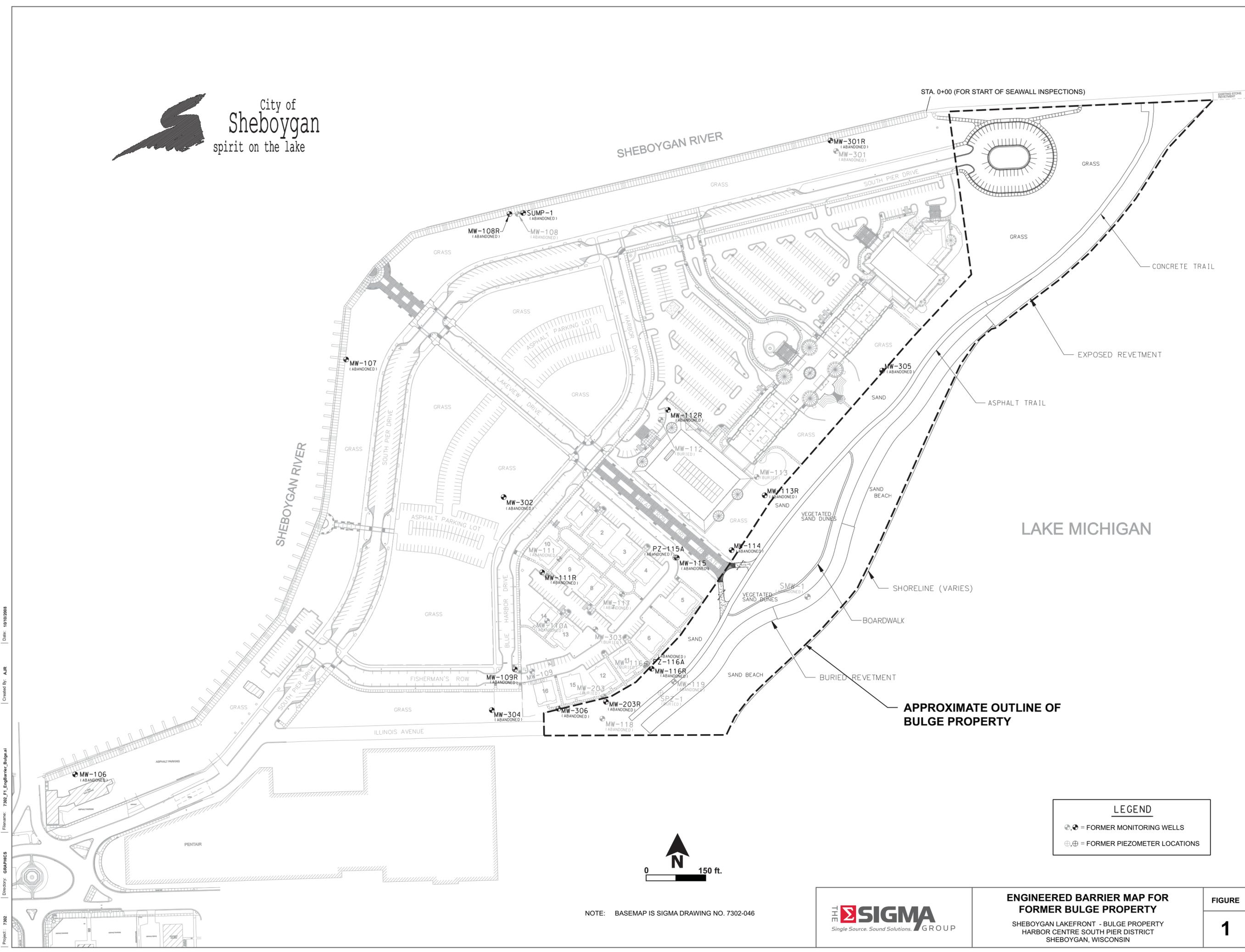
SCALE - 1" = 150' - 0"
 0' 75' 150' 225' 300'

NO	DATE	REVISIONS	BY	APVD

NAME:	DATE:
DRAWN BY: BEB	1-18-05
DESIGNED BY:	
CHECKED BY:	
APPROVED BY:	

**HARBOR CENTRE SOUTH PIER DISTRICT
 SHEBOYGAN, WISCONSIN
 SITE CONDITIONS PRIOR TO 2003/2004 REDEVELOPMENT**

DRAWING NUMBER
 7302-039
 FIGURE 3



Project: 7302
 Directory: GRAPHSICS
 Filename: 7302_P1_EngBarrier_Bulge.apr
 Created By: AJR
 Date: 10/10/2008

NOTE: BASEMAP IS SIGMA DRAWING NO. 7302-046



**ENGINEERED BARRIER MAP FOR
 FORMER BULGE PROPERTY**
 SHEBOYGAN LAKEFRONT - BULGE PROPERTY
 HARBOR CENTRE SOUTH PIER DISTRICT
 SHEBOYGAN, WISCONSIN

LEGEND	
	= FORMER MONITORING WELLS
	= FORMER PIEZOMETER LOCATIONS

FIGURE
1

Form of No. 12

VOL 919 PAGE 720

1078249

This Indenture, Made this 29th day of June A.D. 1982

between The C. Reiss Coal Company a Corporation duly organized

and existing under and by virtue of the laws of the State of Wisconsin, located at Sheboygan

Wisconsin, party of the first part, and The City of Sheboygan

Municipal Corporation duly organized and existing under and by virtue of the laws of the State of Wisconsin, located at

Sheboygan Wisconsin, party of the second part,

Witnesseth, That the said party of the first part, for and in consideration of the sum of

Dollars,

to it paid by the said party of the second part, the receipt whereof is hereby confessed and acknowledged, has given, granted, bargained, sold, remised, released and quit-claimed, and by these presents does give, grant, bargain, sell, remise, release and quit-claim unto the said party of the second part, and to its successors and assigns forever, the following described real estate, situated in the County of Sheboygan, State of Wisconsin, to wit:

All land lying Easterly and Southerly of the following described line and the Westerly shore of Lake Michigan, and all riparian rights appertaining to such lands, to wit:

Beginning at a 2" pipe marking the southeast corner of Indiana Avenue and South 7th Street, thence N. 0°-20'-39" W. along the east line of South 7th Street 299.55 feet to a 1 1/2" iron pipe, thence continuing N. 0°-20'-39" W. along the extension of the east line of South 7th Street 178.20 feet to the extension of the north line of Illinois Avenue extended from the east, thence N. 89°-57'-13" E. 785.70 feet along the north line of Illinois Avenue and its extension to the true point of beginning, thence N. 77°-43'-40" E. 212.56 feet to a point of curve, thence northeasterly 75.01 feet along a curve to the left whose radius is 131 feet and whose long chord bears N. 61°-19'-27" E. and is 73.09 feet in length, thence N. 44°-55'-14" E. 161.04 feet, thence N. 36°-01'-57" E. 329.79 feet, thence N. 32°-32'-22" E. 98.52 feet, thence N. 42°-34'-35" E. 751.41 feet, thence N. 7°-56'-53" W. 426.26 feet to the south dock line of the Sheboygan River.

FEE

27.25-2 EXEMPT

To Have and to Hold the same, together with all and singular the appurtenances and privileges thereunto belonging or in any wise thereunto appertaining, and all the estate, right, title, interest and claim whatsoever of the said party of the first part, either in law or equity, either in possession or expectancy of, to the only proper use, benefit and behoof of the said party of the second part, its successors and assigns forever.

In Witness Whereof, the said The C. Reiss Coal Company party of the first part, has caused these presents to be signed by Frank J. Nauschultz its President, and countersigned by Ralph G. Schulz its Secretary, at Sheboygan Wisconsin, and its corporate seal to be hereunto affixed, this 29th day of June A.D. 1982.

SIGNED AND SEALED IN PRESENCE OF

Handwritten signatures of Jacqueline Heinrich and Ruth E. Knight.

The C. Reiss Coal Company Corporate Name

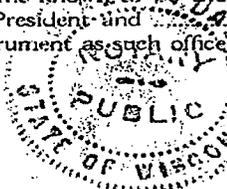
Handwritten signatures of Frank J. Nauschultz (President) and Ralph G. Schulz (Secretary).

THIS INSTRUMENT WAS DRAFTED BY Ronald P. Dales

State of Wisconsin, Sheboygan County, ss.

Personally came before me, this 29th day of June, A.D., 1982.

Frank J. Nauschultz, President, and Ralph G. Schulz, Secretary of the above named Corporation, to me known to be the persons who executed the foregoing instrument, and to me known to be such President and Secretary of said Corporation, and acknowledged that they executed the foregoing instrument as such officers as the deed of said Corporation, by its authority.



Handwritten signature of Ronald P. Dales, Notary Public, Sheboygan County, Wis. My commission expires is permanent.

1982 JUL 19 PM 2 59

Vol. 919 pg 721



No.

TO

555-1924346 B00004.00 JR

Quit Claim Deed

This instrument should be immediately placed upon record to avoid future trouble and litigation.

REGISTER'S OFFICE,

State of Wisconsin,

SHEBOYGAN County.

Received for Record this 19th day of

July, A. D., 1982

at 2:59 o'clock P.M., and recorded

in Vol. 919 of Deeds on page 72011

Henry F. Becker
Register of Deeds.

Deputy.

cty of Sheb.

GIS Registry Packet
Sheboygan Lakefront – Bulge Property
BRRTS #02-60-449752

STATEMENT BY RESPONSIBLE PARTY

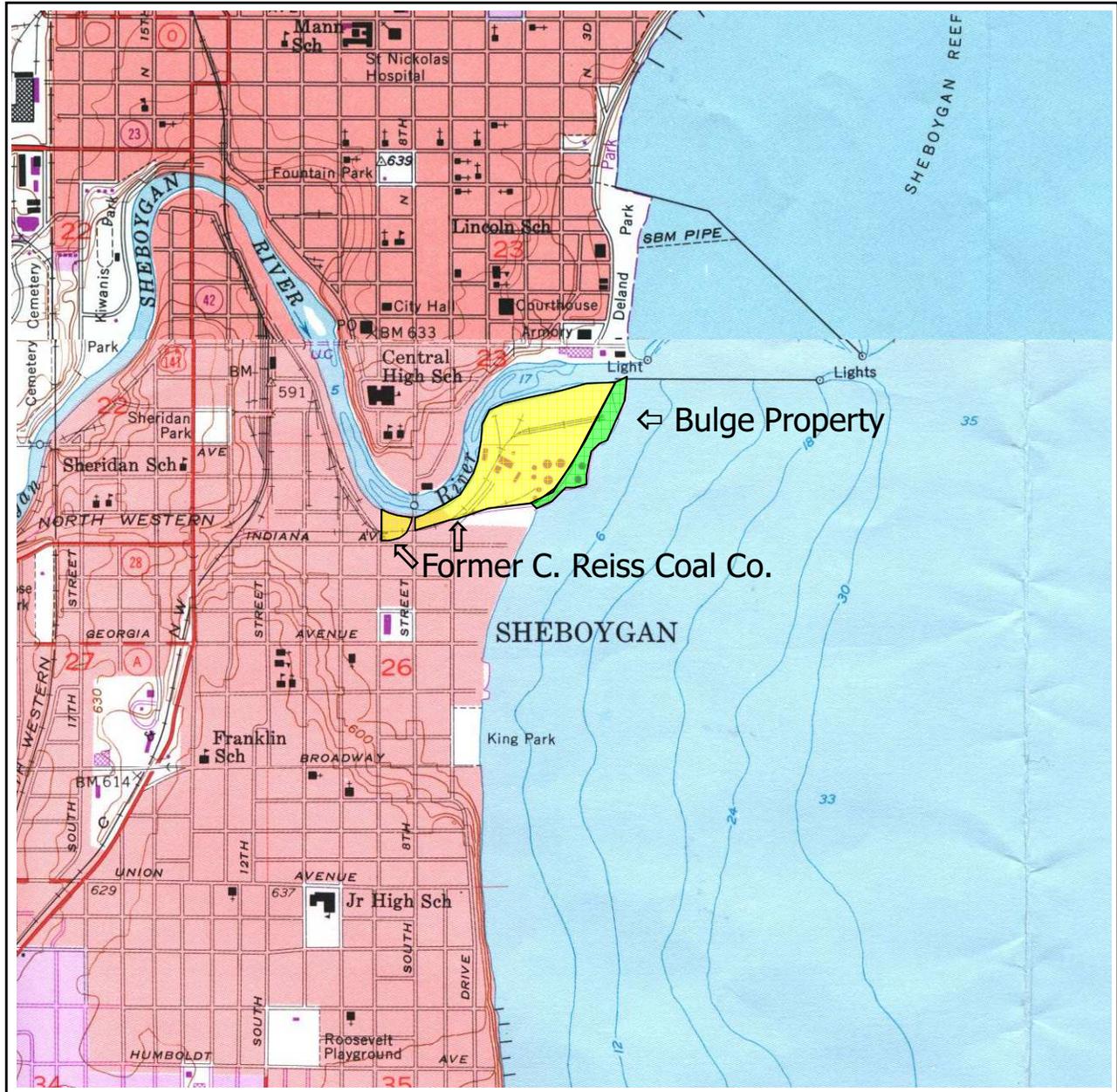
The City of Sheboygan, the responsible party for the property referred to as the Sheboygan Lakefront – Bulge Property, located east of former Fisherman’s Road, Sheboygan, Wisconsin states that the legal description provided to the Wisconsin Department of Natural Resources in this case closure request and Geographic Information System (GIS) Registry packet for WDNR BRRTS #02-60-449752 is complete and accurate to the best of our knowledge.



Signature of Representative for Responsible Party

5/4/10

Date



NE ¼ of NW ¼ of Section 26, NE ¼ of Section 26, and SE ¼ of Section 23, T 15 N, R 23 E
 Adapted from U.S.G.S. 7.5 minute series, Sheboygan North (1954, revised 1994) and Sheboygan South (1954, photorevised 1973), Wisconsin, quadrangles.

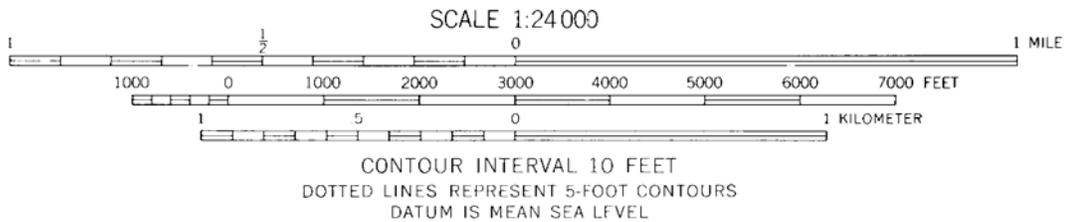
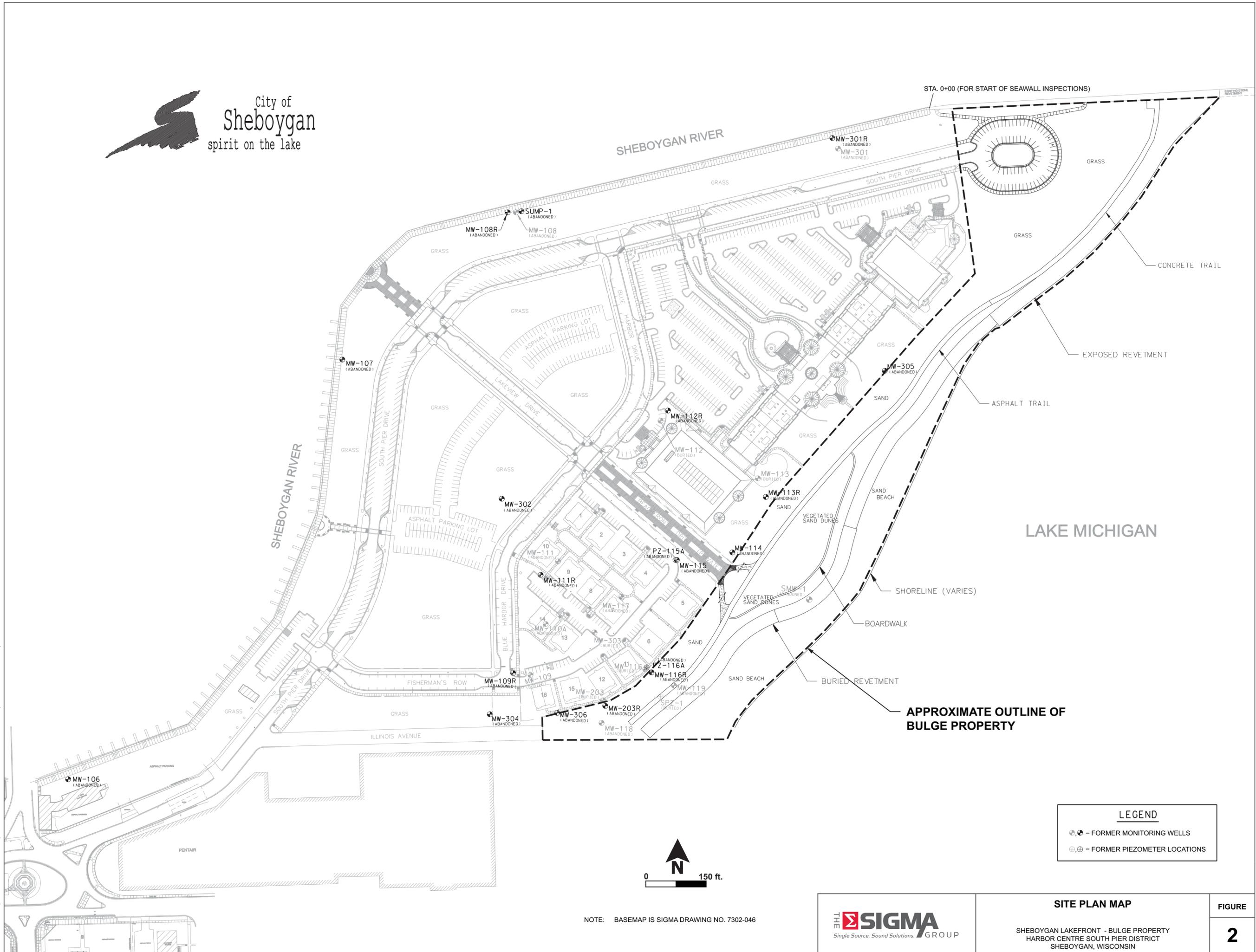


Figure 1. Site Location Map
 Former C. Reiss Coal Co. / Sheboygan Lakefront
 1011 S. 8th Street & 820 Indiana Avenue
 Sheboygan, Wisconsin 53081



Date: 10/10/2018
 Created By: AJR
 Filename: 7302_P1_EngBarrier_Bulge.dwg
 Directory: GRAPHS
 Project: 7302



NOTE: BASEMAP IS SIGMA DRAWING NO. 7302-046

	SITE PLAN MAP	FIGURE
	SHEBOYGAN LAKEFRONT - BULGE PROPERTY HARBOR CENTRE SOUTH PIER DISTRICT SHEBOYGAN, WISCONSIN	2

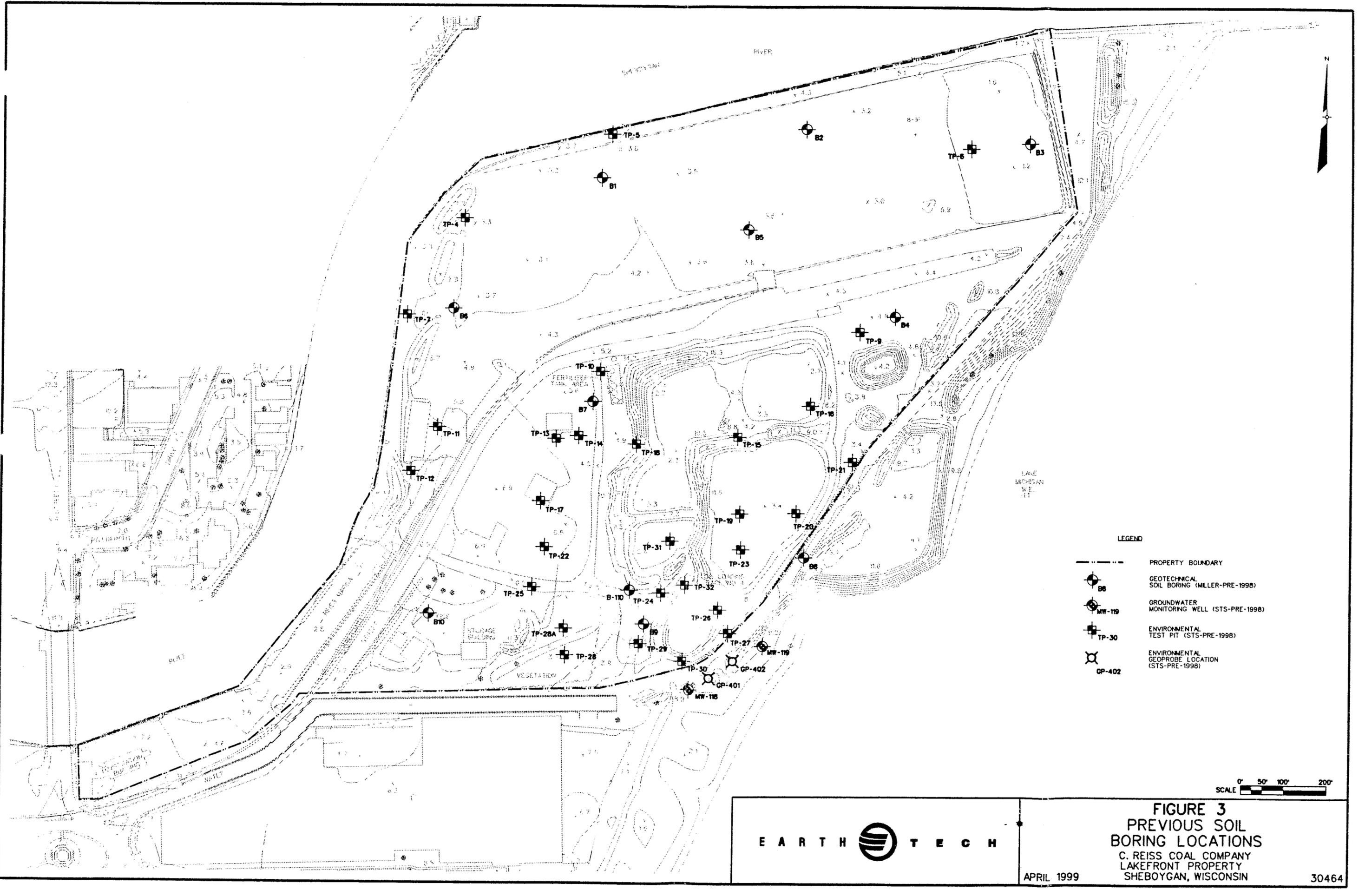
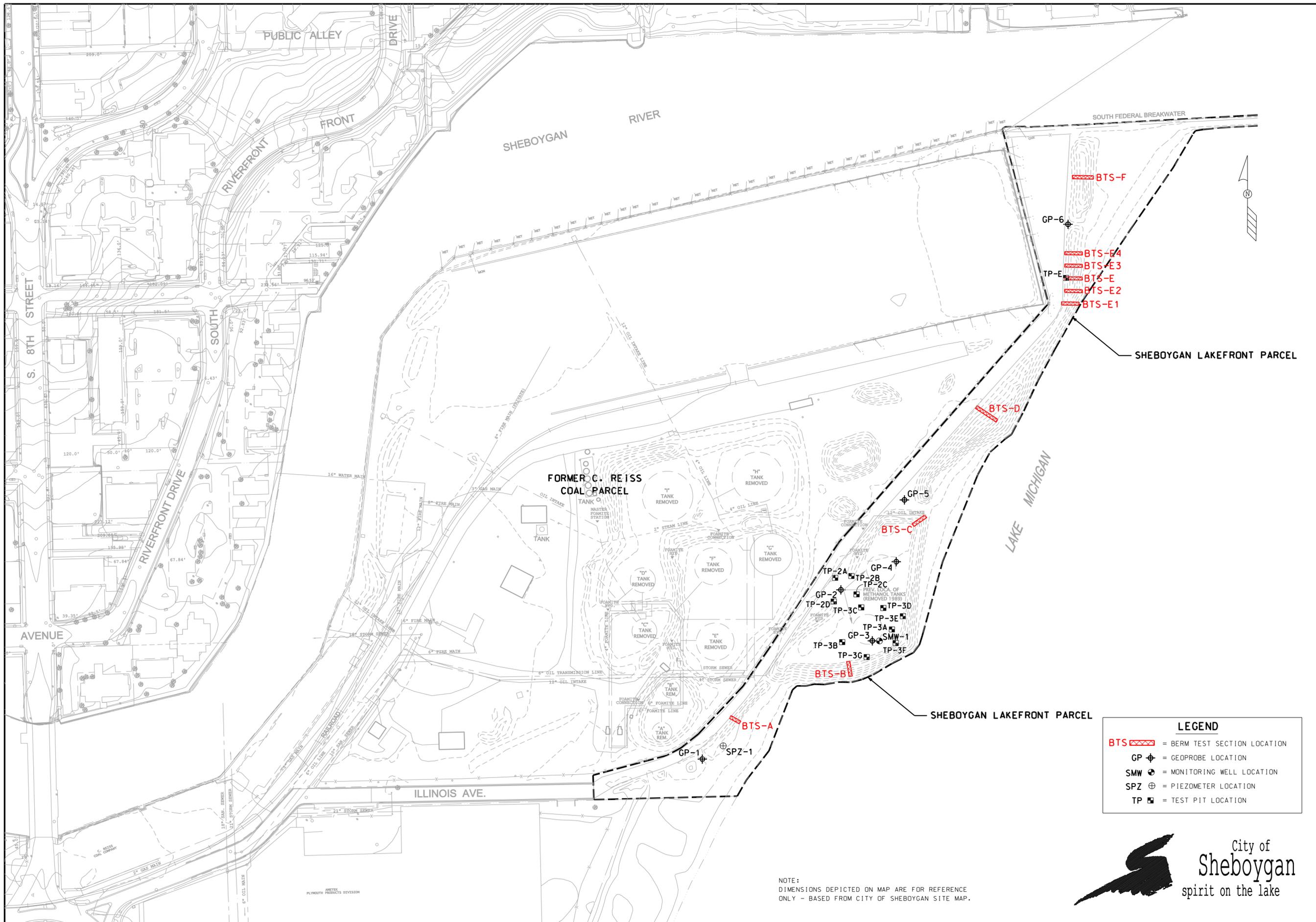


FIGURE 3
PREVIOUS SOIL BORING LOCATIONS
C. REISS COAL COMPANY
LAKEFRONT PROPERTY
SHEBOYGAN, WISCONSIN

APRIL 1999

30464



LEGEND	
BTS	= BERM TEST SECTION LOCATION
GP	= GEOPROBE LOCATION
SMW	= MONITORING WELL LOCATION
SPZ	= PIEZOMETER LOCATION
TP	= TEST PIT LOCATION



SIGMA
 ENVIRONMENTAL SERVICES INC.
 220 EAST RYAN ROAD
 OAK CREEK, WISCONSIN 53154
 PHONE : (414) 768 - 7144
 1-800-732-4671

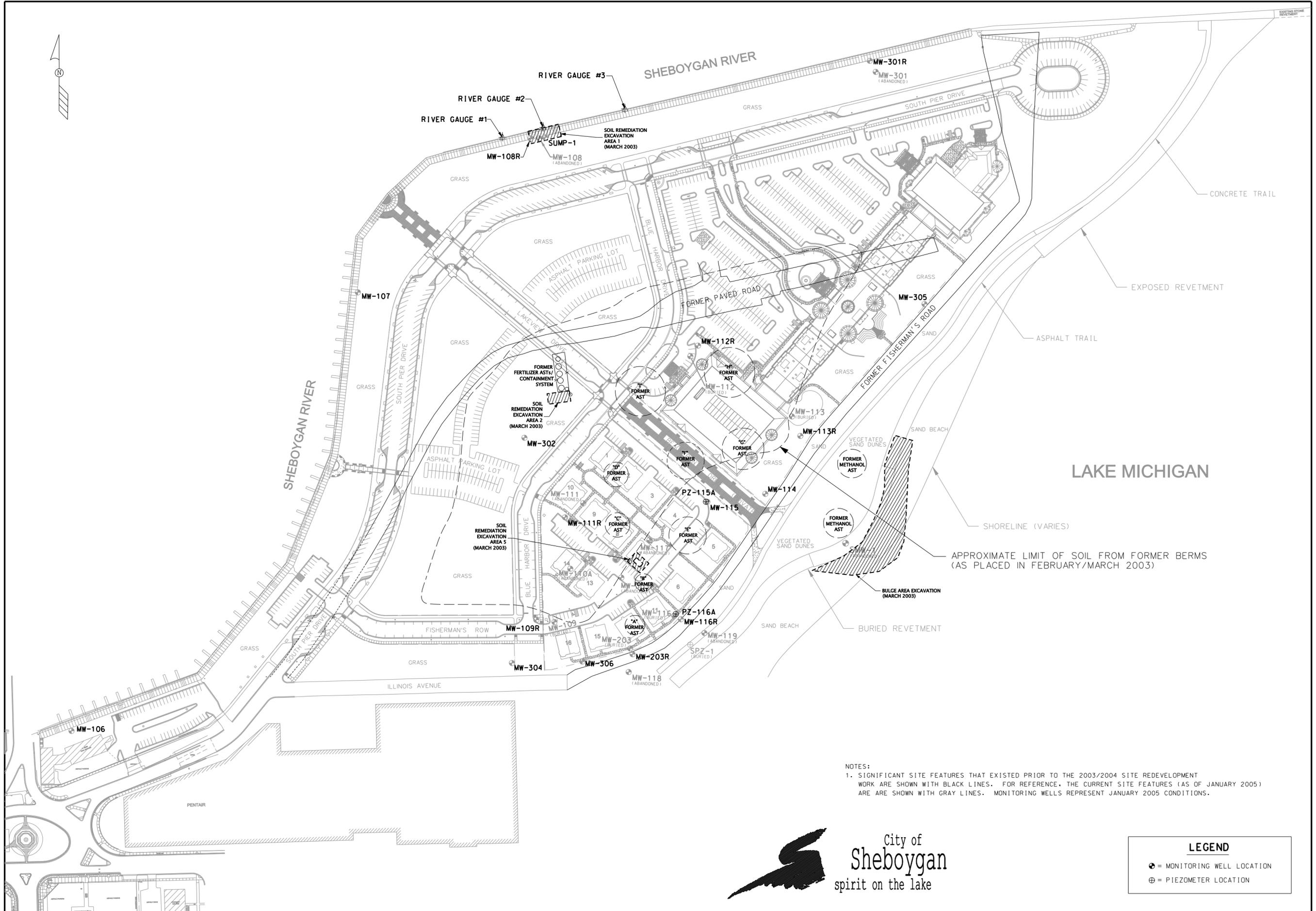
SCALE - 1" = 150' - 0"
 0' 75' 150' 225' 300'

NO	DATE	REVISIONS	BY	APVD

NAME:	DATE:
DRAWN BY: BEB	9-26-02
DESIGNED BY:	
CHECKED BY:	
APPROVED BY:	

FORMER C. REISS COAL/ SHEBOYGAN LAKEFRONT PROPERTY
SHEBOYGAN, WISCONSIN
SITE PLAN MAP

DRAWING NUMBER
 7302-007
FIGURE 2



NOTES:
 1. SIGNIFICANT SITE FEATURES THAT EXISTED PRIOR TO THE 2003/2004 SITE REDEVELOPMENT WORK ARE SHOWN WITH BLACK LINES. FOR REFERENCE, THE CURRENT SITE FEATURES (AS OF JANUARY 2005) ARE SHOWN WITH GRAY LINES. MONITORING WELLS REPRESENT JANUARY 2005 CONDITIONS.



LEGEND	
⊙	= MONITORING WELL LOCATION
⊕	= PIEZOMETER LOCATION

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 ENVIRONMENTAL SERVICES INC.
 1300 W. CANAL STREET
 MILWAUKEE, WISCONSIN 53233
 PHONE : (414) 643-4200
 1-800-732-4671

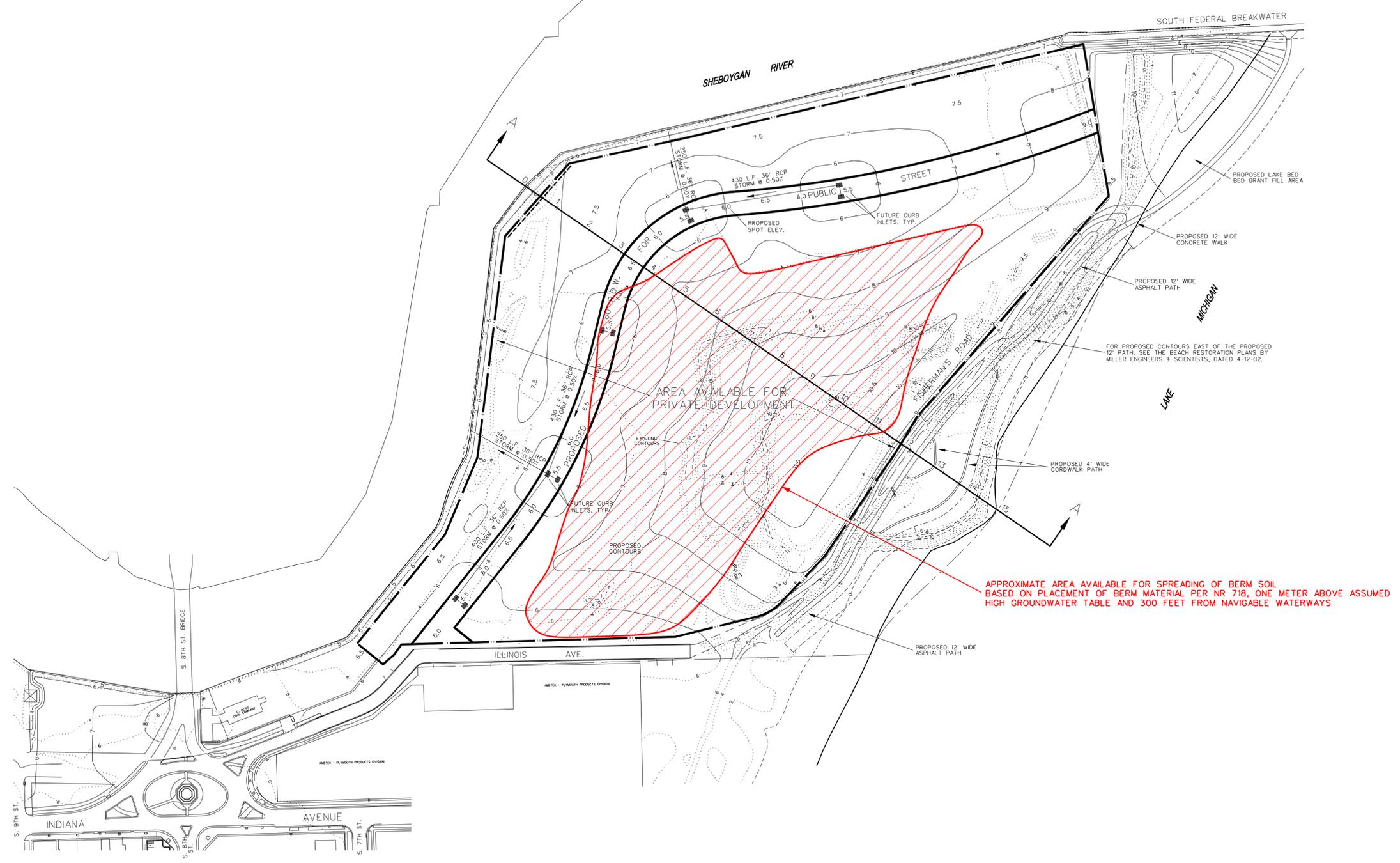
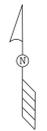
SCALE - 1" = 150' - 0"

NO	DATE	REVISIONS	BY	APVD

NAME :	DATE :
DRAWN BY: BEB	1-18-05
DESIGNED BY:	
CHECKED BY:	
APPROVED BY:	

HARBOR CENTRE SOUTH PIER DISTRICT
 SHEBOYGAN, WISCONSIN
 SITE CONDITIONS PRIOR TO 2003/2004 REDEVELOPMENT

DRAWING NUMBER
 7302-039
 FIGURE 3

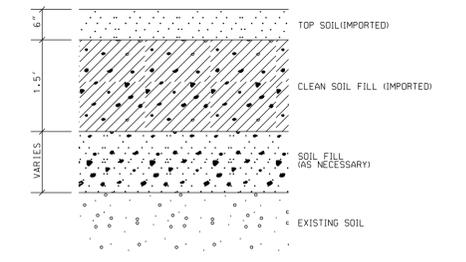
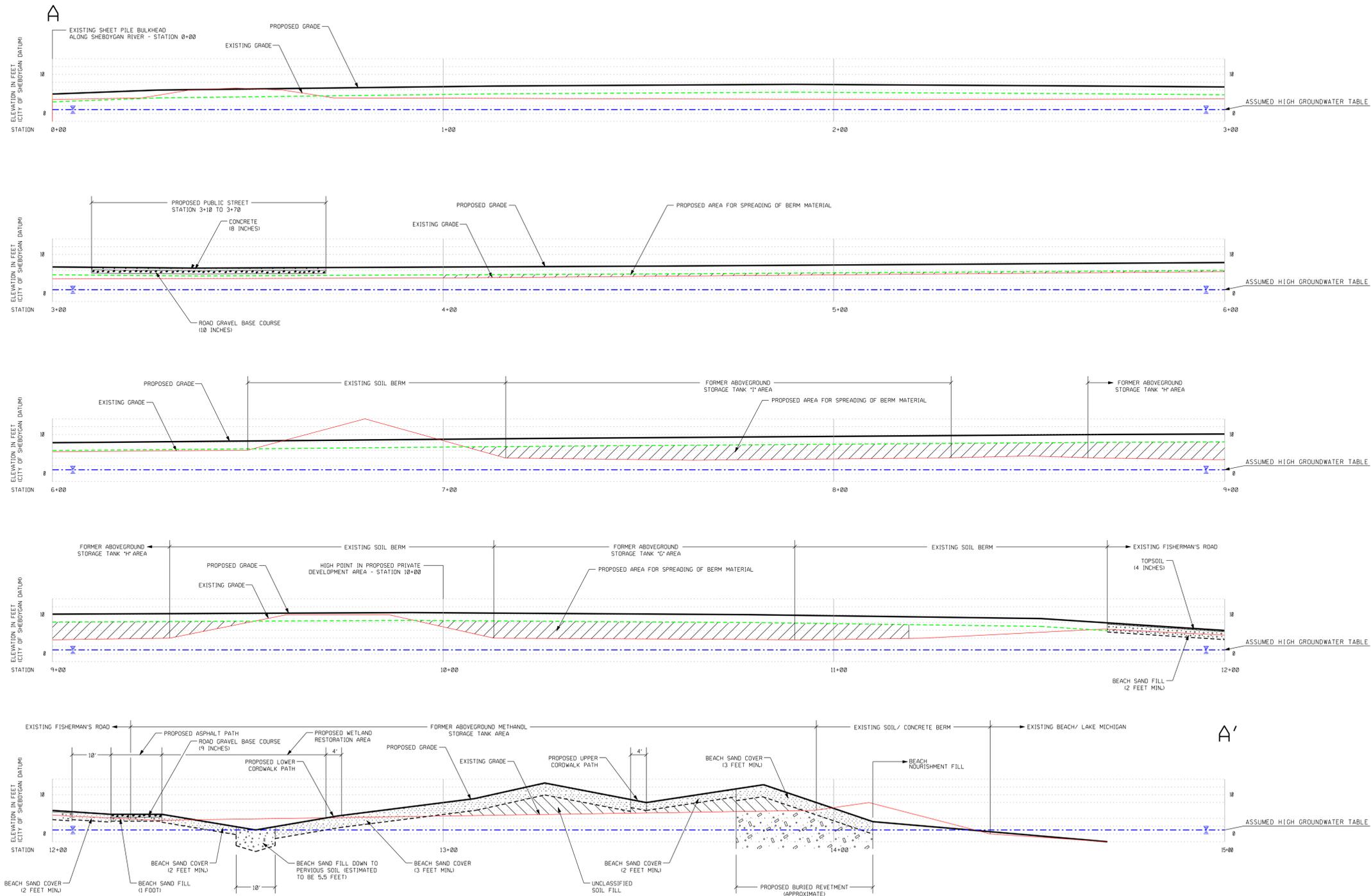


APPROXIMATE AREA AVAILABLE FOR SPREADING OF BERM SOIL
 BASED ON PLACEMENT OF BERM MATERIAL PER NR 718, ONE METER ABOVE ASSUMED
 HIGH GROUNDWATER TABLE AND 300 FEET FROM NAVIGABLE WATERWAYS

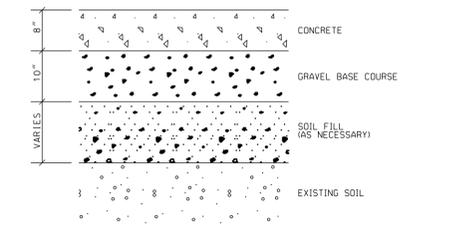
NOTE: EXISTING CONTOURS SHOWN HEREON WERE TAKEN FROM AN AERIAL TOPO PROVIDED BY THE CITY OF SHEBOYGAN. THESE CONTOURS DO NOT INDICATE TEMPORARY STOCKPILES OF FILL MATERIAL WHICH WERE PLACED ON THE SITE STARTING IN NOVEMBER 2000.

NOTE:
 THIS MAP BASED FROM PROPOSED TOPOGRAPHY AND CROSS SECTION LOCATION MAP PREPARED BY MILLER ENGINEERS AND SCIENTISTS DATED 11-18-02.

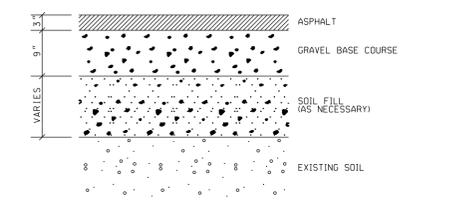
	220 EAST RYAN ROAD OAK CREEK, WISCONSIN 53154 PHONE : (414) 768 - 7144 1-800-732-4671	SCALE - 1" = 150' - 0"				NO	DATE	REVISIONS	BY	APVD	NAME:	DATE:		FORMER C. REISS COAL AND BULGE PROPERTY SHEBOYGAN, WISCONSIN PROPOSED TOPOGRAPHY & CROSS SECTION LOCATION MAP	DRAWING NUMBER
							DRAWN BY: BEB	12-5-02				DESIGNED BY:			
						CHECKED BY:					APPROVED BY:				FIGURE 2



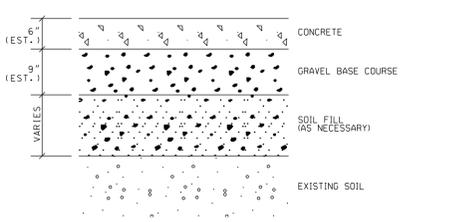
TYPICAL CLEAN SOIL COVER DETAIL
NOT TO SCALE



TYPICAL ROAD DETAIL
NOT TO SCALE



TYPICAL PARKING LOT DETAIL
NOT SHOWN IN CROSS SECTION - NOT TO SCALE



TYPICAL BUILDING FLOOR SLAB DETAIL
NOT SHOWN IN CROSS SECTION - NOT TO SCALE

PATTERN SYMBOLISM

- ROAD GRAVEL BASE COURSE
- BEACH SAND FILL
- BEACH SAND COVER
- ASPHALT
- CONCRETE
- TOPSOIL
- CLEAN SOIL FILL (IMPORTED)

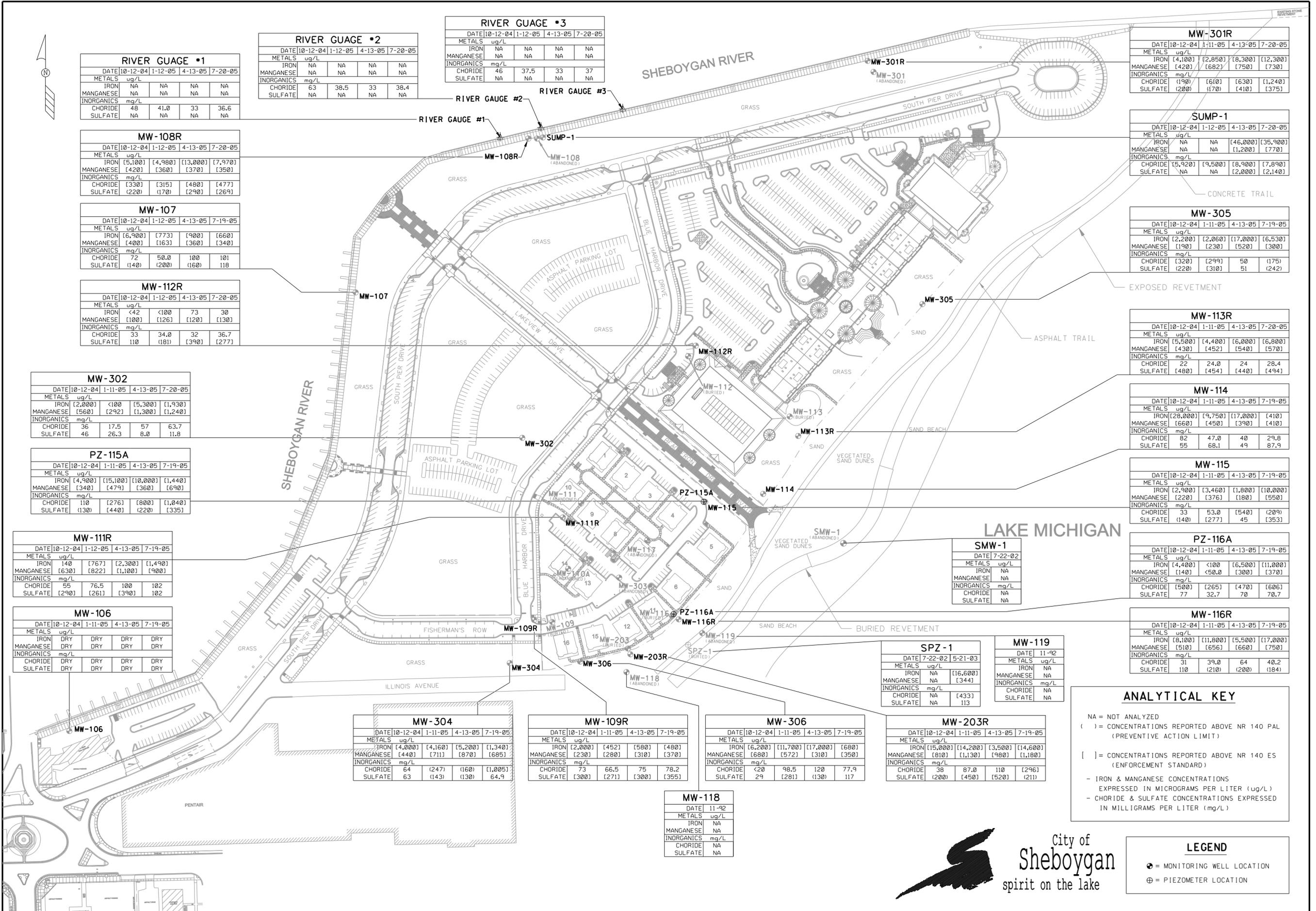
LEGEND

- = PROPOSED GRADE
- = EXISTING GRADE
- = 2' BELOW PROPOSED GRADE
- = HIGH WATER TABLE * SEE NOTE 2

NOTES:
 1. THIS MAP BASED FROM CROSS SECTION A-A' MAP PREPARED BY MILLER ENGINEERS AND SCIENTISTS DATED 11-18-02.
 2. ORDINARY HIGH WATER MARK FOR LAKE MICHIGAN PER U.S. ARMY CORPS OF ENGINEERS, (581.5 + IGLD 85 = 1.0 + CITY OF SHEBOYGAN DATUM).
 3. DETAILS OF BEACH RESTORATION INTERPRETTED FROM DRAWINGS AND NOTES PROVIDED BY MILLER ENGINEERS & SCIENTISTS. FOR SPECIFIC INFORMATION, DRAWINGS AND NOTES PREPARED BY MILLER ENGINEERS & SCIENTISTS SHOULD BE REFERENCED.

CROSS SECTION A-A'
1"=15' HOR. & VERT.

 220 EAST RYAN ROAD OAK CREEK, WISCONSIN 53154 PHONE : (414) 768 - 7144 1-800-732-4671	SCALE - 1' = 15' - 0" 	NO	DATE	REVISIONS	BY	APVD	NAME:	DATE:		
								DRAWN BY: BEB	12-5-02	
								 City of Sheboygan spirit on the lake	FORMER C. REISS COAL AND BULGE PROPERTY SHEBOYGAN, WISCONSIN CROSS SECTION A - A' AND TYPICAL DETAILS	DRAWING NUMBER 7302-020
										FIGURE 3



MW-301R				
DATE	10-12-04	1-11-05	4-13-05	7-20-05
METALS ug/L				
IRON	[4,100]	[2,850]	[8,300]	[12,300]
MANGANESE	[420]	[682]	[750]	[730]
INORGANICS mg/L				
CHLORIDE	(190)	(60)	(630)	(1,240)
SULFATE	(200)	(170)	(410)	(375)

SUMP-1				
DATE	10-12-04	1-12-05	4-13-05	7-20-05
METALS ug/L				
IRON	NA	NA	[46,000]	[35,900]
MANGANESE	NA	NA	[1,200]	[770]
INORGANICS mg/L				
CHLORIDE	[5,920]	[9,500]	[8,900]	[7,890]
SULFATE	NA	NA	[2,000]	[2,140]

MW-305				
DATE	10-12-04	1-11-05	4-13-05	7-19-05
METALS ug/L				
IRON	[2,200]	[2,060]	[17,000]	[6,530]
MANGANESE	[190]	[230]	[520]	[300]
INORGANICS mg/L				
CHLORIDE	[320]	[299]	50	(175)
SULFATE	(220)	(310)	51	(242)

MW-113R				
DATE	10-12-04	1-11-05	4-13-05	7-20-05
METALS ug/L				
IRON	[5,500]	[4,400]	[6,000]	[6,800]
MANGANESE	[430]	[452]	[540]	[570]
INORGANICS mg/L				
CHLORIDE	24	24	24	28.4
SULFATE	[480]	[454]	[440]	[494]

MW-114				
DATE	10-12-04	1-11-05	4-13-05	7-19-05
METALS ug/L				
IRON	[28,000]	[9,750]	[17,000]	[410]
MANGANESE	[660]	[450]	[390]	[410]
INORGANICS mg/L				
CHLORIDE	82	47.0	40	29.8
SULFATE	55	68.1	49	87.9

MW-115				
DATE	10-12-04	1-11-05	4-13-05	7-19-05
METALS ug/L				
IRON	[2,900]	[3,460]	[1,800]	[10,000]
MANGANESE	[220]	[376]	[180]	[550]
INORGANICS mg/L				
CHLORIDE	33	53.0	[540]	(209)
SULFATE	(140)	(277)	45	(353)

PZ-116A				
DATE	10-12-04	1-11-05	4-13-05	7-19-05
METALS ug/L				
IRON	[4,400]	<100	[6,500]	[11,000]
MANGANESE	[140]	<50.0	[300]	[370]
INORGANICS mg/L				
CHLORIDE	[500]	[265]	[470]	[606]
SULFATE	77	32.7	70	70.7

MW-116R				
DATE	10-12-04	1-11-05	4-13-05	7-19-05
METALS ug/L				
IRON	[8,100]	[11,800]	[5,500]	[17,000]
MANGANESE	[510]	[656]	[660]	[750]
INORGANICS mg/L				
CHLORIDE	31	39.0	64	40.2
SULFATE	110	(210)	(200)	(184)

ANALYTICAL KEY

NA = NOT ANALYZED
 () = CONCENTRATIONS REPORTED ABOVE NR 140 PAL (PREVENTIVE ACTION LIMIT)
 [] = CONCENTRATIONS REPORTED ABOVE NR 140 ES (ENFORCEMENT STANDARD)
 - IRON & MANGANESE CONCENTRATIONS EXPRESSED IN MICROGRAMS PER LITER (ug/L)
 - CHLORIDE & SULFATE CONCENTRATIONS EXPRESSED IN MILLIGRAMS PER LITER (mg/L)

LEGEND

⊙ = MONITORING WELL LOCATION
 ⊕ = PIEZOMETER LOCATION

City of Sheboygan
 spirit on the lake

SIGMA
 ENVIRONMENTAL SERVICES INC.
 1300 W. CANAL STREET
 MILWAUKEE, WISCONSIN 53233
 PHONE : (414) 643-4200
 1-800-732-4671

SCALE - 1" = 150' - 0"

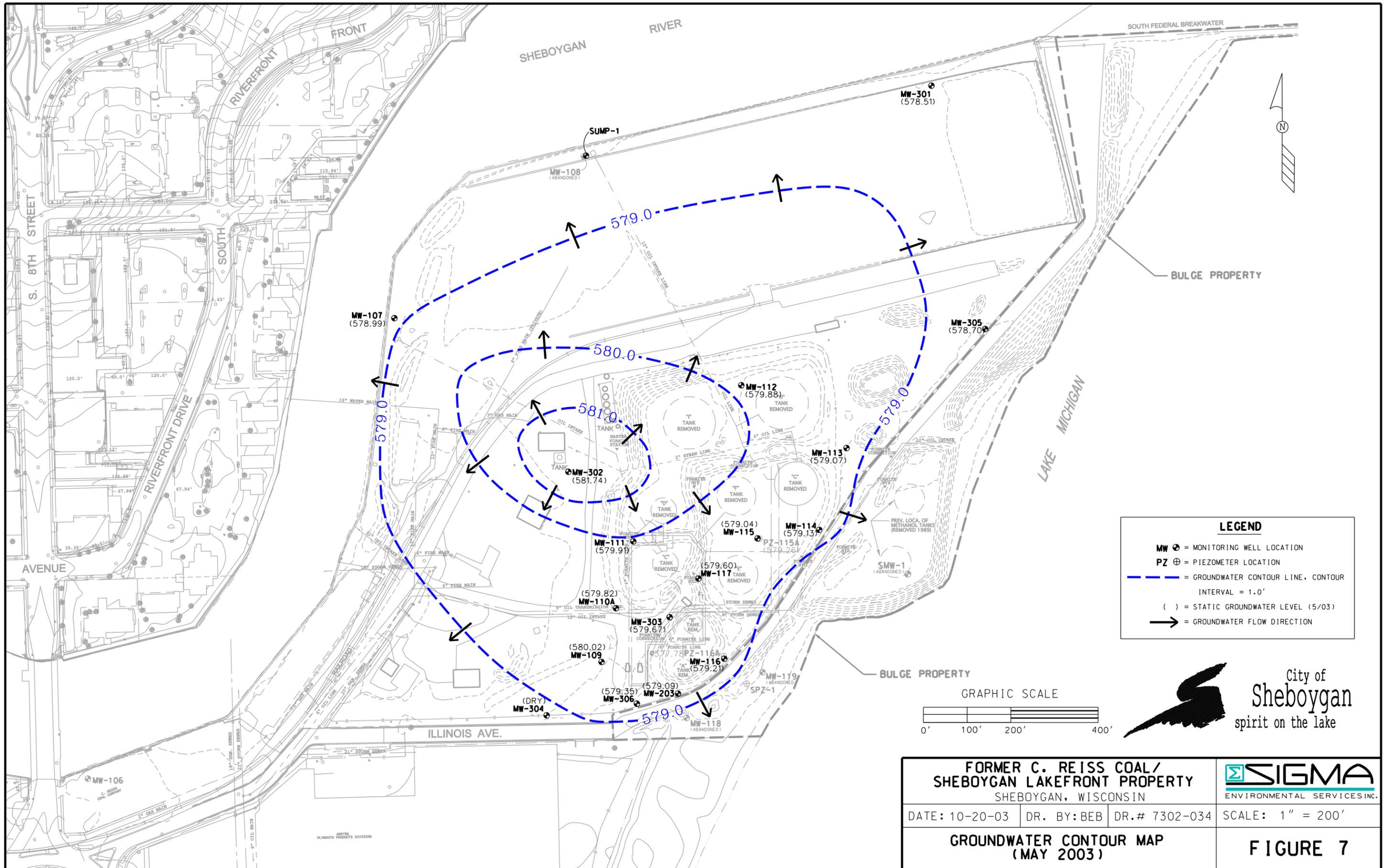
NO	DATE	REVISIONS	BY	APVD

NAME:	DATE:
DRAWN BY: BEB	8-24-05
DESIGNED BY:	
CHECKED BY:	
APPROVED BY:	

HARBOR CENTRE SOUTH PIER DISTRICT
 SHEBOYGAN, WISCONSIN
 GROUNDWATER QUALITY MAP

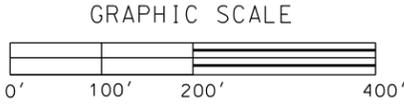
DRAWING NUMBER
 7302-043

FIGURE 4



LEGEND

- MW ⊕ = MONITORING WELL LOCATION
- PZ ⊕ = PIEZOMETER LOCATION
- - - = GROUNDWATER CONTOUR LINE, CONTOUR INTERVAL = 1.0'
- () = STATIC GROUNDWATER LEVEL (5/03)
- = GROUNDWATER FLOW DIRECTION



**FORMER C. REISS COAL/
SHEBOYGAN LAKEFRONT PROPERTY**
SHEBOYGAN, WISCONSIN

DATE: 10-20-03 DR. BY: BEB DR.# 7302-034

**GROUNDWATER CONTOUR MAP
(MAY 2003)**

SIGMA
ENVIRONMENTAL SERVICES INC.

SCALE: 1" = 200'

FIGURE 7

TABLE 1

1992 AND 1996 SOIL SAMPLING SUMMARY
SHEBOYGAN LAKEFRONT PROPERTY
SHEBOYGAN, WISCONSIN

ANALYTE	Boring Number: Depth (ft) (bgs): Date:	MW-106	MW-107	MW-108	MW-109	B-110	MW-110A	MW-111	MW-112	MW-113	MW-114	PZ-115A	MW-116	PZ-116A	MW-117	MW-118	MW-119	MW-203	GP401	GP402
		5-7	8-10	8-10	5-7	8-10	8-10	8-10	5-7	5-7	8-10	15-17	12-14	20-22	15-17	15-17	8-10	2-4	2-4	2-4
		11/92	11/92	11/92	11/92	11/92	11/92	11/92	11/92	11/92	11/92	11/92	11/92	11/92	11/92	11/92	11/92	11/92	11/96	11/96
PVOCs																				
Benzene (ug/kg)	NS	NA	NA	NA	ND	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene (ug/kg)	NS	NA	NA	NA	ND	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	335	ND	ND	ND	ND
Methyl-tert-butyl ether (ug/kg)	NS	NA	NA	NA	ND	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene (ug/kg)	NS	NA	NA	NA	ND	NA	ND	ND	ND	ND	24	ND	ND	ND	ND	1,610	ND	ND	43	ND
1,3,5-Trimethylbenzene (ug/kg)	NS	NA	NA	NA	ND	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	421	ND	ND	35	ND
Xylenes (ug/kg)	NS	NA	NA	NA	ND	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	528	ND	ND	85	ND
Toluene (ug/kg)	NS	NA	NA	NA	ND	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	31	ND	ND	32	ND
PAHs																				
Naphthalene (ug/kg)	20,000	ND	677	552	ND	NA	ND	ND	ND	485	1,170	ND	ND	ND	ND	1,900	ND	NA	NA	NA
Acenaphthalene (ug/kg)	18,000	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA
1-Methylnaphthalene (ug/kg)	1,100,000	ND	1,670	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	17,900	ND	NA	NA	NA
2-Methylnaphthalene (ug/kg)	600,000	ND	2,130	2,240	ND	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	4,930	ND	NA	NA	NA
Acenaphthene (ug/kg)	900,000	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA
Fluorene (ug/kg)	600,000	ND	ND	245	ND	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA

TABLE 1 (Continued)

1992 AND 1996 SOIL SAMPLING SUMMARY
SHEBOYGAN LAKEFRONT PROPERTY
SHEBOYGAN, WISCONSIN

ANALYTE	NR 720 Direct Contact Levels	Boring Number:																		
		MW-106	MW-107	MW-108	MW-109	B-110	MW-110A	MW-111	MW-112	MW-113	MW-114	PZ-115A	MW-116	PZ-116A	MW-117	MW-118	MW-119	MW-203	GP401	GP402
		Depth (ft) (bgs):	5-7	8-10	8-10	5-7	8-10	8-10	8-10	5-7	5-7	8-10	15-17	12-14	20-22	15-17	15-17	8-10	2-4	2-4
Date:	11/92	11/92	11/92	11/92	11/92	11/92	11/92	11/92	11/92	11/92	11/92	11/92	11/92	11/92	11/92	11/92	11/96	11/96	11/96	11/96
Phenanthrene (ug/kg)	18,000	ND	ND	878	ND	NA	ND	48	ND	776	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA
Anthracene (ug/kg)	5,000,000	ND	ND	487	ND	NA	ND	14	ND	237	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA
Fluoranthene (ug/kg)	600,000	ND	ND	6,050	ND	NA	ND	93	ND	1,620	ND	25	ND	ND	ND	ND	ND	NA	NA	NA
Pyrene (ug/kg)	500,000	ND	ND	5,390	ND	NA	ND	87	ND	1,400	ND	72	ND	ND	ND	ND	ND	NA	NA	NA
Benzo (a) anthracene (ug/kg)	88	ND	ND	2,250	ND	NA	ND	18	ND	398	ND	16	ND	ND	ND	ND	ND	NA	NA	NA
Chrysene (ug/kg)	8,800	ND	ND	1,400	ND	NA	ND	28	ND	339	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA
Benzo (b) fluoranthene (ug/kg)	88	ND	ND	920	ND	NA	ND	28	ND	174	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA
Benzo (k) fluoranthene (ug/kg)	880	ND	ND	ND	ND	NA	ND	16	ND	70	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA
Benzo (a) pyrene (ug/kg)	8.8	ND	ND	2,770	ND	NA	ND	37	ND	381	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA
Dibenzo (a,h) anthracene (ug/kg)	8.8	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA
Benzo (g,h,i) perylene (ug/kg)	1,800	ND	410	1,800	ND	NA	ND	27	ND	265	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA
Indeno (1,2,3-cd) pyrene (ug/kg)	88	ND	ND	1,420	ND	NA	ND	ND	ND	202	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA
Miscellaneous																				
TRPH (mg/kg)	NS	5.8	28	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DRO (mg/kg)	NS	NA	NA	NA	ND	ND	ND	ND	ND	ND	39	ND	ND	ND	ND	1,100	ND	ND	9.3	6.3

TABLE 1 (Continued)

1992 AND 1996 SOIL SAMPLING SUMMARY
 SHEBOYGAN LAKEFRONT PROPERTY
 SHEBOYGAN, WISCONSIN

Boring Number:	MW-106	MW-107	MW-108	MW-109	B-110	MW-110A	MW-111	MW-112	MW-113	MW-114	PZ-115A	MW-116	PZ-116A	MW-117	MW-118	MW-119	MW-203	GP401	GP402	
	Depth (ft) (bgs):																			
	Date:																			
	5-7	8-10	8-10	5-7	8-10	8-10	8-10	5-7	5-7	8-10	15-17	12-14	20-22	15-17	15-17	8-10	2-4	2-4	2-4	
	11/92	11/92	11/92	11/92	11/92	11/92	11/92	11/92	11/92	11/92	11/92	11/92	11/92	11/92	11/92	11/92	11/96	11/96	11/96	
ANALYTE	NR 720 Direct Contact Levels																			

NOTES:

NS = No standard available.
 ND = Analyte not detected above reported detection limit.
 GRO = Gasoline Range Organics.
 DRO = Diesel Range Organics.
 mg/kg = Milligrams per kilogram = parts per million.
 ug/kg = Micrograms per kilogram = parts per billion.
 NA = Analyte not analyzed.
 Values that are bold and shaded exceed NR 720 non-industrial direct contact RCLs or SCLs.

Table 4
Subsurface Soil Analytical Results
Bulge Property - Sheboygan Lakefront, Sheboygan, Wisconsin
Sigma Project No. 7302

Soil Sample Location:		GP-1		GP-2		TP-2A			TP-2B		TP-2C		TP-2D		NR 720		
Sample Depth (feet bgs):		0 - 4	0 - 2	0 - 4	2 - 4	0 - 2	2 - 4	4 - 6	0 - 2	2 - 4	4 - 6	0 - 2	2 - 4	0 - 2	2 - 4	RCL	
Inorganic		Date:	04/04/02	04/04/02	04/04/02	11/19/02	11/19/02	11/19/02	11/19/02	11/19/02	11/19/02	11/19/02	11/19/02	11/19/02	11/19/02		
Chloride (total)	mg/kg	<34	NA	59 "J"	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NS	
Nitrate nitrogen (total)	mg/kg	<46	NA	<46	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NS	
Metals (Total)																Residential RCL	Industrial RCL
Arsenic	mg/kg	1.2 "J"	NA	<0.65	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.039	1.6
Barium	mg/kg	23	NA	22	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NS	NS
Cadmium	mg/kg	<1.2	NA	<1.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	8	510
Chromium	mg/kg	8.2	NA	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	16,000	NS
Copper	mg/kg	11	NA	11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NS	NS
Lead	mg/kg	28	NA	6.8 "J"	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	50	500
Mercury	mg/kg	<0.02	NA	0.021 "J"	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NS	NS
Nickel	mg/kg	8.3	NA	9.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NS	NS
Selenium	mg/kg	<0.057	NA	<0.056	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NS	NS
Silver	mg/kg	<3	NA	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NS	NS
Zinc	mg/kg	32	NA	18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NS	NS
PAHs																Direct Contact RCL	Migration to Groundwater RCL
Acenaphthene	µg/kg	<210	NA	<41	NA	<53	<54	151	<57	<57	628 "M"	<100 "M"	<58	<84 "M"	<59	900,000	38,000
Acenaphthylene	µg/kg	<210	NA	<42	NA	<90	<92	<92	<96	<97	<730 "M"	<175 "M"	<99	<140 "M"	<100	18,000	700
Anthracene	µg/kg	<170	NA	<34	NA	36	9.8	377	78	<5.7	1,050 "M"	<10 "M"	<5.8	<8.4 "M"	<5.9	5,000,000	3,000,000
Benzo(a)anthracene	µg/kg	<270	NA	<54	NA	65	72 "M"	151	124	<5.7	1,000 "M"	<10 "M"	<5.8	15 "M"	17	88	17,000
Benzo(a)pyrene	µg/kg	<300	NA	<59	NA	97	<43	162	170	<45	285 "M"	<10 "M"	<47	<45 "M"	<47	8.8	48,000
Benzo(b)fluoranthene	µg/kg	340 "J"	NA	42 "J"	NA	12	6.7	205	76	<5.7	240 "M"	<10 "M"	<5.8	19 "M"	<5.9	88	360,000
Benzo(ghi)perylene	µg/kg	<410	NA	<82	NA	<42	<43	216	385	<45	228 "M"	<10 "M"	<47	<45 "M"	<47	1,800	6,800,000
Benzo(k)fluoranthene	µg/kg	<400	NA	<79	NA	48	8.2 "M"	79	68	<5.7	126 "M"	<10 "M"	<5.8	12 "M"	<5.9	880	870,000
Chrysene	µg/kg	250 "J"	NA	<38	NA	76	16	194	136	<5.7	411 "M"	<10 "M"	8.6	21 "M"	15	8,800	37,000
Dibenzo(a,h)anthracene	µg/kg	<380	NA	<76	NA	<7.9	<8.1	18	17	<8.5	<64 "M"	<15 "M"	<8.8	<13 "M"	<8.9	8.8	38,000
Fluoranthene	µg/kg	290 "J"	NA	<42	NA	211	25	1,290	283	<11	2,170 "M"	81 "M"	18	63 "M"	44	600,000	500,000
Fluorene	µg/kg	<210	NA	<41	NA	19	22	851	76	<11	2,740 "M"	<21 "M"	<12	<16 "M"	<12	600,000	100,000
Indeno(1,2,3-cd)pyrene	µg/kg	<350	NA	<69	NA	100	22 "M"	129	226	<5.7	171 "M"	<10 "M"	9.9	19 "M"	24	88	680,000
1-Methylnaphthalene	µg/kg	<190	NA	38 "J"	NA	<32	89	4,960	110	<34	11,400 "M"	<61 "M"	<35	<51 "M"	<35	1,100,000	23,000
2-Methylnaphthalene	µg/kg	<360	NA	<72	NA	44	130	4,420	158	<28	11,400 "M"	<51 "M"	<29	<42 "M"	<30	600,000	20,000
Naphthalene	µg/kg	<200	NA	<40	NA	67	<32	1,050	136	<34	263 "M"	<61 "M"	<35	<51 "M"	<35	20,000	400
Phenanthrene	µg/kg	250 "J"	NA	54 "J"	NA	158	42	722	226	<5.7	2,050 "M"	47 "M"	13	43 "M"	25	18,000	1,800
Pyrene	µg/kg	320 "J"	NA	<58	NA	200	37 "M"	485	283	<5.7	2,400 "M"	71 "M"	11	18 "M"	33	500,000	8,700,000
PVOCs & Detected VOCs																NR 720 RCL	
Benzene	µg/kg	NA	<25	NA	<25	<26	<27 "H"	<269 "H"	<28	<28 "H"	<571 "H"	<29	<29	<28	<30	5.5	
Ethylbenzene	µg/kg	NA	<25	NA	<25	<26	35 "H"	<269 "H"	<28	<28 "H"	<571 "H"	<29	<29	<28	<30	2,900	
MTBE	µg/kg	NA	<25	NA	<25	<26	<27 "H"	<269 "H"	<28	<28 "H"	<571 "H"	<29	<29	<28	<30	NS	
Toluene	µg/kg	NA	<25	NA	<25	<26	35 "H"	<269 "H"	<28	64 "H"	<571 "H"	129	<29	<28	<30	1,500	
1,2,4-Trimethylbenzene	µg/kg	NA	<25	NA	<25	<26	108 "H"	4,090 "H"	<28	409 "H"	11,400 "H"	33	<29	<28	<30	NS	
1,3,5-Trimethylbenzene	µg/kg	NA	<25	NA	<25	<26	<27 "H"	<269 "H"	<28	<28 "H"	<571 "H"	<29	<29	<28	<30	NS	
Xylenes (total)	µg/kg	NA	<75	NA	<75	<79	100 "H"	<808 "H"	<85	<96.6 "M"	<1,710 "H"	<88	<88	<85	<89	4,100	
tert-Butylbenzene	µg/kg	NA	<25	NA	<25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NS	
sec-Butylbenzene	µg/kg	NA	<25	NA	<25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NS	
n-Butylbenzene	µg/kg	NA	<25	NA	<25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NS	
Isopropylbenzene	µg/kg	NA	<25	NA	<25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NS	
p-Isopropyltoluene	µg/kg	NA	<25	NA	<25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NS	
Naphthalene	µg/kg	NA	<25	NA	<25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NS	
n-Propylbenzene	µg/kg	NA	<25	NA	<25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NS	

Notes:

- mg/kg = milligrams per kilogram (equivalent to parts per million, ppm)
- µg/kg = micrograms per kilogram (equivalent to parts per billion, ppb)
- NR 720 RCL = WAC, Chapter NR 720 generic Residual Contaminant Level
- Residential RCL = WAC, Chapter NR 720 RCL for non-industrial land use (metals only) - RCLs for trivalent chromium listed for total chromium
- Industrial RCL = WAC, Chapter NR 720 RCL for industrial land use (metals only) - RCLs for trivalent chromium listed for total chromium
- Direct Contact RCL = Interim guidance RCL for protection of direct contact with PAH compounds (non-industrial land use), from WDNR publication RR-519-97 "Soil Cleanup Levels for Polycyclic Aromatic Hydrocarbons (PAHs) Interim Guidance" (April 1997)
- Migration to Groundwater RCL = Interim guidance RCL for protection of groundwater pathway from PAH compounds, from WDNR publication RR-519-97 "Soil Cleanup Levels for Polycyclic Aromatic Hydrocarbons (PAHs) Interim Guidance" (April 1997)
- NA = not analyzed
- NS = no standard established
- "J" = Concentration detected between Limit of Detection and Limit of Quantitation
- "M" = matrix interference
- "H" = late eluding hydrocarbons present
- Exceedances:
 - bold** = Concentration exceeds NR 720 RCL, Residential RCL, or Direct Contact RCL
 - boxed** = Concentration exceeds Industrial RCL or Migration to Groundwater RCL

Table 4 Subsurface Soil Analytical Results Bulge Property - Sheboygan Lakefront, Sheboygan, Wisconsin Sigma Project No. 7302																
Soil Sample Location: Sample Depth (feet bgs):		GP-3		TP-3A	TP-3B	TP-3C	TP-3D		TP-3E		TP-3F		TP-3G		NR 720 RCL	
		0 - 4	2 - 4	0 - 4	0 - 4	0 - 4	0 - 2	2 - 4	0 - 2	2 - 4	0 - 2	2 - 4	0 - 2	2 - 4		
Date:		04/04/02	04/04/02	07/08/02	07/08/02	07/08/02	11/19/02	11/19/02	11/19/02	11/19/02	11/19/02	11/19/02	11/19/02	11/19/02		
Inorganics																
Chloride (total)	mg/kg	130	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NS	
Nitrate nitrogen (total)	mg/kg	< 46	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NS	
Metals (Total)																
Arsenic	mg/kg	1.7 "J"	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Residential RCL	Industrial RCL
															0.039	1.6
Barium	mg/kg	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NS	NS
Cadmium	mg/kg	< 1.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	8	510
Chromium	mg/kg	11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	16,000	NS
Copper	mg/kg	5.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NS	NS
Lead	mg/kg	6.6 "J"	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	50	500
Mercury	mg/kg	0.041 "J"	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NS	NS
Nickel	mg/kg	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NS	NS
Selenium	mg/kg	0.064 "J"	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NS	NS
Silver	mg/kg	< 3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NS	NS
Zinc	mg/kg	46	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NS	NS
PAHs																
Acenaphthene	µg/kg	10,000	NA	< 82	< 41	44 "J"	< 88 "M"	< 59	< 100	< 92	< 710 "M"	< 100 "M"	263 "M"	< 1,300 "M"	900,000	38,000
Acenaphthylene	µg/kg	< 1,100	NA	< 84	< 42	< 42	< 150 "M"	< 100	< 170	< 150	< 1,200 "M"	< 170 "M"	< 140 "M"	< 2,200 "M"	18,000	700
Anthracene	µg/kg	< 850	NA	110 "J"	< 34	100 "J"	12 "M"	< 5.9	12	55	< 71 "M"	26 "M"	329 "M"	2,730 "M"	5,000,000	3,000,000
Benzo(a)anthracene	µg/kg	< 1,400	NA	310	< 54	190	17 "M"	< 5.9	33	158	241 "M"	66 "M"	2,090 "M"	19,900 "M"	88	17,000
Benzo(a)pyrene	µg/kg	< 1,500	NA	330 "J"	< 59	210	< 71 "M"	< 47	< 80	133	< 71 "M"	100 "M"	252 "M"	934 "M"	8.8	48,000
Benzo(b)fluoranthene	µg/kg	< 1,100	NA	330	< 42	180	39 "M"	< 5.9	18	55	< 71 "M"	55 "M"	143 "M"	1,050 "M"	88	360,000
Benzo(ghi)perylene	µg/kg	< 2,100	NA	230 "J"	< 82	140 "J"	< 71 "M"	< 47	< 80	< 9.1	< 71 "M"	< 10 "M"	428 "M"	546 "M"	1,800	6,800,000
Benzo(k)fluoranthene	µg/kg	< 2,000	NA	310 "J"	< 79	150 "J"	20 "M"	< 5.9	30	66	< 71 "M"	36 "M"	61 "M"	294 "M"	880	870,000
Chrysene	µg/kg	< 1,000	NA	390	< 38	210	39 "M"	< 5.9	73	303	< 71 "M"	69 "M"	198 "M"	1,470 "M"	8,800	37,000
Dibenzo(a,h)anthracene	µg/kg	< 1,900	NA	< 152	< 76	< 76	< 13 "M"	< 8.8	< 15	< 14	< 110 "M"	< 15 "M"	22 "M"	60 "M"	8.8	38,000
Fluoranthene	µg/kg	3,000 "J"	NA	850	< 42	530	88 "M"	34	110	340	310 "M"	205 "M"	1,760 "M"	14,700 "M"	600,000	500,000
Fluorene	µg/kg	4,800	NA	< 82	< 41	44 "J"	< 18 "M"	< 12	100	72	< 140 "M"	182 "M"	582 "M"	3,780 "M"	600,000	100,000
Indeno(1,2,3-cd)pyrene	µg/kg	< 1,700	NA	140 "J"	< 69	110 "J"	23 "M"	< 5.9	22	32	< 71 "M"	61 "M"	176 "M"	304 "M"	88	680,000
1-Methylnaphthalene	µg/kg	21,000	NA	84 "J"	< 37	< 37	< 54 "M"	< 35	< 60	231	< 420 "M"	< 60 "M"	1,650 "M"	4,200 "M"	1,100,000	23,000
2-Methylnaphthalene	µg/kg	26,000	NA	< 144	< 72	< 72	< 45 "M"	< 29	< 49	243	< 360 "M"	136 "M"	2,850 "M"	3,250 "M"	600,000	20,000
Naphthalene	µg/kg	3,700	NA	< 80	< 40	< 40	< 54 "M"	< 35	< 60	631	< 420 "M"	< 60 "M"	406 "M"	< 780 "M"	20,000	400
Phenanthrene	µg/kg	28,000	NA	540	< 20	360	36 "M"	19	32	194	126 "M"	125 "M"	703 "M"	2,520 "M"	18,000	1,800
Pyrene	µg/kg	2,200 "J"	NA	690	< 58	400	53 "M"	< 5.9	114	376	126 "M"	148 "M"	3,840 "M"	18,900 "M"	500,000	8,700,000
PVOCs & Detected VOCs																
		NR 720 RCL														
Benzene	µg/kg	NA	< 25	NA	NA	NA	36 "H"	< 29	< 28	< 30 "H"	< 29	< 28	< 274 "H"	< 126 "H"		5.5
Ethylbenzene	µg/kg	NA	41	NA	NA	NA	93 "H"	< 29	< 28	36 "H"	< 29	< 28	560 "H"	776 "H"		2,900
MTBE	µg/kg	NA	< 25	NA	NA	NA	< 30 "H"	< 29	< 28	< 30 "H"	< 29	< 28	< 274 "H"	< 126 "H"		NS
Toluene	µg/kg	NA	< 25	NA	NA	NA	58 "H"	< 29	< 28	110 "H"	< 29	< 28	340 "H"	168 "H"		1,500
1,2,4-Trimethylbenzene	µg/kg	NA	2,300	NA	NA	NA	131 "H"	< 29	30	133 "H"	< 29	< 28	878 "H"	1,990 "H"		NS
1,3,5-Trimethylbenzene	µg/kg	NA	830	NA	NA	NA	< 30 "H"	< 29	< 28	40 "H"	< 29	< 28	615 "H"	< 126 "H"		NS
Xylenes (total)	µg/kg	NA	149	NA	NA	NA	154 "H"	< 88	< 85	133 "H"	< 86	< 85	977 "H"	< 399 "H"		4,100
tert-Butylbenzene	µg/kg	NA	28	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		NS
sec-Butylbenzene	µg/kg	NA	450	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		NS
n-Butylbenzene	µg/kg	NA	1,500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		NS
Isopropylbenzene	µg/kg	NA	82	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		NS
p-Isopropyltoluene	µg/kg	NA	800	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		NS
Naphthalene	µg/kg	NA	3,400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		NS
n-Propylbenzene	µg/kg	NA	110	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		NS

Notes:

1. mg/kg = milligrams per kilogram (equivalent to parts per million, ppm)
2. µg/kg = micrograms per kilogram (equivalent to parts per billion, ppb)
3. NR 720 RCL = WAC, Chapter NR 720 generic Residual Contaminant Level
4. Residential RCL = WAC, Chapter NR 720 RCL for non-industrial land use (metals only) - RCLs for trivalent chromium listed for total chromium
5. Industrial RCL = WAC, Chapter NR 720 RCL for industrial land use (metals only) - RCLs for trivalent chromium listed for total chromium
6. Direct Contact RCL = Interim guidance RCL for protection of direct contact with PAH compounds (non-industrial land use), from WDNR publication RR-519-97 "Soil Cleanup Levels for Polycyclic Aromatic Hydrocarbons (PAHs) Interim Guidance" (April 1997)
7. Migration to Groundwater RCL = Interim guidance RCL for protection of groundwater pathway from PAH compounds, from WDNR publication RR-519-97 "Soil Cleanup Levels for Polycyclic Aromatic Hydrocarbons (PAHs) Interim Guidance" (April 1997)
8. NA = not analyzed
9. NS = no standard established
10. "J" = Concentration detected between Limit of Detection and Limit of Quantitation
11. "M" = matrix interference
12. "H" = late eluting hydrocarbons present
13. Exceedances:

bold	= Concentration exceeds NR 720 RCL, Residential RCL, or Direct Contact RCL
box	= Concentration exceeds Industrial RCL or Migration to Groundwater RCL

Table 4 Subsurface Soil Analytical Results Bulge Property - Sheboygan Lakefront, Sheboygan, Wisconsin Sigma Project No. 7302										
Soil Sample Location:		GP-4		GP-5		GP-6		TP-E		NR 720 RCL
Sample Depth (feet bgs):		0 - 4	2 - 4	0 - 4	2 - 4	0 - 4	0 - 2	0 - 2	2 - 4	
Inorganic		Date:	04/04/02	04/04/02	04/04/02	04/04/02	04/04/02	04/04/02	11/19/02	11/19/02
Chloride (total)	mg/kg	110 "J"	NA	85 "J"	NA	43 "J"	NA	NA	NA	NS
Nitrate nitrogen (total)	mg/kg	<46	NA	<46	NA	<46	NA	NA	NA	NS
Metals (Total)										Residential RCL Industrial RCL
Arsenic	mg/kg	1.2 "J"	NA	3.2	NA	1.0 "J"	NA	NA	NA	0.039 1.6
Barium	mg/kg	14	NA	71	NA	79	NA	NA	NA	NS NS
Cadmium	mg/kg	<1.2	NA	<1.2	NA	<1.2	NA	NA	NA	8 510
Chromium	mg/kg	6.4	NA	9.0	NA	15	NA	NA	NA	16,000 NS
Copper	mg/kg	11	NA	45	NA	13	NA	NA	NA	NS NS
Lead	mg/kg	5.7 "J"	NA	45	NA	39	NA	108	68	50 500
Mercury	mg/kg	0.065 "J"	NA	0.31	NA	0.041 "J"	NA	NA	NA	NS NS
Nickel	mg/kg	8.7	NA	9.5	NA	9.6	NA	NA	NA	NS NS
Selenium	mg/kg	<0.053	NA	0.16 "J"	NA	<0.063	NA	NA	NA	NS NS
Silver	mg/kg	<3	NA	<3	NA	<3	NA	NA	NA	NS NS
Zinc	mg/kg	48	NA	109	NA	33	NA	NA	NA	NS NS
PAHs										Direct Contact RCL Migration to Groundwater RCL
Acenaphthene	µg/kg	<210	NA	<41	NA	<41	NA	1,080 "M"	<81 "M"	900,000 38,000
Acenaphthylene	µg/kg	<210	NA	<42	NA	<42	NA	<1,200 "M"	<140 "M"	18,000 700
Anthracene	µg/kg	<170	NA	68 "J"	NA	56 "J"	NA	2,160 "M"	141 "M"	5,000,000 3,000,000
Benzo(a)anthracene	µg/kg	<270	NA	130 "J"	NA	170 "J"	NA	4,540 "M"	130 "M"	88 17,000
Benzo(a)pyrene	µg/kg	<300	NA	160 "J"	NA	240	NA	4,000 "M"	281 "M"	8.8 48,000
Benzo(b)fluoranthene	µg/kg	<210	NA	130 "J"	NA	210	NA	2,270 "M"	67 "M"	88 360,000
Benzo(ghi)perylene	µg/kg	<410	NA	110 "J"	NA	190 "J"	NA	3,780 "M"	<8.1 "M"	1,800 6,800,000
Benzo(k)fluoranthene	µg/kg	<400	NA	120 "J"	NA	200 "J"	NA	1,510 "M"	85 "M"	880 870,000
Chrysene	µg/kg	310 "J"	NA	150	NA	200	NA	3,560 "M"	206 "M"	8,800 37,000
Dibenzo(a,h)anthracene	µg/kg	<380	NA	<76	NA	<76	NA	367 "M"	30 "M"	8.8 38,000
Fluoranthene	µg/kg	<210	NA	250	NA	370	NA	8,320 "M"	747 "M"	600,000 500,000
Fluorene	µg/kg	<210	NA	50 "J"	NA	<41	NA	518 "M"	62 "M"	600,000 100,000
Indeno(1,2,3-cd)pyrene	µg/kg	<350	NA	86 "J"	NA	150 "J"	NA	2,270 "M"	195 "M"	88 680,000
1-Methylnaphthalene	µg/kg	<190	NA	180	NA	100 "J"	NA	1,080 "M"	563 "M"	1,100,000 23,000
2-Methylnaphthalene	µg/kg	<360	NA	260	NA	120 "J"	NA	4,320 "M"	519 "M"	600,000 20,000
Naphthalene	µg/kg	<200	NA	140	NA	68 "J"	NA	1,060 "M"	541 "M"	20,000 400
Phenanthrene	µg/kg	<100	NA	240	NA	260	NA	6,590 "M"	498 "M"	18,000 1,800
Pyrene	µg/kg	<290	NA	260	NA	320	NA	5,400 "M"	498 "M"	500,000 8,700,000
PVOCs & Detected VOCs										NR 720 RCL
Benzene	µg/kg	NA	<25	NA	<25	NA	<25	39	69 "H"	5.5
Ethylbenzene	µg/kg	NA	<25	NA	<25	NA	<25	40	130 "H"	2,900
MTBE	µg/kg	NA	<25	NA	<25	NA	<25	<27	<27 "H"	NS
Toluene	µg/kg	NA	<25	NA	<25	NA	<25	140	303 "H"	1,500
1,2,4-Trimethylbenzene	µg/kg	NA	<25	NA	91	NA	<25	71	206 "H"	NS
1,3,5-Trimethylbenzene	µg/kg	NA	<25	NA	<25	NA	<25	<27	51 "H"	NS
Xylenes (total)	µg/kg	NA	<75	NA	<75	NA	<75	227	563 "H"	4,100
tert-Butylbenzene	µg/kg	NA	<25	NA	<25	NA	<25	NA	NA	NS
sec-Butylbenzene	µg/kg	NA	<25	NA	<25	NA	<25	NA	NA	NS
n-Butylbenzene	µg/kg	NA	<25	NA	<25	NA	<25	NA	NA	NS
Isopropylbenzene	µg/kg	NA	<25	NA	<25	NA	<25	NA	NA	NS
p-Isopropyltoluene	µg/kg	NA	<25	NA	<25	NA	<25	NA	NA	NS
Naphthalene	µg/kg	NA	<25	NA	53	NA	31	NA	NA	NS
n-Propylbenzene	µg/kg	NA	<25	NA	<25	NA	<25	NA	NA	NS

Notes:

1. mg/kg = milligrams per kilogram (equivalent to parts per million, ppm)
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3. NR 720 RCL = WAC, Chapter NR 720 generic Residual Contaminant Level
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7. Migration to Groundwater RCL = Interim guidance RCL for protection of groundwater pathway from PAH compounds, from WDNR publication RR-519-97 "Soil Cleanup Levels for Polycyclic Aromatic Hydrocarbons (PAHs) Interim Guidance" (April 1997)
8. NA = not analyzed
9. NS = no standard established
10. "J" = Concentration detected between Limit of Detection and Limit of Quantitation
11. "M" = matrix interference
12. "H" = late eluting hydrocarbons present
13. Exceedances:

bold	= Concentration exceeds NR 720 RCL, Residential RCL, or Direct Contact RCL
box	= Concentration exceeds Industrial RCL or Migration to Groundwater RCL

Table 2
Groundwater Quality Results - Detected Compounds
Sheboygan Lakefront - Bulge Property - East of Former Fisherman's Road, Sheboygan, Wisconsin
Sigma Project No. 7302-081

Monitoring Well:		MW-118	MW-119	SMW-1	SPZ-1		NR 140	NR 140
Analytes	Date:	11/92	11/92	7/22/02	7/22/02	5/21/03	ES	PAL
PVOCs/Detected VOCs								
Benzene	µg/L	ND	ND	NA	<0.10	<0.291	5	0.5
Ethylbenzene	µg/L	ND	ND	NA	<0.25	<5.00	700	140
Methyl-tert-butyl-ether	µg/L	ND	ND	NA	<0.25	<0.317	60	12
Toluene	µg/L	2.6	5.1	NA	<0.10	<5.00	1,000	200
1,2,4-Trimethylbenzene	µg/L	56	2.9	NA	<0.10	<5.00	NS	NS
1,3,5-Trimethylbenzene	µg/L	ND	2.5	NA	<0.10	<5.00	NS	NS
Total Trimethylbenzene	µg/L	ND	5.4	NA	<0.20	<10.00	480	96
Xylenes, Total	µg/L	2.5	1.8	NA	<0.25	<5.00	10,000	1,000
Chloroform	µg/L	NA	NA	NA	<0.25	<0.299	6	0.6
1,1-Dichloroethane	µg/L	NA	NA	NA	2.0	<5.00	850	85
1,2-Dichloroethane	µg/L	NA	NA	NA	<0.25	<0.356	5	0.5
cis-1,2-Dichloroethene	µg/L	NA	NA	NA	3.3	<5.00	70	7
p-Isopropyltoluene	µg/L	NA	NA	NA	<0.25	<5.00	NS	NS
Methylene Chloride	µg/L	NA	NA	NA	1.2 "L"	<1.75	5	0.5
Naphthalene	µg/L	NA	NA	NA	<0.25	<8.00	40	8
Trichloroethene	µg/L	NA	NA	NA	5.0	0.690	5	0.5
Vinyl Chloride	µg/L	NA	NA	NA	<0.25	<0.312	0.2	0.02
PAHs								
Acenaphthene	µg/L	ND	ND	0.93	NA	<5.00	NS	NS
Acenaphthylene	µg/L	ND	ND	<0.21	NA	<5.00	NS	NS
Anthracene	µg/L	ND	ND	0.18	NA	<5.00	3,000	300
Benz(a)anthracene	µg/L	ND	ND	0.64	NA	<0.100	NS	NS
Benzo(a)pyrene	µg/L	ND	ND	0.13	NA	<0.0200	0.2	0.02
Benzo(b)fluoranthene	µg/L	ND	ND	<0.042	NA	<0.0200	0.2	0.02
Benzo(ghi)perylene	µg/L	ND	ND	<0.16	NA	<5.00	NS	NS
Benzo(k)fluoranthene	µg/L	ND	ND	0.070	NA	<0.100	NS	NS
Chrysene	µg/L	ND	ND	0.10	NA	<0.0200	0.2	0.02
Dibenzo(ah)anthracene	µg/L	ND	ND	<0.080	NA	<0.100	NS	NS
Fluoranthene	µg/L	ND	ND	0.71	NA	<5.00	400	80
Fluorene	µg/L	ND	ND	0.87	NA	<5.00	400	80
Indeno(1,2,3-cd)pyrene	µg/L	ND	ND	0.052	NA	<0.200	NS	NS
1-Methylnaphthalene	µg/L	129	ND	0.76	NA	<5.00	NS	NS
2-Methylnaphthalene	µg/L	117	ND	1.2	NA	<5.00	NS	NS
Naphthalene	µg/L	ND	ND	0.85	NA	<5.00	40	8
Phenanthrene	µg/L	ND	ND	0.54	NA	<5.00	NS	NS
Pyrene	µg/L	ND	ND	0.47	NA	<5.00	250	50
Dissolved Metals								
Arsenic	µg/L	NA	NA	NA	NA	NA	10	1
Barium	µg/L	NA	NA	NA	NA	NA	2,000	400
Cadmium	µg/L	NA	NA	NA	NA	NA	5	0.5
Iron	µg/L	NA	NA	NA	NA	16,600	300*	150*
Manganese	µg/L	NA	NA	NA	NA	344	50*	25*
Inorganics								
Ammonia	mg/L	NA	NA	NA	NA	1.44	NS	NS
Chloride	mg/L	NA	NA	NA	NA	433	250*	125*
Nitrate + Nitrite	mg/L	NA	NA	NA	NA	0.0590	10	2
Sulfate	mg/L	NA	NA	NA	NA	113	250*	125*

Notes:

- November 1992 groundwater samples were collected by others and data is presented as reported in Earth Tech's June 2001 Remedial Action Plan. Groundwater samples from June 2002 and May 2003 were collected by Sigma Environmental Services, Inc.
- µg/L = micrograms per liter (equivalent to parts per billion, ppb)
- mg/L = milligrams per liter (equivalent to parts per million, ppm)
- ND = Not detected (limits of detection not shown in Earth Tech's June 2001 Remedial Action Plan)
- NA = Not analyzed
- Laboratory data flags: "L" = Concentration detected in sample is characteristic of a laboratory artifact
- NR 140 ES = Wisconsin Administrative Code, Chapter NR 140 Enforcement Standard
- NR 140 PAL = Wisconsin Administrative Code, Chapter NR 140 Preventive Action Limit
- * = NR 140 Public Welfare Groundwater Quality Standard (other ES and PAL values for NR 140 Public Health Groundwater Quality Standards)
- NS = no standard
- Trip blank results: 5/21/03 - All VOCs reported below laboratory detection limits.
- Equipment blank results: 5/21/03 - Equipment blank not used because new disposable bailers used at all wells.
- Exceedances: **bold, box** = Concentration exceeds NR 140 ES
bold, italics = Concentration exceeds NR 140 PAL

Table 1
Static Water Level Measurements
Sheboygan Lakefront - Bulge Property - East of Former Fisherman's Road, Sheboygan, Wisconsin
Sigma Project No. 7302-081

Well ID	Top of Casing Elevation (feet MSL)	Ground Surface Elevation (feet MSL)	Depth to Groundwater (feet toc)	Depth to Groundwater (feet bgs)	Groundwater Elevation (feet MSL)	Estimated Well Screen Interval (feet bgs)	Date	Comments	Information Source
SMW-1	---	---	8.17 8.50	~6.2 ~6.5		3 to 13	07/11/02 07/22/02	Sigma - development Sigma - sampling	Monitoring well SMW-1 destroyed in summer 2002 and abandoned by removal during revetment construction in December 2003.
SPZ-1	---	---	5.74 5.96 7.05	~2.7 ~3 ~4		21 to 26	07/11/02 07/22/02 5/21/03	Sigma - development Sigma - sampling Sigma sampling event	

Notes:
1. Monitoring well SMW-1 and piezometer SPZ-1 were installed by Sigma on July 8, 2002.
2. feet MSL = feet above Mean Sea Level
3. feet toc = feet below top of casing of monitoring well
4. feet bgs = feet below ground surface



IMPROPERLY ABANDONED
MONITORING WELL

STA. 0+00 (FOR START OF SEAWALL INSPECTIONS)

SHEBOYGAN RIVER

LAKE MICHIGAN

SHEBOYGAN RIVER

APPROXIMATE OUTLINE OF
BULGE PROPERTY

Lost Well

LEGEND

- ⊕ = FORMER MONITORING WELLS
- ⊕⊕ = FORMER PIEZOMETER LOCATIONS



NOTE: BASEMAP IS SIGMA DRAWING NO. 7302-046

	SITE PLAN MAP	FIGURE
	SHEBOYGAN LAKEFRONT - BULGE PROPERTY HARBOR CENTRE SOUTH PIER DISTRICT SHEBOYGAN, WISCONSIN	2

Date: 10/10/2018
 Created By: AJR
 Filename: 7302_P1_EngBarrier_Bulge.dwg
 Directory: GRAPHS
 Project: 7302

Route to: Solid Waste Haz. Waste Wastewater
 Env. Response & Repair Underground Tanks Other

Facility/Project Name Bulge Property	Local Grid Location of Well _____ ft. <input type="checkbox"/> N. _____ ft. <input type="checkbox"/> E. _____ ft. <input type="checkbox"/> S. _____ ft. <input type="checkbox"/> W.	Well Name SPZ-1
Facility License, Permit or Monitoring Number	Grid Origin Location Lat. _____ Long. _____ or _____	Wis. Unique Well Number DNR Well Number PFI80
Type of Well Water Table Observation Well <input type="checkbox"/> 11 Piezometer <input checked="" type="checkbox"/> 12	St. Plane _____ ft. N, _____ ft. E.	Date Well Installed 0 7 / 0 8 / 0 2 m m d d y y
Distance Well Is From Waste/Source Boundary ft.	Section Location of Waste/Source _____ 1/4 of _____ 1/4 of Sec. _____, T. _____ N, R. _____ <input type="checkbox"/> E. <input type="checkbox"/> W.	Well Installed By: (Person's Name and Firm) On-Site Tony and Denny
Is Well A Point of Enforcement Std. Application? <input type="checkbox"/> Yes <input type="checkbox"/> No	Location of Well Relative to Waste/Source u <input type="checkbox"/> Upgradient s <input type="checkbox"/> Sidegradient d <input type="checkbox"/> Downgradient n <input type="checkbox"/> Not Known	

- A. Protective pipe, top elevation _____ ft. MSL
 - B. Well casing, top elevation _____ ft. MSL
 - C. Land surface elevation _____ ft. MSL
 - D. Surface seal, bottom _____ ft. MSL or _____ ft.
12. USCS classification of soil near screen:
 GP GM GC GW SW SP
 SM SC ML MH CL CH
 Bedrock

13. Sieve analysis attached? Yes No

14. Drilling method used: Rotary 50
 Hollow Stem Auger 41
 Other

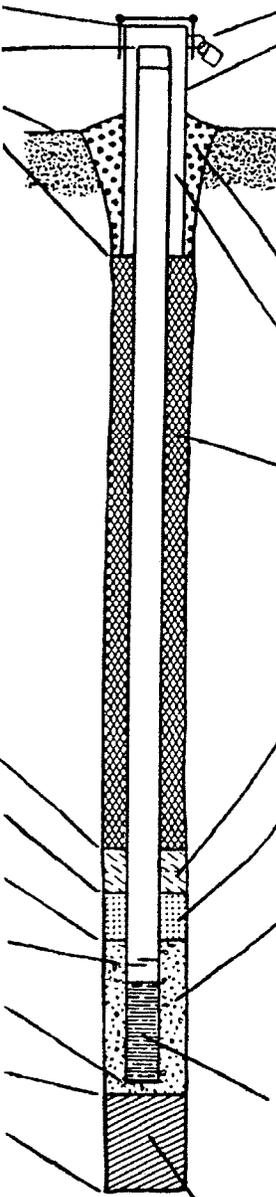
15. Drilling fluid used: Water 02 Air 01
 Drilling Mud 03 None 99

16. Drilling additives used? Yes No

Describe _____

17. Source of water (attach analysis):

- E. Bentonite seal, top _____ ft. MSL or 0.0 ft.
 - F. Fine sand, top _____ ft. MSL or _____ ft.
 - G. Filter pack, top _____ ft. MSL or 19.0 ft.
 - H. Screen joint, top _____ ft. MSL or 21.0 ft.
 - I. Well bottom _____ ft. MSL or 26.0 ft.
 - J. Filter pack, bottom _____ ft. MSL or 26.0 ft.
 - K. Borehole, bottom _____ ft. MSL or 26.0 ft.
 - L. Borehole, diameter 2.00 in.
 - M. O.D. well casing _____ in.
 - N. I.D. well casing _____ in.



- 1. Cap and lock? Yes No
- 2. Protective cover pipe:
 - a. Inside diameter: 4.00 in.
 - b. Length: 4.0 ft.
 - c. Material: Steel 04
Other
 - d. Additional protection? Yes No
 If yes, describe: compression cap
- 3. Surface seal: Bentonite 30
Concrete 01
Other
- 4. Material between well casing and protective pipe: Bentonite 30
Annular space seal
Other
- 5. Annular space seal:
 - a. Granular Bentonite 33
 - b. _____ Lbs/gal mud weight..Bentonite-sand slurry 35
 - c. _____ Lbs/gal mud weight Bentonite slurry 31
 - d. _____ % Bentonite Bentonite-cement grout 50
 - e. _____ Ft³ volume added for any of the above
 - f. How installed: Tremie 01
Tremie pumped 02
Gravity 08
- 6. Bentonite seal:
 - a. Bentonite granules 33
 - b. 1/4 in. 3/8 in. 1/2 in. Bentonite pellets 32
 - c. _____ Other
- 7. Fine sand material: Manufacturer, product name & mesh size
 - a. **Ohio Brand 4000**
 - b. Volume added _____ ft³
- 8. Filter pack material: Manufacturer, product name & mesh size
 - a. **Ohio brand #5**
 - b. Volume added _____ ft³
- 9. Well casing: Flush threaded PVC schedule 40 23
 Flush threaded PVC schedule 80 24
 Other
- 10. Screen material: **Monoflex**
 - a. Screen type: Factory cut 11
Continuous slot 01
Other
 - b. Manufacturer _____
 - c. Slot size: 0.010 in.
 - d. Slotted length: 5.0 ft.
- 11. Backfill material (below filter pack): None 14
Other

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature Heath Slofbeck Firm **Sigma Environmental Services, Inc.**
 220 E. Ryan Road, Oak Creek, WI 53154 (414) 768-7144

Please complete both sides of this form and return to the appropriate DNR office listed at the top of this form as required by chs 144, 147 & 160, Wis Stats, and ch NR 141, Wis Ad Code. In accordance with ch 144, Wis Stats, failure to file this form may result in a forfeiture of not less than \$10, nor more than \$5000 for each day of violation. In accordance with ch 147, Wis Stats, failure to file this form may result in a forfeiture of not more than \$10,000 for each day of violation. NOTE: Shaded areas are for DNR use only. See instructions for more information including where the completed form should be sent.