

DUE CARE COMPLIANCE ANALYSIS

(Rule 299.51003(5))

For:

**407 & 431 WEALTHY STREET SW
CITY OF GRAND RAPIDS, MICHIGAN**

Prepared on behalf of:

**UNDERGROUND BUILDING MAINTENANCE
6568 CENTER INDUSTRIAL DRIVE
JENISON, MICHIGAN 49428**



Environmental Assessment and Real Estate Development Services

APRIL 23, 2021

TABLE OF CONTENTS

1.0	INTRODUCTION	1
2.0	SITE DESCRIPTION AND LOCATION.....	2
3.0	KNOWN CONTAMINATION <i>Rule 299.51003(5)(a)(ii)</i>	2
	3.1 Hazardous Substances - Soil.....	3
	3.2 Hazardous Substances - Groundwater	3
	3.3 Discarded or Abandoned Containers	3
4.0	COMPLIANCE ANALYSIS	3
	4.1 Detailed Characteristics of Property Use	4
	4.2 Geology and Hydrogeology	4
	4.3 Hazardous Substance Information.....	4
	4.4 Exposure Pathways <i>Rule 299.51003(5)(a)(i)</i>	4
	4.4.1 Groundwater Ingestion.....	5
	4.4.2 Subsurface Soil Infinite Source Volatile Soil (Ambient) Inhalation	5
	4.4.3 Groundwater Volatilization to Indoor Air.....	5
	4.4.4 Soil Volatilization to Indoor Air	6
	4.4.5 Groundwater-Surface Water Interface	6
	4.4.6 Soil Direct Contact	6
	4.4.7 Particulate Soil Inhalation	7
	4.4.8 Flammability/Explosivity	7
5.0	CONCLUSION OF EXPOSURE PATHWAY EVALUATION	7
6.0	CONCLUSIONS	9

Figures

Figure 1 – Site Location Map

Figure 2 – Site Plan with Soil Boring Locations

Tables

Table 1 – Summary of Soil Results and Relevant Environment, Great Lakes, and Energy Generic Non-Residential Cleanup Criteria

Table 1 – Summary of Groundwater Results and Relevant Environment, Great Lakes, and Energy Generic Non-Residential Cleanup Criteria

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1.0 INTRODUCTION

Marshall Associates Environmental and Real Estate Development Services, LLC (Marshall Associates) was retained to prepare this Due Care Compliance Analysis for the property located at 407 & 431 Wealthy Street SW, City of Grand Rapids, Michigan. The purpose of this Due Care Compliance Analysis is to fulfill Rule 299.51003(5) established pursuant to Part 201 of Michigan's Natural Resources and Environmental Protection Act (PA 451 of 1994 as amended – "Part 201"). This rule requires that owners and operators of property defined as a "facility" maintain documentation of due care compliance.

This Due Care Compliance Analysis has been prepared on behalf of Underground Building Maintenance, which intends to purchase the Subject Property. The Subject Property is 1.05-acres and contains an approximate 1,056-square footprint single-story building that is currently unoccupied and slated to be demolished. Surface parking is located along the southern, eastern and western elevations. The building does not contain any subgrade spaces (see Figure 2).

The Subject Property is generally flat and uses municipal water and sewer. The Subject Property is covered with building-footprint, asphalt paving and grass/landscaping. It connected to all modern franchise utilities.

A Phase I ESA was completed for the Subject Property March 19, 2021 that included research and assessment of historical records dating back to 1895. The Subject Property contained several buildings including dwellings, coal bunkers, and railroad. In the 1920s the dwellings on the Subject Property were demolished the Subject Property was occupied by Bultema-Timmer Fuel Co. from the early 1920s through the mid-1960s. These operations included coal storage in the southwestern portion along with offices. By 1980 a portion of the Subject Property contained an Amtrak train station. The passenger train station was active from the 1980s through October 2014. Since 2014 the Subject Property building has remained vacant.

The Phase I ESA completed for the Subject Property identified recognized environmental conditions (RECs) in connection with prior uses of railroad and a fuel company. Because of these findings, a Phase II ESA was conducted at the Subject Property in March 2021. This Phase II assessment involved advancing five soil borings to maximum depths of 20-feet below grade. Samples of soil and groundwater were collected and analyzed for petroleum and hazardous substances from these borings.

Results of soil and groundwater sampling reveal detectable levels of petroleum substances, several of which exceed the Michigan Department of Environment, Great Lakes, and Energy (EGLE) Generic Residential Cleanup Criteria (GRCC). Specifically, concentrations of arsenic, benzene, ethylbenzene, xylenes, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, acenaphthylene, benzo(a)pyrene, naphthalene, and phenanthrene in soil samples and benzene, ethylbenzene, xylenes, 1,2,4-TMB and 1,3,5-TMB in groundwater samples are above the EGLE's GRCC and define the Subject Property a 'facility' pursuant to Part 201 of Michigan Natural Resources and Environmental Protection Act (PA 451 of 1994 as amended) – ("Part 201").

2.0 SITE DESCRIPTION AND LOCATION

This Due Care Compliance Analysis is for 407 & 431 Wealthy Street SW, City of Grand Rapids, Michigan. The Subject Property is located in the southeast 1/4 of Section 25, T.7N, R.12W, Grand Rapids, Kent County, Michigan. It is comprised of two parcels of land totaling 1.05-acres.

The Subject Property has a common address of 407 & 431 Wealthy Street SW, City of Grand Rapids, Michigan (see Figure 1). The permanent parcel numbers for the Subject Property are 41-13-25-501-009 and 41-13-25-383-003.

The Subject Property is located in an area developed with commercial properties and is generally flat. The area is improved with rolled curb streets, and modern utilities. The Subject Property is covered with building-footprint, asphalt paving and grass/landscaping (see Figure 2).

3.0 KNOWN CONTAMINATION Rule 299.51003(5)(a)(ii)

A full delineation of the nature and extent of contaminants at the Subject Property has not been performed as part of the assessments used in this Due Care Compliance Analysis. However, the samples collected and summarized in this analysis have been collected from locations reasonably expected to characterize the highest levels of contaminants on the Subject Property. As a result, it is our professional opinion that the analysis, presented below, yields sufficiently protective conclusions and recommendations for the hazardous substances detected in soil and groundwater samples at levels exceeding the Michigan Department of Environment, Great Lakes, and Energy (EGLE) GRCC.

Known contaminants on the Subject Property are documented in soil and groundwater samples collected in March 2021. Contaminants were identified at depths between 14.5- and 20- feet below ground surface.

3.1 Hazardous Substances - Soil

Samples of soil collected from the Subject Property identify benzene, ethylbenzene, xylenes, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, benzo(a)pyrene and naphthalene above the EGLE's Generic Residential Cleanup Criteria (GRCC) - (see Figure 2 and Table 1).

3.2 Hazardous Substances - Groundwater

Samples of groundwater collected from the Subject Property identify benzene, ethylbenzene, xylenes, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene above the EGLE's Generic Residential Cleanup Criteria (GRCC) - (see Figure 2 and Table 1).

3.3 Discarded or Abandoned Containers

None of the prior assessments identify any evidence that abandoned or discarded containers are present on the Subject Property.

4.0 COMPLIANCE ANALYSIS

Due Care regulations requires a person who owns or operates property, and has knowledge that it is a "facility", do the following:

- (1) Undertake measures to prevent exacerbation of existing contamination;
- (2) Exercise due care by undertaking response activity necessary to mitigate unacceptable exposure to hazardous substances and allow for the intended use of the property in a manner that protects the public health and safety;
- (3) Take reasonable precautions against the reasonably foreseeable acts or omissions of a third party and the consequences that could result from those acts or omissions;
- (4) Provide reasonable cooperation and access to persons authorized to conduct response activities at the Subject Property (if any);
- (5) Comply with land use restrictions established on the Subject Property (if any);
- (6) Not impede effectiveness or integrity of land use restrictions (if any);
- (7) Notify the EGLE of discarded or abandoned containers of hazardous substances (if any);
- (8) Notify the EGLE and adjacent property owners about hazardous substances migrating off the Subject Property (if any);
- (9) Notify the local fire department of fire or explosion hazard (if any); and

- (10) Notify utility and easement holders about hazardous substance that cause unacceptable exposures or fire/explosion hazards (if any).

Below is a detailed compliance analysis for the Subject Property to comply with these standards.

4.1 Detailed Characteristics of Property Use

The Subject Property will be used for a surface parking lot. This use is most consistent with the EGLE's generic 'non-residential' cleanup criteria (GNRCC). Based on this, the Due Care Compliance Analysis will compare to the EGLE's generic non-residential cleanup criteria. The Subject Property area is connected to municipal water, sewer and all modern franchise utilities.

4.2 Geology and Hydrogeology

The Subject Property is an elevation of approximately 612-feet above sea level. The general topographic gradient is north northwest. The Soil Conservation Survey indicates that the predominant soil type at the Subject Property is 'Houghton' which is a muck that is poorly drained. Groundwater is located at a depth of 15- to 20-feet below ground surface. The estimated groundwater flow direction across the area is toward the northwest.

4.3 Hazardous Substance Information

The Subject Property is a 'facility' because soil and groundwater samples collected from the Subject Property contain volatile organic compounds and poly nuclear aromatic compounds above the EGLE's GRCC – (see Table 1 and 2). The concentrations of these substances in soil and groundwater define the 407 & 431 Wealthy Street SW properties as a 'facility' pursuant to Part 201 of Michigan's Natural Resources and Environmental Protection Act (PA 451 of 1994 as amended) – ("Part 201").

4.4 Exposure Pathways *Rule 299.51003(5)(a)(i)*

An analysis of exposure pathways is a required component of a Due Care Compliance Analysis. Specifically, exposure pathways that are, or may reasonably foreseeably become complete, must be evaluated to determine whether response activities are necessary to mitigate hazardous exposures and comply with due care regulations. Below is an analysis of possible exposure pathways.

4.4.1 Groundwater Ingestion

The current and proposed development relies on the municipal system for all uses at the Subject Property. Therefore, there is no foreseeable ingestion of groundwater beneath the Subject Property and this exposure pathway is not, nor is likely to become, complete. As a result, no response activities are warranted in connection with the groundwater ingestion pathway.

4.4.2 Subsurface Soil Infinite Source Volatile Soil (Ambient) Inhalation

Several areas of the Subject Property area do not contain hard surfacing. Additionally, several of the hazardous substances identified as contaminants are considered volatile. Therefore, the ambient air inhalation exposure pathway is complete at the Subject Property.

The concentrations of soil contaminants do not exceed the EGLE's Generic Non-residential Infinite Source Volatile Soil Inhalation Criteria with the exception of naphthalene in the sample collected from SB-5 (14.5') - (see Table 1). Therefore, it is our professional opinion that potential ambient air inhalation hazards are evident, and due care response activities are warranted for this exposure pathway.

4.4.3 Groundwater Volatilization to Indoor Air

Because the groundwater contaminants identified beneath the Subject Property are volatile, it is foreseeable that substances emanating from groundwater could be liberated into the indoor air of the building. Therefore, the groundwater volatilization to indoor air exposure pathway is complete.

The concentrations of contaminants in groundwater do not exceed the EGLE's Generic Non-residential Groundwater Volatilization to Indoor Air Criteria (see Table 1). However, the Michigan Department of Environment, Great Lakes, and Energy (EGLE) has developed volatilization to indoor air pathway (VIAP) screening levels for certain contaminants found in soil, groundwater and/or soil-gas. These VIAP screening levels are not approved criteria, but are commonly used to evaluate whether contaminants present a vapor intrusion risk to buildings in addition to the GNRCC identified above.

The maximum concentrations of two contaminants in groundwater (e.g., benzene and ethylbenzene) are present in groundwater samples at levels exceeding their respective VIAP screening levels (see Table 2). As a result, response activities are warranted to mitigate potential indoor volatilization to indoor air hazards.

4.4.4 Soil Volatilization to Indoor Air

Because some of the contaminants identified beneath the Subject Property in soil are volatile, it is foreseeable that volatile substances emanating from soil could be liberated into the indoor air of the building. Therefore, the soil volatilization to indoor air exposure pathway is complete.

The concentrations of contaminants in soil do not exceed the Michigan Department of Environment, Great Lakes and Energy (EGLE) Generic Non-residential Soil Volatilization to Indoor Air Criteria with the exception of benzene in the sample collected from SB-5 (14.5') - (see Table 1).

The department of EGLE has developed other screening levels for the volatilization to indoor air pathway (VIAP). These VIAP screening levels are not approved criteria, but are commonly used to evaluate whether contaminants present a vapor intrusion risk to buildings in addition to the GNRCC identified above.

The maximum concentrations of all volatile contaminants in soil samples (e.g., benzene, ethylbenzene, xylenes, 124- and 135-TMB) are present in the soil sample collected from SB-5 (14.5') at concentration exceeding their respective VIAP screening levels (see Table 1). As a result, response activities are warranted to mitigate potential indoor volatilization to indoor air hazards from soil contaminants.

4.4.5 Groundwater-Surface Water Interface

There is no surface water on or adjacent to the Subject Property. Therefore, this exposure pathway is not complete.

4.4.6 Soil Direct Contact

Portions of the Subject Property area are gravel or grass cover that lacks hard surfacing. Therefore, the soil direct contact exposure pathway is complete. In addition, it is foreseeable that future operations could involve excavation and/or landscaping that will expose contaminants in soil.

The concentrations of hazardous substances in soil do exceed ELGE's GNRCC for direct contact with the exception of benzo(a)pyrene in the sample collected from SB-5 (14.5) - (see Table 1). Therefore, it is our professional opinion that potential direct contact hazards are evident, and due care response activities are warranted for this exposure pathway.

4.4.7 Particulate Soil Inhalation

Portions of the Subject Property area are gravel and/or grass cover that lacks hard surfacing. It is foreseeable that future operations could involve excavation and/or landscaping that will expose contaminants in soil and, thereby, completing the particulate-soil inhalation exposure pathway.

The concentrations of hazardous substances in soil do not exceed the EGLE's GNRCC for particulate soil inhalation (see Table 1). As a result, it is our professional opinion that due care activities are not warranted to address this pathway.

4.4.8 Flammability/Explosivity

Groundwater contaminants have been identified beneath the Subject Property that are volatile. Therefore, the flammability/explosivity exposure pathway is complete. The groundwater concentrations do not exceed the EGLE's Generic Non-residential Groundwater Flammability/Explosivity Criteria (see Table 2). Therefore, it is our professional opinion that potential flammability/explosivity hazards are not evident, and no due care response activities are warranted for this exposure pathway.

5.0 CONCLUSION OF EXPOSURE PATHWAY EVALUATION

The exposure pathway analysis, detailed above, reveals potential hazards associated with the following exposure pathways: ambient (outdoor) air inhalation, volatilization to indoor air, and direct contact. Because of this conclusion, it is our professional opinion that activities are warranted to mitigate these exposure pathways to comply with Michigan's Due Care regulations. These response activities are outlined below:

- (1) Any occupied structures on the Subject Property must maintain a vapor barrier to prevent the volatilization of soil-vapors from soil and groundwater from entering the air space of the building.

The existing structure on the Subject Property must remain vacant or be razed. Any future building construction must integrate a vapor barrier system into the foundation system designed to prevent volatilization of the petroleum substances present in soil and groundwater beneath the Subject Property from entering into the building's air-space.

- (2) A barrier (e.g., asphalt or clean fill with a demarcation barrier) must be maintained over a portion of the Subject Property (SB-5). All site work activities must ensure that this barrier is maintained and repaired in the future if it is compromised.

If future site work (e.g., grading, excavating, landscaping, utility installation/repair) involves penetrating this physical barrier, final grade restoration must include re-establishment of the barrier with the same specifications (e.g., minimum one-foot of clean fill and/or topsoil or hard-surfacing).

- (3) Soil cannot be relocated on, or exported removed from, the Subject Property without prior characterization and selection of a suitable disposal location.

Because contaminants are present in some soils and not others, and because those soils may be considered a regulated waste, they cannot be relocated on the Subject Property without a prior determination that the chosen disposal location is suitable. Additionally, spoils exported from the Subject Property require disposal in a Type II sanitary landfill or other suitable location permitted by Part 201.

- (4) A notice must be provided to the EGLE for any soil that is relocated on, or exported from, the Subject Property.

The EGLE requires a notice be filed with their department within 14-days after contaminated soil is relocated either on the Subject Property, or exported from the Subject Property, pursuant to 324.20120(c).

- (5) Furnish a copy of this Due Care Compliance Analysis to any third party that engages in site work in the impacted area so that those activities can be conducted in a manner that complies with due care regulations and/or appropriately permitted.

Site work employees or contractors must be directed so that their activities are conducted in a manner that complies with due care regulations. Contractors and/or third parties can be provided a copy of this Due Care Compliance Analysis and directed to conduct their site work activities in a manner that mitigates any direct contact exposure hazards that might results from their work activities.

- (6) Furnish a copy of this Due Care Compliance Analysis to subsequent purchasers of the Subject Property.

Due Care regulations require owners to disclose Due Care reports to subsequent purchasers.

- (7) Maintain a copy of this Due Care Compliance Analysis at the Subject Property.

Due Care regulations require owners to maintain a copy of Due Care Compliance Analysis report(s) at the Subject Property.

Based on this analysis, a Notice Regarding Discarded or Abandoned Containers (EQP4476) and a Notice of Migration of Contamination (EQP4482) are not required to be submitted for the Subject Property.

6.0 CONCLUSIONS

This analysis concludes there are certain response activities warranted to comply with Michigan's Due Care regulations, which are summarized below:

- Any occupied structures on the Subject Property must maintain a vapor barrier to prevent the volatilization of soil-vapors from soil and ground water from entering the air space of the building.
- A physical barrier must be established and/or maintained at the SB-5 location. All site work activities must ensure that this barrier is repaired in the future if it is compromised.
- Soil cannot be relocated on, or exported from, the Subject Property without prior characterization and selection of a suitable disposal location.
- A notice must be provided to the EGLE for any soil that is relocated on, or exported from, the Subject Property.
- Furnish a copy of this Due Care Compliance Analysis to any third party contractors engaging in site work.
- Furnish a copy of this Due Care Compliance Analysis to subsequent purchasers of the Subject Property.
- Maintain a copy of this Due Care Compliance Analysis at the Subject Property.

Marshall Associates conducted this Due Care Compliance Analysis in a manner consistent with the level of care and skill ordinarily exercised by members of the engineering profession who perform similar engineering and environmental services under similar conditions. Marshall Associates shall not be responsible for conditions or consequences arising from relevant information that was concealed or not fully disclosed at the time this investigation was conducted. This Due Care Compliance Analysis does not account for any hazards associated with building materials and conditions that have not been sampled.

FIGURES

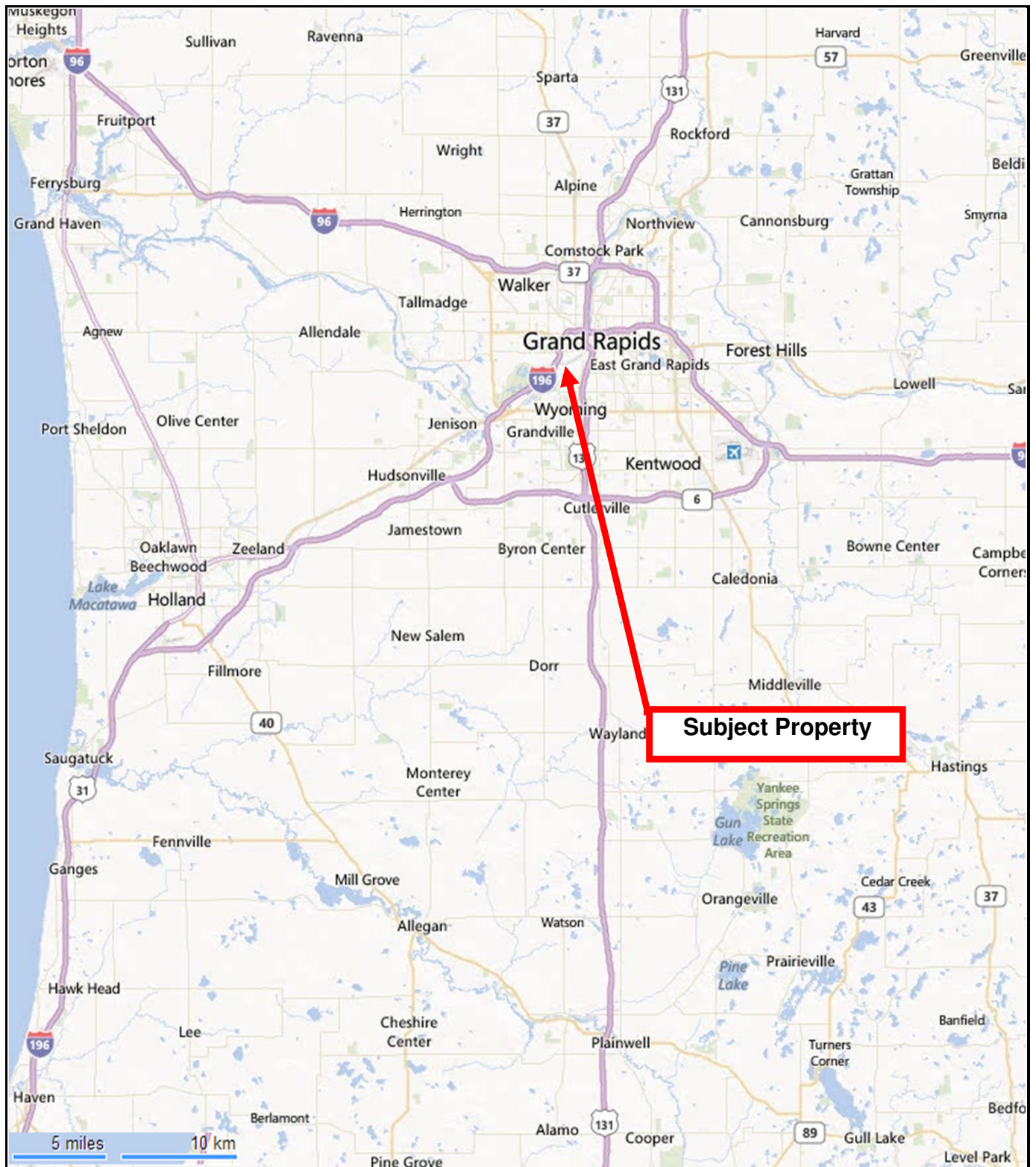


FIGURE 1
SITE LOCATION MAP
 407 & 431 WEALTHY STREET SW
 GRAND RAPIDS, MI
 SOURCE: BINGMAPS

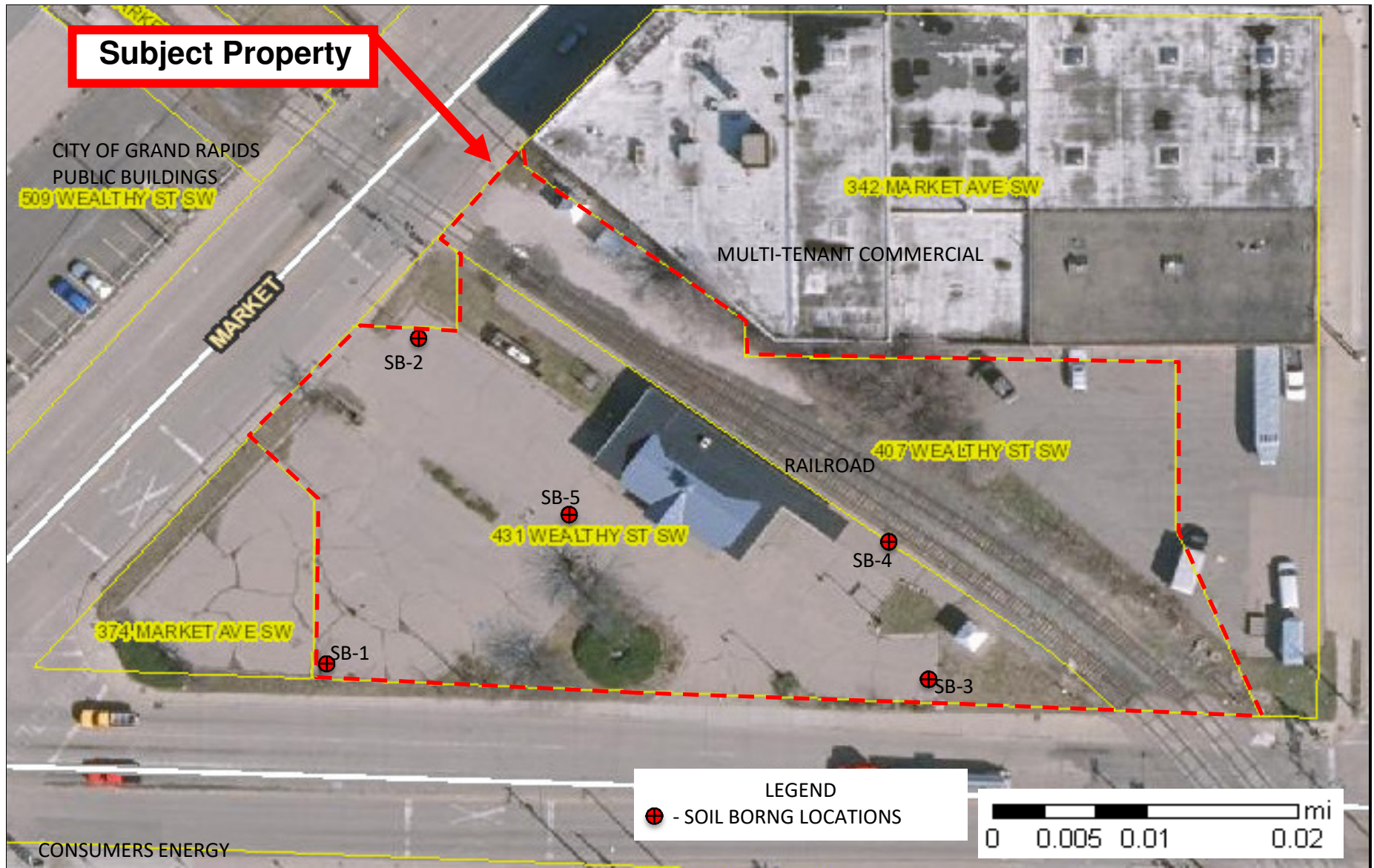


FIGURE 2
SCALED SITE PLAN WITH SAMPLE LOCATIONS
407 & 431 WEALTHY STREET SW
GRAND RAPIDS, MI
BASEMAP SOURCE: KENT GEOSPATIAL

TABLES

Table 1
Summary of Soil Sample Analytical Results and Relevant Environment, Great Lakes and Energy Generic Residential
Cleanup Criteria
407 & 431 Wealthy Street SW, Grand Rapids, Michigan

Sample I.D.	EGLE Part 201 Generic Non-Residential Cleanup Criteria					SB-1	SB-2	SB-3	SB-4	SB-5
Sample Date	Soil Volatilization to Indoor Air Inhalation Criteria	Infinite Source Volatile Soil Inhalation Criteria	Direct Contact Criteria	VIAP Screening Levels	Particulate Soil Inhalation Criteria & RBSLs	3/17/2021	3/17/2021	3/17/2021	3/17/2021	3/17/2021
Sample Depth						4'	4'	14.5'	15'	14.5'
METALS										
Arsenic	NLV	NLV	37,000	NA	910,000	5,700	19,000	8,000	1,800	2,900
VOLATILE ORGANIC COMPOUNDS (VOCs) - EPA Method 5035										
Benzene	8,400	45,000	840,000	47	4.70E+08	ND	ND	ND	ND	11,000
Ethylbenzene	460,000	2.50E+06	7.10E+07	340	1.30E+10	ND	ND	ND	ND	100,000
Xylenes	6.30E+06	150,000	4.70E+07	5,000	4.10E+08	ND	60	ND	ND	42,000
1,2,4-Trimethylbenzene	8.00E+06	2.50E+07	1.00E+08	2,600	3.60E+10	ND	ND	ND	ND	19,000
1,3,5-Trimethylbenzene	4.80E+06	1.90E+07	1.00E+08	1,800	3.60E+10	ND	ND	ND	ND	5,000
POLYNUCLEAR AROMATICS (PAHs)										
Acenaphthylene	3.00E+06	2.70E+06	5.20E+06	NA	1.00E+09	ND	ND	ND	ND	6,600
Benzo(a)pyrene	NLV	NLV	8,000	NA	1.90E+06	ND	ND	ND	ND	14,000
Naphthalene	470,000	350,000	5.20E+07	1,900	8.80E+07	ND	810	ND	ND	380,000
Phenanthrene	5.10E+06	1.90E+06	5.20E+06	29,000	2.90E+06	ND	850	ND	ND	110,000

Notes:

1. EGLE Part 201 Generic Cleanup Criteria and Screening Levels; Part 213 Tier 1 Risk-based Screening Levels (RBSLs). 2018
2. ND = Less than method detection limit
3. NLV = Not Likely to Volatilize
4. NLL = Not Likely to Leach
5. ID = Inadequate data to develop criterion

110,000	- Concentration exceeds EGLE GRCC (non-residential) and/or VIAP Screening Levels
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Table 2
Summary of Groundwater Sample Analytical Results and Relevant Environment, Great Lakes, and Energy Generic Residential Cleanup Criteria
407 & 431 Wealthy Street SW, Grand Rapids, Michigan

SAMPLE ID	EGLE Part 201 Generic Non-Residential Cleanup Criteria			SB-1W	SB-2W	SB-3W	SB-5W
	VIAP Screening Levels	Flammability and Explosivity	Groundwater Volatilization to Indoor Air Inhalation				
SAMPLE DATE				3/17/2021	3/17/2021	3/17/2021	3/17/2021
VOLATILE ORGANIC COMPOUNDS							
Benzene	66	68,000	35,000	ND	5,500	ND	15,000
Ethylbenzene	170	43,000	170,000	ND	1,400	ND	9,100
Xylenes	3,000	70,000	190,000	ND	419	ND	2,800
1,2,4-Trimethylbenzene	990	ID	56,000	ND	210	ND	500
1,3,5-Trimethylbenzene	690	ID	61,000	ND	31	ND	100

NOTES:

1. EGLE Part 201 Generic Cleanup Criteria and Screening Levels; Part 213 Tier 1 Risk-based Screening Levels (RBSLs). August 2020

2. ND = Less than method detection limits

11	- Concentration exceeds EGLE GRCC (non-residential) and/or VIAP Screening Levels
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