

EGLE-RRD-RIDEEDM

From: noreply-RIDE@Notifications.michigan.gov
Sent: Tuesday, October 20, 2026 1:10 PM
To: EGLE-RRD-RIDEEDM
Cc: ruth.hourani@gza.com
Subject: Non Form - RIDE Submission - 41000048-NF-19

Categories: Processed

Michigan Department of Environment, Great Lakes, and Energy

Remediation and Redevelopment Division

A submittal has been provided to the Michigan Department of Environment, Great Lakes, and Energy, Remediation and Redevelopment Division (EGLE, RRD) through the Remediation Information Data Exchange (RIDE). This submittal will be reviewed to determine if it is administratively complete and able to be processed. The submitter will be contacted if the submittal is determined incomplete, along with actions required to make the submittal receivable by RRD.

Note that review for administrative completeness does not constitute an audit or decision as defined by Part 201, Environmental Remediation or Part 213, Leaking Underground Storage Tanks of the Natural Resources and Environmental Protection Act, 1994 PA 451, nor does it constitute an extension of the Part 201 or Part 213 reporting deadlines. For assistance in providing submittals through RIDE, please visit the [RIDE Informational Webpage](#) or email EGLE-RIDE-Admin@michigan.gov

Non Form

41000048-NF-19

LOCATION INFORMATION

RRD District:	Grand Rapids
RRD Project Manager:	Gies, Leah
Location Name:	Northeast Gravel Co
Location ID:	41000048
Address:	4300 Cannonsburg Road NE, Belmont, MI, 49306

CONTACT INFORMATION

Organization Name:	Boulder Creek Development Company		
Address:	1730 Three Mile Road NE, Grand Rapids, MI, 49505		
Contact Name:	Contact Type:	Contact Address:	Phone: Email:
Dykema, James	Owner/Operator	1730 Three Mile Road NE, Grand Rapids, MI, 49505	jamesadykema@gmail.com

ATTACHMENT INFORMATION

63743.04_Feasibility Study	41000048-NF-19 63743.04_Feasibility Study RAP_D_10202026.pdf
RAP_D_10202026.pdf	

SUBMITTAL INFORMATION

Category:	Submittal under Legal Agreement
Title:	Associate Principal
Submitted on Behalf of:	
Contact Person:	Lori Powers
Contact Email:	loretta.powers@gza.com
Contact Phone:	(616) 258-7203
Comments:	Draft Landfill Cap Feasibility Study Response Activity Plan

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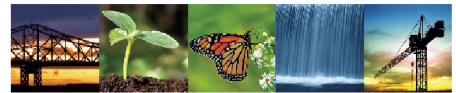


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DRAFT – FOR REVIEW ONLY



Sent Via Email Only

October 20, 2026
File No. 16.0063743.04

Ms. Leah Gies
Grand Rapids District Office
Remediation and Redevelopment Division
Michigan Department of Environment, Great Lakes, and Energy
350 Ottawa Avenue NW, Unit 10
Grand Rapids, MI 49503
GiesL1@michigan.gov

Re: Boulder Creek Development Company LLC Administrative Order
EGLE Reference No. AOC-RRD-25-003
Draft Landfill Cap Feasibility Study Response Activity Plan

Dear Ms. Gies:

On behalf of Boulder Creek Development Company LLC (BCDC), GZA GeoEnvironmental, Inc. (GZA) has prepared this Draft Landfill Cap Feasibility Study Response Action Plan (RAP) for the former Northeast Gravel Company Landfill in Belmont, Michigan. This Report was prepared in response to the referenced Administrative Order, effective April 19, 2026.

This submittal includes the Landfill Cap Feasibility Study Response Activity Plan identified in Sections 7.9 (a) of the Administrative Order.

If you need additional information, please contact Loretta Powers at 616.956.6123.

Very truly yours,

GZA GeoEnvironmental, Inc.

Spencer Koblinski, PE
Project Manager

Loretta J. Powers, CHMM
Associate Principal

Katherine McDonald, CPG
Associate Principal

Bart Kettle, PE
Principal

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LANDFILL CAP FEASIBILITY STUDY RESPONSE ACTIVITY PLAN

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Disclaimer: This document is a DRAFT document that has not received approval from the Michigan Department of Environment, Great Lakes, and Energy (EGLE). This document was prepared pursuant to a court Consent Decree. The opinions, findings and conclusions expressed are those of the authors and not those of EGLE.

October 20, 2026
File No. 16.0063743.04

PREPARED FOR:
Boulder Creek Development Company LLC
Belmont, Michigan

GZA GeoEnvironmental, Inc.
601 Fifth Street NW | Suite 102 | Grand Rapids, MI 49504
616.956.6123

Offices Nationwide
www.gza.com

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FIGURES

FIGURE 1 — LOCATION MAP

FIGURE 2 — AERIAL PROPERTY LOCATION MAP

FIGURE 3 — FIELD EXPLORATION PLAN



ACRONYMS

AOC	Administrative Order by Consent for Response Activities and Payment of Costs
BCDC	Boulder Creek Development Company LLC
CSM	Conceptual Site Model
EGLE	Michigan Department of Environment, Great Lakes, and Energy
EPA	U.S. Environmental Protection Agency
FS	Feasibility Study
HASP	Health and Safety Plan
Landfill	3769 (formerly 4300) Cannonsburg Road in Belmont, Kent County, Michigan
NEGSA	Northeast Gravel Study Area
NREPA	Natural Resources and Environmental Protection Act
OSHA	Occupational Safety and Health Administration
PFAS	Poly- and perfluorinated alkyl substances
PFOA	Perfluorooctanoic acid
PFOS	Perfluorooctane sulfonate
QAPP	Quality Assurance Project Plan
RAP	Response Activity Plan
RI	Remedial Investigation
the Property	4300 Cannonsburg Road NE, Belmont, Michigan



1.0 INTRODUCTION

1.1 AUTHORITY AND OBLIGATION

This RAP is submitted on behalf of BCDC pursuant to Paragraph 7.9(a) of the AOC, EGLE Reference No. AOC-RRD-25-003 (the Order), which was entered under Section 20134(1) of Part 201, NREPA 1994 PA 451, as amended. The Order requires BCDC to submit, within 180 days of the Effective Date, a RAP and implementation schedule containing a plan to conduct an FS that will propose potential remedies to control the ongoing release of PFAS from the waste cell on the Property to area groundwater and surface water bodies. Response activities under this RAP are performed to comply with Part 201, including Section 20114, and the performance objectives of Paragraph 7.1. RAPs required or submitted under the Order are not subject to the provisions of Section 20114b of the NREPA.

1.2 PURPOSE

This RAP describes the plan, scope, and implementation schedule for conducting the waste cells FS. It identifies the remedy the Order requires the FS to evaluate (surface cap), the evaluation framework the FS will apply, and the field investigation that will be performed to provide the newly collected data supporting the FS. The FS itself — the comparative analysis of remedy options and the proposed selected remedy — will be presented in the Summary Feasibility Study Report submitted under Paragraph 7.9(d) of the Order.

2.0 FACILITY BACKGROUND AND CONCEPTUAL SITE MODEL

2.1 FACILITY DESCRIPTION AND OPERATIONAL HISTORY

From 1966 through 1979, the Northeast Gravel Company operated a licensed landfill at 3769 (formerly 4300) Cannonsburg Road in Belmont, Kent County, Michigan (Landfill) that is now part of the NEGSA. The NEGSA location is provided in **Figure 1**. BCDC acquired the Landfill and adjoining real estate on April 9, 1996, and the Landfill is currently part of the Boulder Creek Golf Club. The Landfill consists of three waste cells: a cell dedicated to tannery waste, a cell containing plating waste (including plating sludges), and a general refuse cell.

The tannery waste cell was previously capped with a permeable sand and vegetative cover under an EGLE-approved work plan. The permeable cap cover does not limit PFAS leaching from the tannery waste into soil and groundwater. The plating waste cell and the general refuse cell are capped with impermeable clay covers designed to prevent infiltration of precipitation and irrigation water. Construction of the cover systems is documented in the “Remedial Action Plan Certification Report, Northeast Gravel Company, Plainfield Township, Michigan, August 1997.” The tannery waste cell currently functions as a driving range. **Figure 2** is an aerial view of the extent of the NEGSA and the general area of the waste cells.

2.2 NATURE OF CONTAMINATION

PFAS is present in the tannery and plating wastes of which several compounds are hazardous substances under Section 20101(1)(x) of the NREPA. Samples of tannery waste confirm the presence of PFOA and PFOS. According to Section 6.6 of the Order, EGLE believes there have been “releases of PFAS Compounds from the historic landfill operations” (e.g., tannery waste cells) into groundwater, which has migrated in a southerly direction toward residences, three ponds, and is interpreted to discharge to the Grand River. Section 6.2 of the Order states the continued leaching of PFAS from the former tannery waste cell constitutes a release or threatened release under the NREPA.



2.3 CONCEPTUAL SITE MODEL

The field program presented herein is designed to inform GZA's understanding of the CSM and provide additional information to support a CSM update and inform the remedy selection. The Summary FS report will include an updated CSM that generally conforms to ASTM E1689-95(2014) and the EPA's *Environmental Cleanup Best Management Practices: Effective Use of the Project Life Cycle Conceptual Site Model* (EPA 542-F-11-011, July 2011). The CSM will be updated to incorporate the groundwater elevation and waste/groundwater interface data developed under this RAP (refer to Section 5.0).

Previous investigations have taken place at the Property that have formed an initial understanding of the former landfill area. The 1994 RI mapped the tannery waste disposal area at approximately 8 acres with penetrated waste thicknesses of approximately 1.1 to 11.5 feet, and the plating waste area at approximately 1.5 acres with central thicknesses of approximately 22 to 30 feet thinning along the margins; the general refuse cell was not characterized with comparable boring density. Native soils above the base of the water-table aquifer are mainly medium sand and gravelly sand/gravel, with less common silty fine sand, clayey fine sand, silt, and mixed clay-sand-gravel, over a deeper aquitard interpreted as primarily clay, likely glacial till, with substantial relief on the top of the aquitard surface. Groundwater occurs in an unconfined water-table aquifer within that sand and gravel, commonly encountered between approximately 28 to 33 feet below ground surface, with saturated thickness of approximately 47 to 90 feet, and was historically interpreted as standing approximately 1 to 9 feet below the bottom of waste. Flow is interpreted as generally south to south-southwest toward the Grand River at average linear velocities of approximately 0.24 to 2.45 feet per day, with an estimated travel time from the disposal areas to the Grand River of approximately 3.5 years.

Waste extents and cap alignment are drawn from 1994–1995 explorations whose documentation is incomplete, and cap component thicknesses and depth to waste have not been confirmed in the field. Most significantly, the waste/groundwater relationship reflects 1990s conditions: current evaluation requires surveyed waste and cap elevations, current groundwater elevations, and seasonal water-level data. Soil types within the cap and the depth and relief of the underlying clay-confining layer require verification and geotechnical characterization. The field program described in **Section 5.0** is designed to close these gaps, support the remedy evaluation, and update the CSM.

Existing characterization has attempted to define the lateral and vertical extent of waste within the cells; this RAP is focused on the verification of this historic characterization for the purposes of supporting the remedy evaluation and updating the CSM.

2.4 DATA COLLECTION

Previous investigations in 1994 and 1995 have estimated the extents of the waste cells at the Property through borings and test pits; however, the exploration documentation is incomplete and/or does not provide sufficient detail to inform the remedy evaluation. The data needed to support the FS and satisfy the Order's requirement that the FS account for the degree of contamination leaching from the waste cells is:

- Water-table elevation within and adjoining the waste cells;
- Vertical relationship between waste and groundwater (i.e., the degree to which, if at all, waste is in contact with groundwater);
- Refine tannery cell waste extents, tannery cell cap boundary, and cap thickness/condition; and
- Soil characterization to determine geotechnical properties to support remedy evaluation.



3.0 RAP OBJECTIVES

The FS planned under this RAP serves the Order's performance objectives to assess the tannery cell conditions and select an appropriate remedial action. The remedial objective of the FS is to control the ongoing release of PFAS from the waste cell to area groundwater and surface water bodies. Each remedy considered in the FS will be evaluated against this objective.

4.0 SCOPE OF THE FEASIBILITY STUDY

4.1 REMEDIES TO BE EVALUATED

The Order requires the FS to evaluate a surface cap that leaves waste in place without a bottom liner, which complies with Part 201 and meets the applicable substantive requirements of Part 115, Solid Waste Management of the NREPA, to control the ongoing release of PFAS from the waste cells. Evaluation of this surface-cap remedy is a required element of the FS. The FS will accordingly evaluate the required surface-cap remedy together with up to three additional remedy options BCDC identifies as potentially appropriate to control the ongoing release of PFAS from the waste cells.

4.2 EVALUATION FRAMEWORK

The FS will define the remedial objective(s) and analyze the remedy against the following factors specified in the Order:

- Performance, reliability, ease of implementation, and potential impacts of the remedy — including safety impacts, cross-media impacts, and control of exposure to residual contamination;
- Time required to begin and complete implementation;
- Cost of implementation;
- Institutional requirements that may substantially affect implementation; and
- The remedy's ability to reduce the toxicity and mobility of PFAS.

On completion of the FS, BCDC will submit for EGLE's review a draft Summary Feasibility Study Report, including the methodology, data analysis, and proposed remedy selection.

5.0 FIELD INVESTIGATION

5.1 OBJECTIVES

The field investigation under this RAP is centered around confirmation of waste extents and groundwater elevation. This includes:

- Evaluating the groundwater elevation at, and in the vicinity of, the waste cells;
- Characterizing the vertical relationship between the waste and groundwater, including the degree to which waste is in contact with or lies within groundwater;



- Using test trenches, test pits, and/or borings to supplement and refine previously established tannery waste and tannery cap thickness and/or extents of tannery waste; and
- Characterization of geotechnical and chemical properties of soil, existing tannery cap material, and/or waste as applicable to inform remedy selection.

5.2 GROUNDWATER MEASUREMENTS

GZA will evaluate the groundwater elevation at and near the waste cells using approximately 12 piezometer wells as shown on **Figure 3**. Measuring points will be surveyed to a common horizontal and vertical datum. Some piezometer borings around the pond area will be advanced by rotary drilling, with split-spoon samples collected to document subsurface geologic conditions.

Water-level measurements will be collected monthly over one year to evaluate seasonal variability in groundwater elevations.

5.3 WASTE EXTENT AND EVALUATION OF EXISTING CAP COMPONENTS

5.3.1 *Waste Extent*

The lateral extents of existing tannery waste will be determined by excavating test trenches. These proposed excavations will supplement and refine waste extents estimated from previous investigations. Test trenches will be excavated around the perimeter of the tannery waste cell areas to estimate the extents of waste placed and constructed cap components. Test trenches will be excavated at approximately 100-foot spacings along the reported edge of the existing tannery waste cap, with more frequent locations and direction changes in the reported perimeter. The locations will be based on existing subsurface exploration data and a current topographic survey. The test trenches will be excavated perpendicular to the limits or edge of reported tannery waste extents. The exploration will extend out from the waste mass until no visible waste is found. If no waste is found in the initial test trench dig, then the trench will extend inward to the waste mass to determine edge of waste. Upon establishing the waste limit, the location and elevation of waste will be field-marked, recorded using a hand-held global positioning system unit with sub-meter accuracy, and incorporated into the field survey by a Michigan-licensed surveyor. Photographs will be taken of each open test trench prior to backfilling. The test trenches will be documented on test trench field logs with cross-sectional plots identifying materials encountered including general waste characterization and cap components, noting location coordinates and elevations of key features, water levels, odors, etc. Initial proposed test trench locations are shown on **Figure 3**. Test trench excavations will be backfilled with excavation spoil compacted with the excavator bucket. The spoil will be returned with waste material placed on the bottom and cover soils placed on top.

5.3.2 *Evaluation of Existing Cap Components*

Existing tannery cap soils will be evaluated via shallow test pit excavations extending through the cap soils to the top of waste. The test pits will be documented on test pit field logs with cross-sectional plots identifying soil types and thicknesses of the cap components and depth to waste. Photographs will be taken of each open test pit prior to backfilling. Location coordinates and elevations will be recorded by survey. Other items to be noted will be water levels, odors, etc. Initial proposed test pit locations are shown in **Figure 3**. These locations may be modified upon eventual evaluation of a current topographic survey. Bulk samples of the cap soils will be collected with select samples tested for gradation, Atterberg Limits (fine-grained soils), modified proctor, and reconstituted permeability. This testing will be done to evaluate the soils for potential use as barrier protection soil or topsoil for



the final cover system. Test pit excavations will be backfilled with excavation spoil compacted with the excavator bucket. The spoil will be placed back with waste material on the bottom (if excavated) and cover soils on top.

Soil cuttings from test borings and other investigation-derived waste will be managed on the Property. If soil is removed from the Property, it will be containerized, characterized, and managed for off-site transfer, storage, treatment, or disposal as appropriate. If soil is relocated, relocation will comply with Section 20120c of the NREPA.

5.4 SAMPLING AND ANALYSIS

PFAS sampling is not planned for the FS RAP work. If it later proves necessary, PFAS-specific field protocols, including avoidance of fluoropolymer-containing sampling equipment and field products, with quality assurance/quality control (field duplicates, equipment blanks, and related elements) as specified in the QAPP, will be followed.

5.5 SURVEY AND DOCUMENTATION

A topographic survey of the waste cells and surrounding area will be conducted to provide ground surface elevations and locate planimetric features. The survey will extend at least 100 feet laterally out from the waste extents identified in the investigations described in **Section 5.3**. The distance may be extended to adequately measure site topography and features. Measuring points and boring/excavation locations and elevations will be surveyed and presented on the figures accompanying the data submittals. Soil boring logs, water-level records, and analytical data will be compiled to support the FS and the Summary FS Report.

6.0 **PROPERTY ACCESS**

The field activities described in this RAP are located both on the Property owned or controlled by BCDC and on parcels not controlled by BCDC. For locations not owned or controlled by BCDC, BCDC will use its *best efforts* to obtain written access, consistent with Section X of the Order.¹

7.0 **QUALITY ASSURANCE AND HEALTH AND SAFETY**

7.1 QAPP

Tasks included in the QAPP will be performed in accordance with the QAPP required by Paragraph 7.3 of the Order, developed consistent with EPA Requirements for QAPP (EPA QA/R-5, March 2001), Guidance for Quality Assurance Project Plans (EPA QA/G-5, December 2002), and ANSI/ASQC E4-1994, and using the analytical methods and target detection limits in EGLE's March 2016 resource materials.

The QAPP was approved by EGLE with conditions on July 24, 2026, and resubmitted final on August 21, 2026.

7.2 HASP

Intrusive work will be performed in accordance with the HASP required by Paragraph 7.4 of the Order, developed consistent with the National Contingency Plan (40 CFR 300.150), OSHA (29 CFR 1910.120), and the Michigan OSHA (1974 PA 154).

¹ Language direct from Paragraph 10.2 Section X. The Order states, "'best efforts' includes, but is not limited to, providing reasonable consideration acceptable to the owner or taking judicial action to secure such access."



The HASP was submitted to EGLE on June 4, 2026.

8.0 IMPLEMENTATION SCHEDULE

The following schedule is keyed to the Effective Date and to being submitted for EGLE approval.

Milestone	Timing
Submit this RAP and implementation schedule to EGLE	Within 180 days of Effective Date (October 21, 2026)
EGLE review/approval of RAP	Assumed 30 days after submittal
Mobilize field program (survey, borings, test pits, groundwater monitoring)	Starting December 1, 2026
Seasonal water-level events	Monthly from January through October 2027
Laboratory analysis	Assumed 30 days
Conduct feasibility study (alternatives analysis)	9 months
Submit draft Summary Feasibility Study Report	November 2027

9.0 REPORTING

9.1 PROGRESS REPORTS

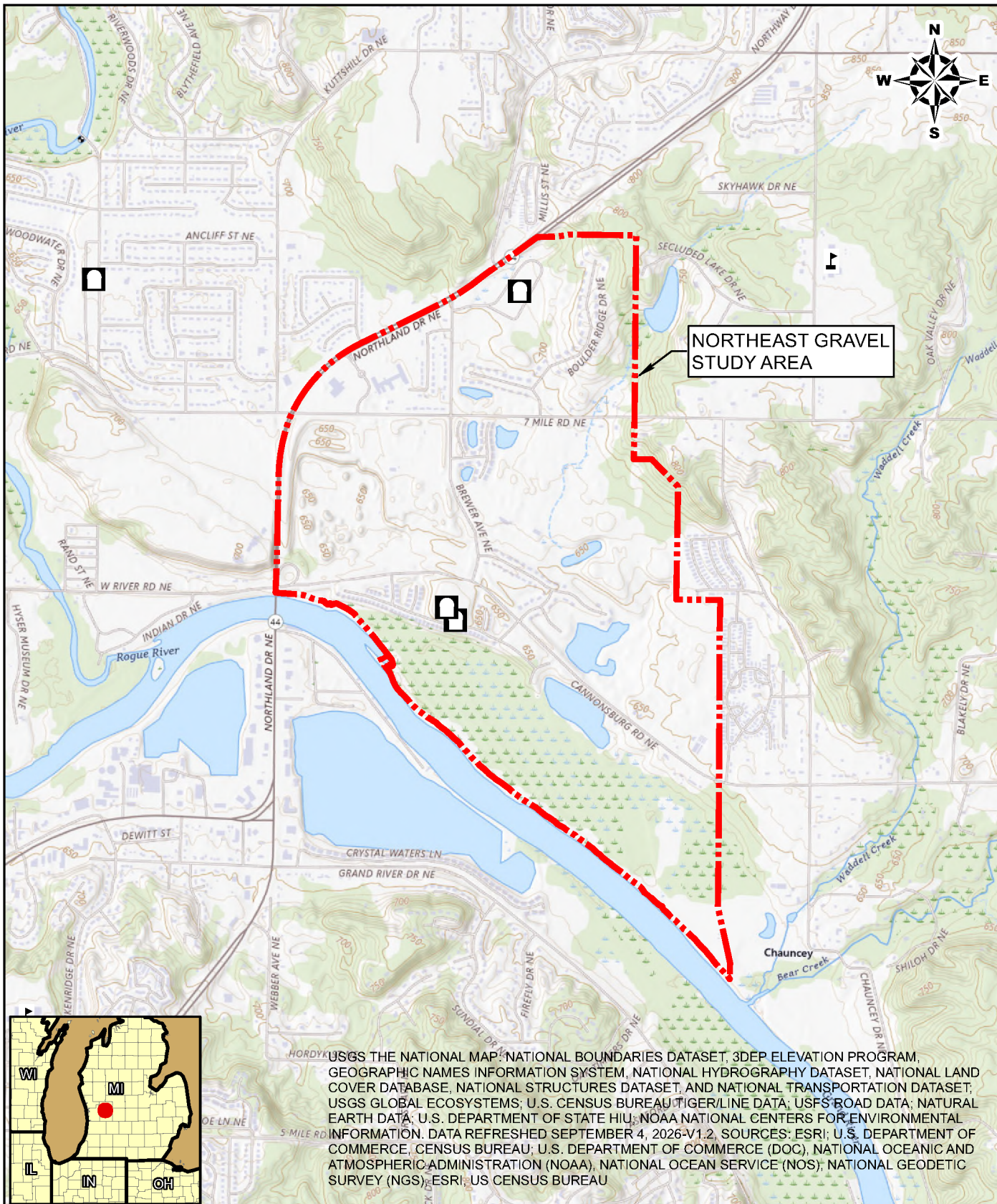
Progress reports will be submitted in accordance with the progress-reporting provisions of the Order, which require description of activities taken in the quarterly progress submissions.

9.2 SUMMARY FEASIBILITY STUDY REPORT

On completion of the FS, the draft Summary Feasibility Study Report will be submitted for EGLE review and present the remedial objectives, the analysis of the remedy against Paragraph 7.9(c) factors, and the proposed selected remedy.



FIGURES



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NORTHEAST GRAVE STUDY AREA
BELMONT, KENT COUNTY, MICHIGAN

FEASIBILITY STUDY - REMEDIAL ACTION PLAN
LOCATION MAP

PREPARED BY:



GZA GeoEnvironmental, Inc.
www.gza.com

PREPARED FOR:

BOULDER CREEK DEVELOPMENT COMPANY, LLC

PROJ MGR: SAK

REVIEWED BY: LJP

CHECKED BY: MAW

DESIGNED BY: SAK

DRAWN BY: DRH

SCALE: 1 in = 2,000 ft

DATE: 09/21/2026

PROJECT NO: 16.0063743.04

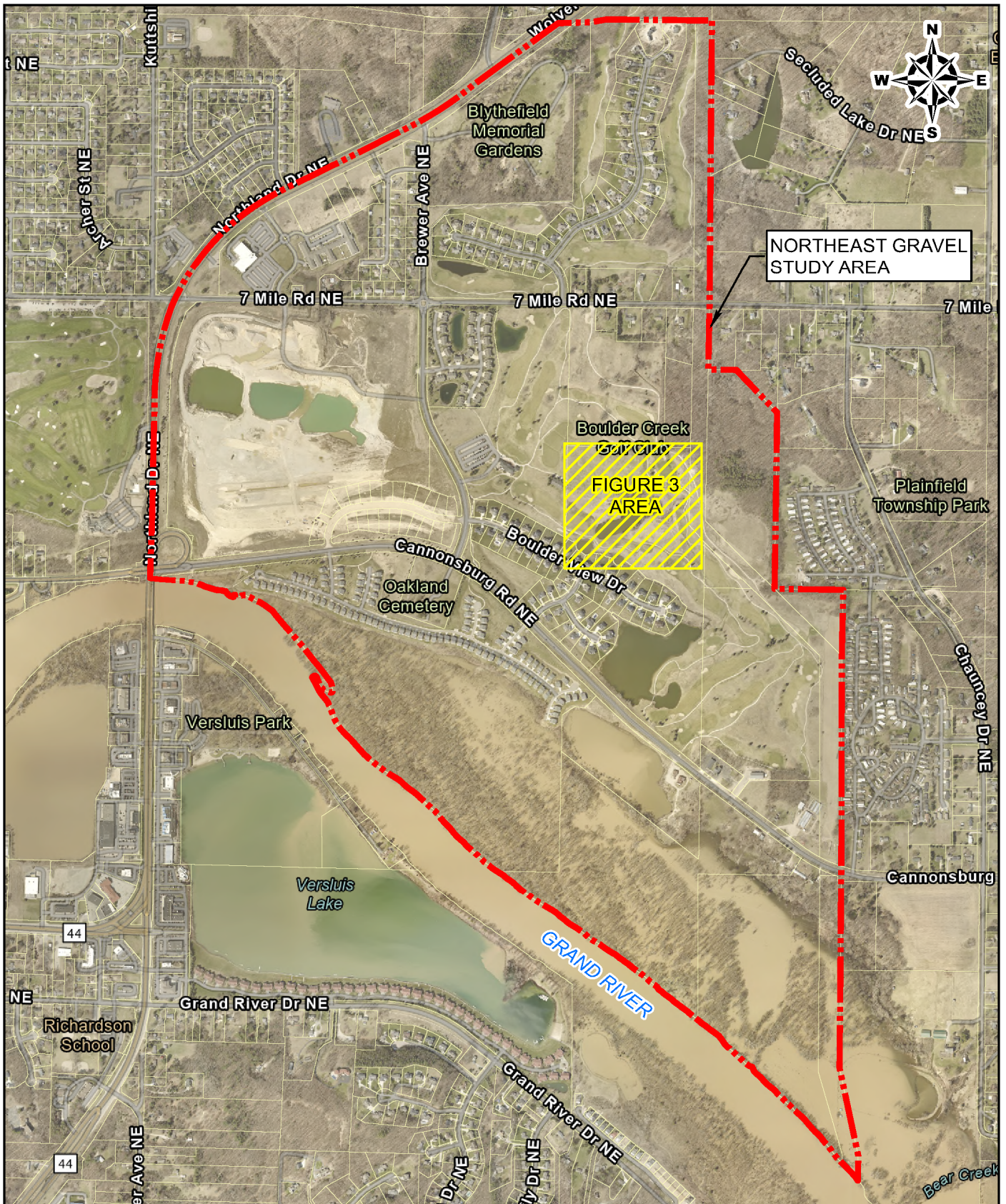
REVISION NO:

FIGURE

1

0 1,000 2,000 3,000 4,000

SCALE IN FEET



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0 640 1,280 1,920 2,560

SCALE IN FEET

NORTHEAST GRAVE STUDY AREA
BELMONT, KENT COUNTY, MICHIGAN

PREPARED BY:



GZA GeoEnvironmental, Inc.
www.gza.com

PREPARED FOR:

BOULDER CREEK DEVELOPMENT
COMPANY, LLC

FEASIBILITY STUDY - REMEDIAL ACTION PLAN
AERIAL PROPERTY LOCATION MAP

PROJ MGR: SAK

REVIEWED BY: LJP

CHECKED BY: MAW

FIGURE

DESIGNED BY: SAK

DRAWN BY: DRH

SCALE: 1 in = 1,280 ft

2

DATE: 09/21/2026

PROJECT NO: 16.0063743.04

REVISION NO:



LEGEND

HISTORICAL SAMPLE LOCATION

- MONITORING WELL
- SOIL BORING
- STREAM FLOW - CREEK GAUGING LOCATION
- SURFACE WATER SAMPLE LOCATION
- TEST PIT
- VERTICAL PROFILE BORING

PROPOSED SAMPLE LOCATION

- PROPOSED PIEZOMETER
- PROPOSED TEST PIT FOR EVALUATION OF CAP SOILS
- PROPOSED TEST TRENCH TO DETERMINE WASTE AND CAP EXTENTS

BOUNDARIES OF INTEREST

- CLAY CAP
- SAND CAP
- DOMESTIC REFUSE AREA
- PLATING WASTE AREA
- TANNERY WASTE AREA

NOTE

CONTOURS ARE BASED ON 1997 CLOSURE REPORT. NEW TOPOGRAPHIC SURVEY TO BE CONDUCTED.



0 60 120 180 240
 SCALE IN FEET

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NORTHEAST GRAVEL STUDY AREA
 BELMONT, KENT COUNTY, MICHIGAN

FEASIBILITY STUDY - REMEDIAL ACTION PLAN
 FIELD EXPLORATION PLAN

PREPARED BY: GZA GeoEnvironmental, Inc. www.gza.com		PREPARED FOR: BOULDER CREEK DEVELOPMENT COMPANY, LLC	
PROJ. MGR. SAK	REVIEWED BY: LJP	CHECKED BY: MAW	FIGURE 3
DESIGNED BY: SAK	DRAWN BY: DRH	SCALE: 1 in = 120 ft	
DATE: 10/14/2026	PROJECT NO: 16.0063743.04	REVISION NO:	