

May 27, 2021

Project #14411

Joseph J. Martinez  
Hydrogeologist – Remediation and Redevelopment Program  
Wisconsin Department of Natural Resources  
2300 N. Dr. Martin Luther King, Jr. Drive  
Milwaukee, Wisconsin

**RE.: Conceptual Remedial Action Plan – Soil Cover/Landfill Cap**  
Village of Whitefish Landfill  
5201 W. Good Hope Road  
Milwaukee, WI 53223  
DNR BRRTS Activity #: 02-41-000254; FID #: 241218670

Dear Mr. Martinez:

On behalf of the Village of Whitefish Bay, The Sigma Group, Inc., (Sigma) submits, for Wisconsin Department of Natural Resources (WDNR) concurrence, this conceptual remedial action plan (RAP) for the capping and landfill cover of the landfill site located at 5201 West Good Hope Road, Milwaukee. This conceptual RAP includes capping of the areas noted with direct contact risk within the southwest portion of the site and documentation regarding historic capping of the balance of the landfill. The following sections present capping details.

#### **Soil Cap for Direct Contact Risk Mitigation**

A direct contact cap consisting of two-feet of soil cover (18-inches of non-impacted soil and 6-inches of topsoil) is proposed for placement over the impacted areas identified at the southwest portion of the landfill to provide direct contact risk mitigation. A preliminary plan for the soil cap proposed for the southwest portion of the landfill site is presented in **Figure 1**.

Prior to cap construction the impacted areas will be cleared of debris and small trees. The imported soil will be placed, compacted, and graded appropriately to create gentle slope to direct stormwater flow away from the impacted areas. Following topsoil placement, the areas will be seeded to establish a vegetative cover. A post construction survey will be performed to document the cap thickness.

The cap areas will be inspected on an annual basis during springtime to ensure the soil cover is intact. If surface erosion or cap damage is observed during the inspection, the damaged area will be repaired during summer/fall season.

Considering the ongoing biodegradation of soil and groundwater impacts documented at the site additional remedial measure is not anticipated to be necessary. Therefore, the soil cap proposed for the impacted areas would be the final remedy implemented at the site to further position the site for case closure.

**Remaining Landfill Cover**

In response to comments Item 1A, #3, within the WDNR letter dated February 24, 2021, Sigma is providing additional information documenting the placement of the landfill soil cover completed in 1980. Attached **Figure 10** (Site Investigation Report dated May 20, 1992, prepared by STS Consultants) presents a grading plan provided by then Village Engineer Dave Weiss documenting the pre- and post-construction elevations. A review of the grading plan indicates more than two feet of cover material was placed in 1980 and the report concludes that the cover placement met the landfill cover required at that time (Section 4.2.1.4 NR180 Capping of the STS 1992 report). Considering the landfill cover reportedly met the WDNR requirements in 1980 no additional survey or documentation is recommended. Please let us know if a complete copy of the STS 1992 report is needed.

**Summary and Recommendation**

The Village does not have a plan to develop the property in a forceable future and the site will remain a closed landfill. In addition, ongoing biodegradation of the subsurface impacts will continue to reduce the contaminant mass identified at the site. Therefore, the direct contact cap proposed to address the outstanding direct contact risk within the southwest portion of the landfill will satisfy the direct contact capping requirements for case closure.

Please let us know if a review fee is needed to complete this review and provide the technical assistance.

Sincerely,



Mafizul Islam, P.E.  
Senior Engineer



Kristin Kurzka, P. E., P. G.  
Geoscience Group Manager

/attachments

Cc: John Edlebeck / Village of Whitefish Bay

### LEGEND

**SYMBOL KEY**

- ⊕ B-21 = SOIL BORING (STS, 1992)
- ⊙ W-MW-10 = SOIL BORING / MONITORING WELL (STS, 1988-1994)
- ⊕ MW-C = SOIL BORING / MONITORING WELL (SIGMA, 1997)
- ⊙ B12 = GEOPROBE SOIL BORING (SIGMA, 2014)

**SOIL QUALITY BOX KEY**

10-12 = SOIL SAMPLE DEPTH (FEET BGS)

**CHLORINATED VOLATILE ORGANIC COMPOUNDS (CVOCs)**

PCE = TETRACHLOROETHENE  
TCE = TRICHLOROETHENE  
DCE = CIS-1,2-DICHLOROETHENE  
VC = VINYL CHLORIDE

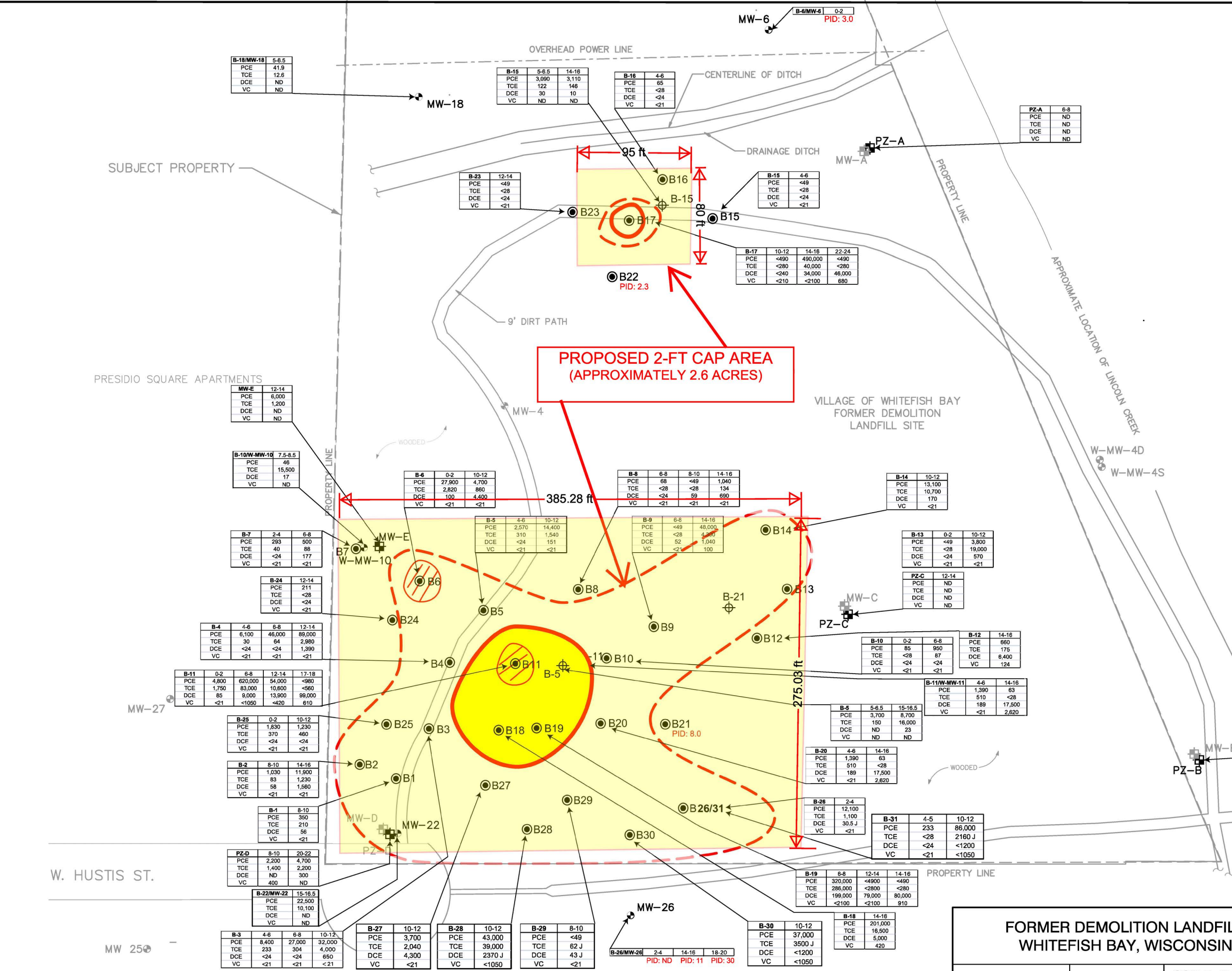
13,100 = CVOC CONCENTRATION (PARTS PER BILLION [PPB])  
ND = NOT DETECTED  
NA = NOT ANALYZED

PID: 8.0 = PHOTOIONIZATION DETECTOR (PID) READING (IN PARTS PER MILLION [PPM])

**SOIL ISOCONCENTRATION KEY**

- = ESTIMATED EXTENT OF TOTAL CVOCs (> 100,000 PPB)
- - - = ESTIMATED EXTENT OF TOTAL CVOCs (> 10,000 PPB)
- ⊕ = SHALLOW SOIL CVOCs IMPACTS > WDNR NON-INDUSTRIAL DIRECT CONTACT RESIDUAL CONTAMINANT LEVELS (NIDC RCLs)
  - PCE = 33,000 PPB
  - TCE = 1,300 PPB
  - DCE = 156,000 PPB
  - VC = 67 PPB

NOTE: EXTENT OF CVOC ISOCONCENTRATION LINES ARE BASED ON THE RECENT SOIL ANALYTICAL DATA OF SOIL SAMPLES COLLECTED BY SIGMA OF SOIL BORINGS ADVANCED IN 2014.



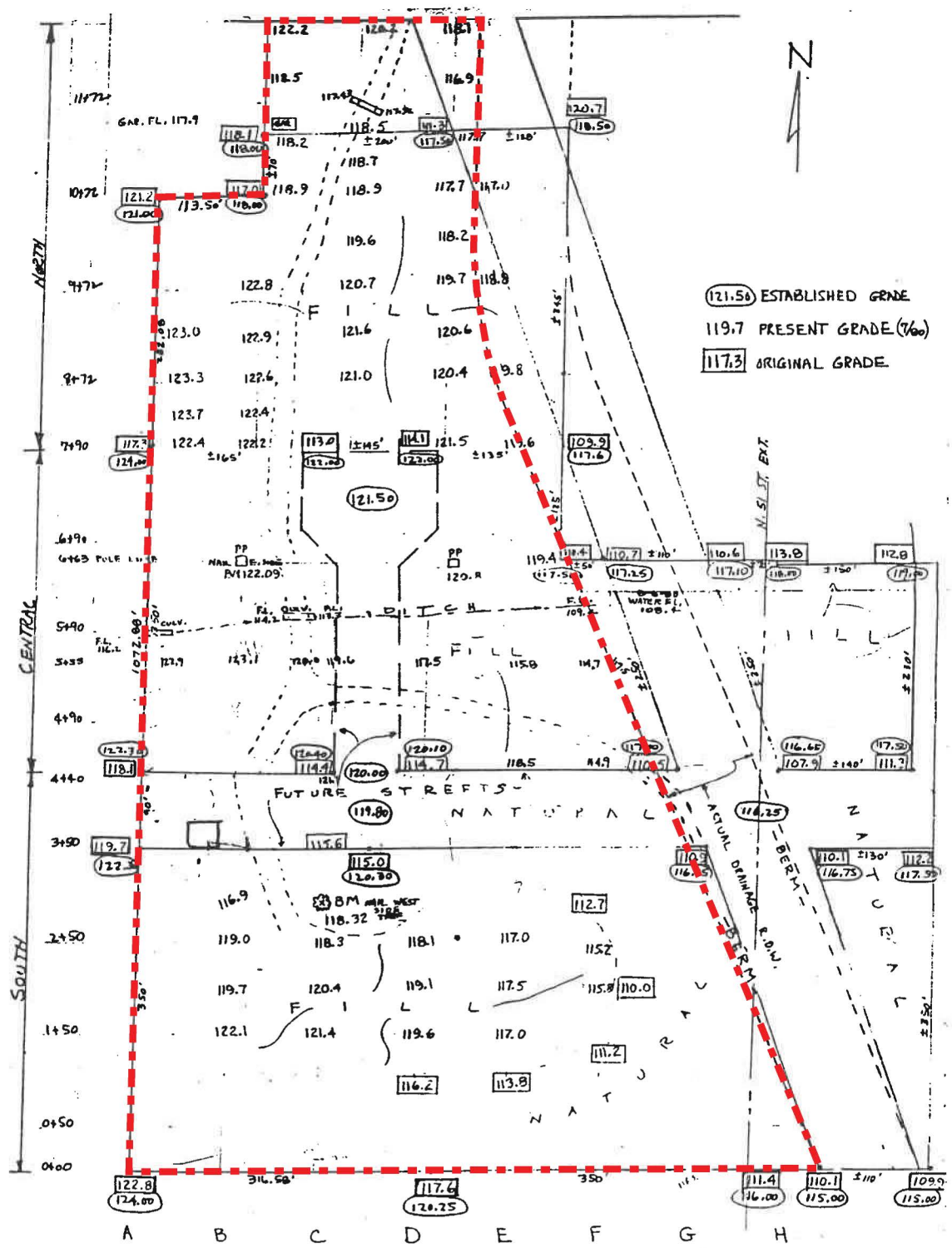
SITE BENCHMARK  
SCRIBED CROSS ON BOLT  
TOP OF OUTFALL  
ELEV = 691.87

OUTFALL  
IE = 687.62

0 80' 160'

GRAPHIC SCALE

<p><b>FORMER DEMOLITION LANDFILL  WHITEFISH BAY, WISCONSIN</b></p>		<p><b>THE SIGMA GROUP</b>  www.thesigmagroup.com  1300 West Canal Street  Milwaukee, WI 53233  Phone: 414-643-4200  Fax: 414-643-4210</p>	
DATE: 05-25-2021	DRW: AEK/JRS	SCALE: 1" = 80'	PRELIMINARY CAP PLAN
CONCEPTUAL REMEDIATION PLAN			FIGURE 1



SOURCE: DAVE WEISS, WHITEFISH BAY ENGINEER



STS Consultants, Ltd.

PROJECT/CLIENT  
**WHITEFISH BAY LANDFILL**  
**MILWAUKEE, WISCONSIN**  
**GRADING PLAN**

DRAWN BY	T.J.J.	4/24/92
CHECKED BY	A.J.G.	4/24/92
APPROVED BY	K.R.H.	4/24/92
SCALE	1" = 80'	FIGURE NO. 10
CADFILE	149-1.DWG	STS PROJECT NO.
PLDT DATE	4/24/92	82149XF