

**MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION**

September 14, 2018

PERMIT TO INSTALL
136-18

ISSUED TO
Edw. C. Levy Co.

LOCATED AT
9690 Brennan Street
Detroit, Michigan

IN THE COUNTY OF
Wayne

STATE REGISTRATION NUMBER
P0947

The Air Quality Division has approved this Permit to Install, pursuant to the delegation of authority from the Michigan Department of Environmental Quality. This permit is hereby issued in accordance with and subject to Section 5505(1) of Article II, Chapter I, Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. Pursuant to Air Pollution Control Rule 336.1201(1), this permit constitutes the permittee's authority to install the identified emission unit(s) in accordance with all administrative rules of the Department and the attached conditions. Operation of the emission unit(s) identified in this Permit to Install is allowed pursuant to Rule 336.1201(6).

DATE OF RECEIPT OF ALL INFORMATION REQUIRED BY RULE 203:

August 14, 2018

DATE PERMIT TO INSTALL APPROVED:

September 14, 2018

SIGNATURE:

DATE PERMIT VOIDED:

SIGNATURE:

DATE PERMIT REVOKED:

SIGNATURE:

PERMIT TO INSTALL

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Common Abbreviations / Acronyms

Common Acronyms		Pollutant / Measurement Abbreviations	
AQD	Air Quality Division	acfm	Actual cubic feet per minute
BACT	Best Available Control Technology	BTU	British Thermal Unit
CAA	Clean Air Act	°C	Degrees Celsius
CAM	Compliance Assurance Monitoring	CO	Carbon Monoxide
CEM	Continuous Emission Monitoring	CO _{2e}	Carbon Dioxide Equivalent
CFR	Code of Federal Regulations	dscf	Dry standard cubic foot
COM	Continuous Opacity Monitoring	dscm	Dry standard cubic meter
Department/ department	Michigan Department of Environmental Quality	°F	Degrees Fahrenheit
EU	Emission Unit	gr	Grains
FG	Flexible Group	HAP	Hazardous Air Pollutant
GACS	Gallons of Applied Coating Solids	Hg	Mercury
GC	General Condition	hr	Hour
GHGs	Greenhouse Gases	HP	Horsepower
HVLP	High Volume Low Pressure*	H ₂ S	Hydrogen Sulfide
ID	Identification	kW	Kilowatt
IRSL	Initial Risk Screening Level	lb	Pound
ITSL	Initial Threshold Screening Level	m	Meter
LAER	Lowest Achievable Emission Rate	mg	Milligram
MACT	Maximum Achievable Control Technology	mm	Millimeter
MAERS	Michigan Air Emissions Reporting System	MM	Million
MAP	Malfunction Abatement Plan	MW	Megawatts
MDEQ	Michigan Department of Environmental Quality	NMOC	Non-methane Organic Compounds
MSDS	Material Safety Data Sheet	NO _x	Oxides of Nitrogen
NA	Not Applicable	ng	Nanogram
NAAQS	National Ambient Air Quality Standards	PM	Particulate Matter
NESHAP	National Emission Standard for Hazardous Air Pollutants	PM ₁₀	Particulate Matter equal to or less than 10 microns in diameter
NSPS	New Source Performance Standards	PM _{2.5}	Particulate Matter equal to or less than 2.5 microns in diameter
NSR	New Source Review	pph	Pounds per hour
PS	Performance Specification	ppm	Parts per million
PSD	Prevention of Significant Deterioration	ppmv	Parts per million by volume
PTE	Permanent Total Enclosure	ppmw	Parts per million by weight
PTI	Permit to Install	psia	Pounds per square inch absolute
RACT	Reasonable Available Control Technology	psig	Pounds per square inch gauge
ROP	Renewable Operating Permit	scf	Standard cubic feet
SC	Special Condition	sec	Seconds
SCR	Selective Catalytic Reduction	SO ₂	Sulfur Dioxide
SNCR	Selective Non-Catalytic Reduction	TAC	Toxic Air Contaminant
SRN	State Registration Number	Temp	Temperature
TEQ	Toxicity Equivalence Quotient	THC	Total Hydrocarbons
USEPA/EPA	United States Environmental Protection Agency	tpy	Tons per year
VE	Visible Emissions	µg	Microgram
		µm	Micrometer or Micron
		VOC	Volatile Organic Compounds
		yr	Year

*For HVLP applicators, the pressure measured at the gun air cap shall not exceed 10 psig.

GENERAL CONDITIONS

1. The process or process equipment covered by this permit shall not be reconstructed, relocated, or modified, unless a Permit to Install authorizing such action is issued by the Department, except to the extent such action is exempt from the Permit to Install requirements by any applicable rule. **(R 336.1201(1))**
2. If the installation, construction, reconstruction, relocation, or modification of the equipment for which this permit has been approved has not commenced within 18 months, or has been interrupted for 18 months, this permit shall become void unless otherwise authorized by the Department. Furthermore, the permittee or the designated authorized agent shall notify the Department via the Supervisor, Permit Section, Air Quality Division, Michigan Department of Environmental Quality, P.O. Box 30260, Lansing, Michigan 48909-7760, if it is decided not to pursue the installation, construction, reconstruction, relocation, or modification of the equipment allowed by this Permit to Install. **(R 336.1201(4))**
3. If this Permit to Install is issued for a process or process equipment located at a stationary source that is not subject to the Renewable Operating Permit program requirements pursuant to R 336.1210, operation of the process or process equipment is allowed by this permit if the equipment performs in accordance with the terms and conditions of this Permit to Install. **(R 336.1201(6)(b))**
4. The Department may, after notice and opportunity for a hearing, revoke this Permit to Install if evidence indicates the process or process equipment is not performing in accordance with the terms and conditions of this permit or is violating the Department's rules or the Clean Air Act. **(R 336.1201(8), Section 5510 of Act 451, PA 1994)**
5. The terms and conditions of this Permit to Install shall apply to any person or legal entity that now or hereafter owns or operates the process or process equipment at the location authorized by this Permit to Install. If the new owner or operator submits a written request to the Department pursuant to R 336.1219 and the Department approves the request, this permit will be amended to reflect the change of ownership or operational control. The request must include all of the information required by subrules (1)(a), (b), and (c) of R 336.1219 and shall be sent to the District Supervisor, Air Quality Division, Michigan Department of Environmental Quality. **(R 336.1219)**
6. Operation of this equipment shall not result in the emission of an air contaminant which causes injurious effects to human health or safety, animal life, plant life of significant economic value, or property, or which causes unreasonable interference with the comfortable enjoyment of life and property. **(R 336.1901)**
7. The permittee shall provide notice of an abnormal condition, start-up, shutdown, or malfunction that results in emissions of a hazardous or toxic air pollutant which continue for more than one hour in excess of any applicable standard or limitation, or emissions of any air contaminant continuing for more than two hours in excess of an applicable standard or limitation, as required in Rule 912, to the Department. The notice shall be provided not later than two business days after start-up, shutdown, or discovery of the abnormal condition or malfunction. Written reports, if required, must be filed with the Department within 10 days after the start-up or shutdown occurred, within 10 days after the abnormal conditions or malfunction has been corrected, or within 30 days of discovery of the abnormal condition or malfunction, whichever is first. The written reports shall include all of the information required in Rule 912(5). **(R 336.1912)**
8. Approval of this permit does not exempt the permittee from complying with any future applicable requirements which may be promulgated under Part 55 of 1994 PA 451, as amended or the Federal Clean Air Act.
9. Approval of this permit does not obviate the necessity of obtaining such permits or approvals from other units of government as required by law.
10. Operation of this equipment may be subject to other requirements of Part 55 of 1994 PA 451, as amended and the rules promulgated thereunder.

11. Except as provided in subrules (2) and (3) or unless the special conditions of the Permit to Install include an alternate opacity limit established pursuant to subrule (4) of R 336.1301, the permittee shall not cause or permit to be discharged into the outer air from a process or process equipment a visible emission of density greater than the most stringent of the following. The grading of visible emissions shall be determined in accordance with R 336.1303. **(R 336.1301)**
 - a) A six-minute average of 20 percent opacity, except for one six-minute average per hour of not more than 27 percent opacity.
 - b) A visible emission limit specified by an applicable federal new source performance standard.
 - c) A visible emission limit specified as a condition of this Permit to Install.

12. Collected air contaminants shall be removed as necessary to maintain the equipment at the required operating efficiency. The collection and disposal of air contaminants shall be performed in a manner so as to minimize the introduction of contaminants to the outer air. Transport of collected air contaminants in Priority I and II areas requires the use of material handling methods specified in R 336.1370(2). **(R 336.1370)**

13. The Department may require the permittee to conduct acceptable performance tests, at the permittee's expense, in accordance with R 336.2001 and R 336.2003, under any of the conditions listed in R 336.2001. **(R 336.2001)**

SPECIAL CONDITIONS

FLEXIBLE GROUP SUMMARY TABLE

The descriptions provided below are for informational purposes and do not constitute enforceable conditions.

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FGFACILITY	All process equipment source-wide including equipment covered by other permits, grand-fathered equipment and exempt equipment.	

The following conditions apply Source-Wide to: FGFACILITY

POLLUTION CONTROL EQUIPMENT:

I. EMISSION LIMITS

NA

II. MATERIAL LIMITS

NA

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall not operate FGFACILITY unless the fugitive dust control plan specified in Appendix A, or an alternate approvable plan submitted to the AQD District Supervisor, for all plant roadways, the plant yard, all material storage piles, and all material handling operations has been implemented and is maintained. **(R 336.1371, R 336.1372, Act 451 324.5524)**

IV. DESIGN/EQUIPMENT PARAMETERS

NA

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

NA

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. The permittee shall keep, in a satisfactory manner, records showing the annual potential to emit calculations for PM, in tons per year, for FGFACILITY. The permittee shall update the potential to emit calculation whenever a new permitted or exempt emission unit is installed, or whenever a permitted, exempt, or grandfathered emission unit is modified or removed. Potential to emit calculations shall be based on the maximum operational capacity of the equipment operated for the entire year, except they may account for applicable permit requirements or applicable laws or rules limiting the potential to emit. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(Act 451 324.5524)**

VII. REPORTING

NA

VIII. STACK/VENT RESTRICTIONS

NA

IX. OTHER REQUIREMENTS

NA

Footnotes:

¹This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

APPENDIX A

MCL 324.5524 Operating Program

Edw. C. Levy Co.

Brennan Street Dock

9690 Brennan Street, Detroit, Michigan 48209

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Introduction

This Operating Program has been developed and implemented for the Edw. C. Levy Co. Brennan Street Dock located at 9690 Brennan Street, Detroit, Michigan 48209 (Facility/Site). The purpose of this program is to describe the tools and methods used to control fugitive dust emissions in accordance Section 5524 of the Natural Resources and Environmental Protection Act, being MCL 324.5524, *Fugitive dust sources or emissions*.

The primary industrial activity at this Site is the importing and exporting of construction aggregates. Aggregates are delivered to the Site by both ship and truck, and stockpiled utilizing conveyors and front-end loaders. Front-end loaders are also used to load construction aggregates into outbound trucks. Construction aggregates are loaded onto and off ships utilizing a conveyor system.

The Brennan Street Dock typically operates 5 days/week in the winter months and 6 days/week in the summer months.

The facility is bordered by the River Rouge to the south, the Detroit Wastewater Treatment Plant to the north, Jefferson Avenue to the East and rail road tracks to the West. The City of Detroit owns and operates the property to the East, across Jefferson Ave, and Saint Mary's Cement owns the property to the West. The Facility property, and all adjacent parcels are zoned M4 intensive industrial.

The following sections of this Operating Program are organized in order of the requirements of MCL 324.5524.

Applicability – MCL 324.5524(1)

The provisions of MCL 324.5524 apply to fugitive dust sources at the Brennan Street Dock because the Facility meets the standard industrial classification (SIC) code and locational requirements established in MCL 324.5524. Facility operations are covered under SIC major group 42, *motor freight transportation and warehousing*. The Brennan Street Dock specializes in the import and export of construction aggregates. The SIC code used to describe the Facility's primary industrial activities is 4214 – *Local Trucking with Storage*. The corresponding North American Industry Classification System (NAICS) code for the Facility is 484220 – *Specialized freight (except used good) trucking, local*.

Fugitive Dust Opacity Limits – MCL 324.5524(2)

In accordance with MCL 324.5524(2), best practices and operational controls are implemented at the Facility to limit fugitive dust emissions from paved and unpaved roads, lots, construction aggregate storage piles, and material handling activities to an opacity no greater than 5%. Emissions from any other source are limited to an opacity no greater than 20%. Specific controls used to control fugitive dust emissions are discussed in the following sections of this Operating Program.

Fugitive Dust Controls – MCL 324.5524(3)(a)

- **Stockpile, Conveyor Loading, and Traffic Patterns – MCL 324.5524(3)(a)(i)–(iii)**

MCL 324.5524(3)(a)(i) through 324.5524(3)(a)(iii) requires specific controls to limit fugitive dust emission from stockpiles, conveyor loading activities, and traffic pattern access areas surrounding stockpiles. As explained in MCL 324.5523(3)(a)(i), most of these controls are applicable to facilities where the total uncontrolled emissions of fugitive dust from material storage piles are greater than 50 tons per year and where potential particulate emissions from all sources, including fugitive dust sources, exceeds 100 tons per year. The Brennan Street Dock total uncontrolled fugitive dust emissions do not exceed 50 tons per year. Therefore, the requirements of MCL 324.5524(3)(a)(i) – (iii) do not apply to this site, with the exception of the following in 324.5524(3)(iii) “All traffic pattern roads and parking facilities shall be paved or treated with water, oils, or chemical dust suppressants. All paved areas shall be cleaned in accordance with the operating program required by MCL 324.5524(4). All areas treated with water, oils, or chemical dust suppressants shall have the treatment applied in accordance with the operating program required by MCL 324.5524(4). Refer to Appendix A of this program for potential-to-emit (PTE) calculations for the Site.

- **Material Handling with Pollution Control Equipment – MCL 324.5524(3)(a)(iv)**

Brennan Street Dock does not utilize pollution control equipment to collect particulate emission from material unloading and transport operations. Therefore, the requirements of MCL 324.5523(3)(a)(iv) do not apply to Brennan Street Dock.

- **Other Activity Controls – MCL 324.5524(3)(a)(v)**

A potential for fugitive dust creation exists during stockpiling of construction aggregates from marine vessels or trucks and during loading of construction aggregates into marine vessels or trucks. To minimize fugitive dust emissions, water sprays are used as needed on conveyor transfer points and stockpiles, in accordance with MCL 324.5523(3)(a)(v).

- **Particulate Collection Equipment – MCL 324.5524(3)(b)**

The Facility does not use particulate collection equipment to control fugitive dust emissions; therefore, MCL 324.5524(3)(b) is not applicable to Brennan Street Dock operations.

- **Vehicle Transport of Materials with High Silt Content – MCL 324.5524(3)(c)**

Brennan Street Dock complies with the requirements of MCL 324.5524(3)(c) by requiring truck drivers to tarp all loads before leaving the Facility to control fugitive dust emissions during transport. A sign is posted on site to remind drivers of the requirement to tarp loads.

- **Vehicle Transport of Materials – MCL 324.5524(3)(d)-(e)**

Customer vehicles used to transport construction aggregate off site are not owned or operated by the Brennan Street Dock. It is the vehicle owner/operator’s responsibility to ensure their vehicles are maintained in good operating condition and comply with Michigan law and regulations. However, if a Brennan Street Dock employee observes a customer vehicle is not in a condition to transport materials without spillage or leakage (*e.g.*, the truck does not have a tarp), then this is communicated to the driver, and the vehicle is not loaded.

If customers transport materials in vehicles with less than a 2-ton capacity, then those vehicles are not subject to tarping requirements in accordance with MCL 324.5524(3)(e). [Vehicle Transport of Materials – MCL 324.5524\(3\)\(f\)](#)

The Brennan Street Dock typically handles construction aggregate materials. The Site does not store or handle fly ash; therefore, the requirements of MCL 324.5524(3)(f) do not apply to Brennan Street Dock operations.

- [Vehicle Transport of Materials – MCL 324.5524\(3\)\(g\)](#)

The Brennan Street Dock typically handles construction aggregate materials. If the Site stores and handles iron or steel slag, the slag material will be at ambient temperature, and transport vehicles follow the transport practices described in the above sections of this Operating Program.

[Requirement to Prepare an Operating Program – MCL 324.5524\(4\)](#)

This Operating Program has been prepared in accordance with MCL 324.5524, *Fugitive dust sources or emissions*, to document the methods and controls implemented at Brennan Street Dock to control fugitive dust emissions from the Site’s construction aggregate material storage and handling activities. This program has been designed to reduce fugitive dust emissions to the lowest level possible through the application of reasonably available and economically feasible controls.

[Operating Program Contents – MCL 324.5524\(5\)](#)

- [Facility Contact Information – MCL 324.5524\(5\)\(a\)-\(b\)](#)

Facility Name:	Brennan Street Dock
Facility Address:	9690 Brennan Street Detroit, Michigan 48209
Facility Manger:	Larry Beaker, Plant Manager (810) 765-5161
Owner/Operator:	Edw. C. Levy Co. 8800 Dix Avenue Detroit, Michigan 48209
Environmental Contact:	Thomas Green, P.E., Director of Environmental Services 51445 W. 12 Mile Road Wixom, Michigan, 48393 (313) 690-0139

The Brennan Street Dock manager, Larry Beaker, is responsible for implementation of the Operating Program with guidance and support from the Edw. C. Levy Co. Environmental Services Department.

- **Facility Maps and Diagrams – MCL 324.5524(5)(c)**

In accordance with MCL 234.5524(5)(c), maps and diagrams of Brennan Street Dock are provided as Figure 1 and Figure 2 to this Operating Program. **Figure 1** shows the general site location and its surroundings within 0.25-mile of the Facility. **Figure 2** depicts the general Facility layout, including the following details:

- Approximate storage pile locations
- Conveyor loading operations
- Traffic patterns within the Facility property

- **Material Handling Pollution Control Equipment Locations – MCL 324.5524(5)(d)**

As previously described, the Brennan Street Dock does not maintain pollution control equipment for use during construction aggregate loading and transporting operations.

- **Fugitive Dust Control Best Management Practices – MCL 324.5524(5)(e)**

- *Material Processing and Conveying*

Typically, construction aggregates are delivered to the Brennan Street Dock by ship, and unloaded using the ship's conveyor(s). Material transfers by conveyor may occur anywhere within the Site boundary (see **Figure 2**) and additional portable conveyors may be used. Whenever materials are loaded or unloaded by conveyor, transfer points and drop heights are minimized to the maximum extent practicable to control fugitive dust emissions. Water may be used during conveyor transfer operations to wet the material to further control fugitive dust.

- *Traffic Management*

Equipment and truck speeds on site are normally restricted to 8 MPH, and communicated to employees and visitors by signage near the Facility entrance.

- *Dust Suppression*

Water, calcium chloride or another acceptable chemical dust suppressant may be applied to unpaved portions of the Brennan Street Dock at the owner/operator's discretion to minimize fugitive dust generated from equipment and vehicles travelling on the facility property. A water spigot is located at the back of the scale house and may be used to supply water for watering unpaved portions of the facility. Additional information regarding dust suppression use and recordkeeping are discussed in the next two sections of this Program.

- **Use of Waste or Recycled Oils for Fugitive Dust Control – MCL 324.5524(5)(f)**

No waste or recycled oils are used for fugitive dust control at the Brennan Street Dock. Therefore, the requirements of MCL 324.5524(5)(f) do not apply to the Facility.

- **Dust Suppressant Recordkeeping – MCL 324.5524(5)(g)**

Water, with no chemical additive is the primary material used for dust suppression on unpaved surfaces and stockpiles at Brennan Street Dock. In the event of extremely dry weather conditions, the Facility may also have unpaved roads treated with a chloride solution by a third-party contractor. The Facility maintains records of chloride

applications for at least 5 years. These records are maintained electronically in the Edw. C. Levy Co. environmental database, LEAP.

- **Paved Road and Parking Facility Cleaning – MCL 324.5524(5)(h)**

In accordance with MCL 324.5524(5)(h), on site, paved traffic pattern roads, and Brennan Street, a paved public right-of-way, are cleaned by a wet sweeper truck at least twice per week, weather permitting. Records of paved road cleaning activities are maintained for at least 5 years as required by the MDEQ. These records are stored at the Levy Main Garage and/or electronically in the Edw. C. Levy Co. environmental database, LEAP.

- **Other Information – MCL 324.5524(5)(i)**

In accordance with MCL 324.5524(5)(i), Edw. C. Levy Co. will provide the MDEQ with any additional information the department requests to facilitate its review of this operating program.

Operating Program Submittal – MCL 324.5524(6)

In accordance with MCL 324.5524(6), this Operating Program has been submitted to the MDEQ for approval as part of a Permit-to-Install (PTI) Application.

Operation Program Amendment – MCL 324.5524(7)

This Operating Program will be amended and resubmitted to the MDEQ for approval in the event of operational changes that may result in significant increases of fugitive dust emissions from the Site.

Alternate Provisions for Fugitive Dust Control – MCL 324.5524(8)

Edw. C. Levy Co. is not requesting MDEQ approval of alternate fugitive dust controls to establish compliance with MCL 324.5524. Therefore, the requirements of MCL 324.5524(8) do not apply at the Brennan Street Dock.

Alternate Provision Submittal to USEPA – MCL 324.5524(9)

We are not seeking MDEQ approval any alternate provisions for compliance with MCL 324.5524. Therefore, fugitive dust control at the Brennan Street Dock does not require United States Environmental Protection Agency (USEPA) approval or incorporation in the state implementation plan.

Figures

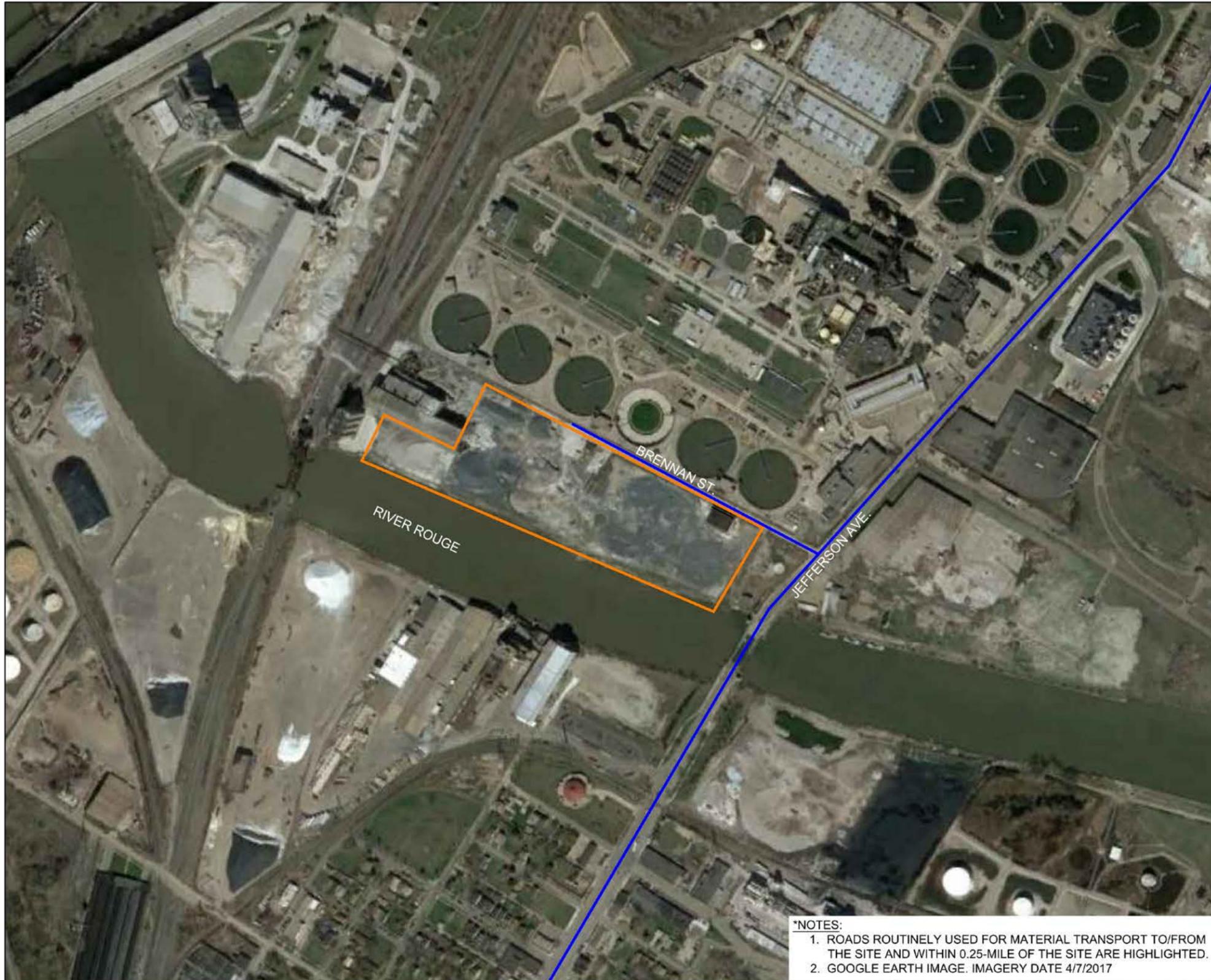


FIGURE 1 – SITE LOCATION AND TRANSPORTATION ROADS

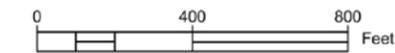


OPERATING PLAN

EDW. C. LEVY CO.
 BRENNAN STREET DOCK
 9690 BRENNAN STREET
 DETROIT, MI 48209

LEGEND

- FACILITY BOUNDARY
- TRANSPORTATION ROADS*



DRAWN BY: AMR	CREATE DATE: 01/24/2018
CHECKED BY: AMR	PLOT DATE: 06/22/2018

Edw. C. Levy Co.
 8800 Dix Ave
 Detroit, MI 48209
 TEL. (313) 429-2200

***NOTES:**

1. ROADS ROUTINELY USED FOR MATERIAL TRANSPORT TO/FROM THE SITE AND WITHIN 0.25-MILE OF THE SITE ARE HIGHLIGHTED.
2. GOOGLE EARTH IMAGE. IMAGERY DATE 4/7/2017

W:\Docks\Brennan Street Dock\Air\Figures\Figures_Brennan_ST_Operating Plan-062218.dwg

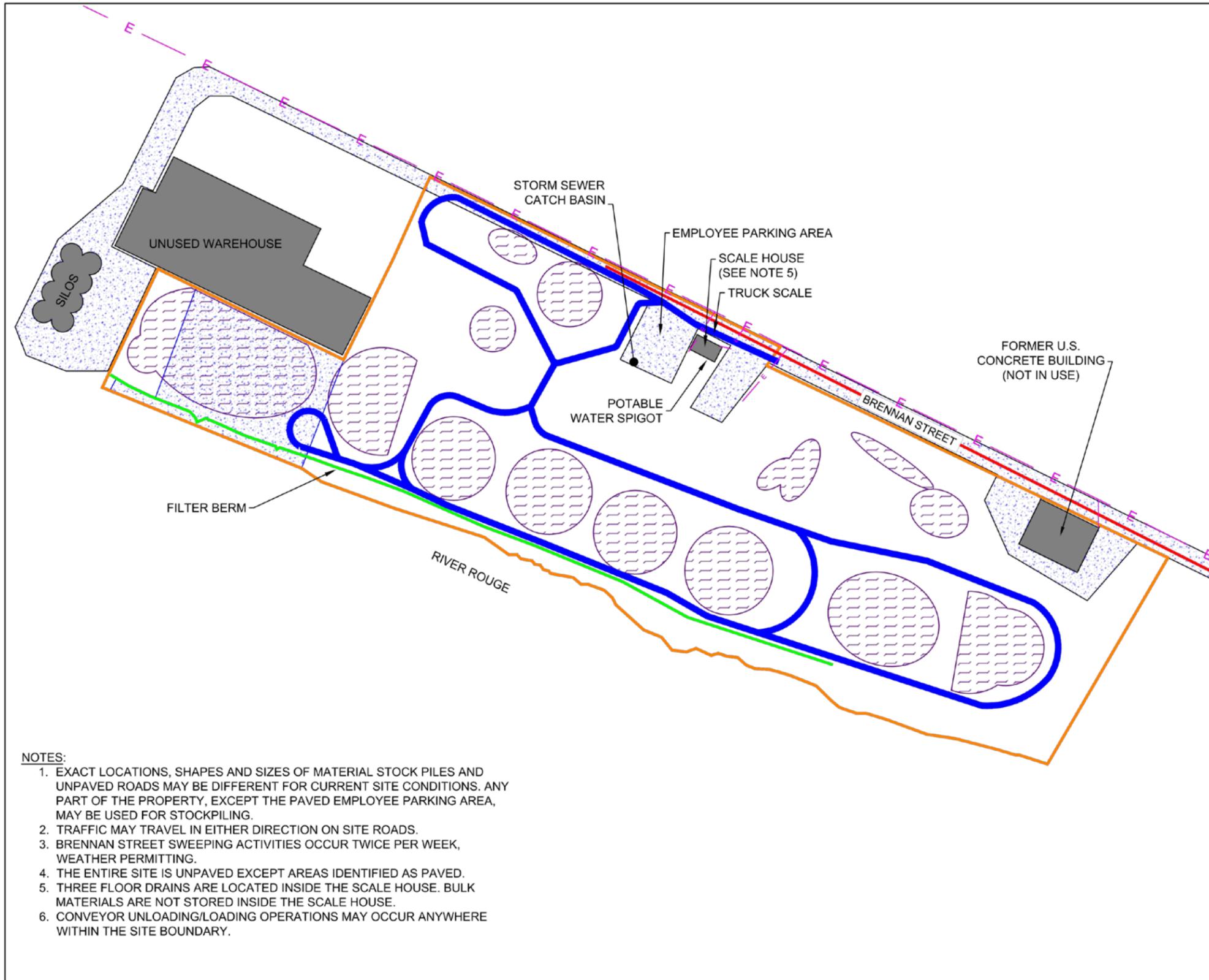


FIGURE 2 - SITE LAYOUT

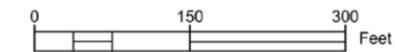


OPERATING PLAN

EDW. C. LEVY CO.
 BRENNAN STREET DOCK
 9690 BRENNAN STREET
 DETROIT, MI 48209

LEGEND

- SITE BOUNDARY
- CONSTRUCTION AGGREGATE STOCKPILE LOCATIONS (SEE NOTE 1)
- ON SITE ROADS (SEE NOTE 1 & 2)
- STREET SWEEPING PATH (SEE NOTE 3)
- PAVED GROUND SURFACE (SEE NOTE 4)
- OVERHEAD ELECTRIC UTILITY



NOTES:

1. EXACT LOCATIONS, SHAPES AND SIZES OF MATERIAL STOCK PILES AND UNPAVED ROADS MAY BE DIFFERENT FOR CURRENT SITE CONDITIONS. ANY PART OF THE PROPERTY, EXCEPT THE PAVED EMPLOYEE PARKING AREA, MAY BE USED FOR STOCKPILING.
2. TRAFFIC MAY TRAVEL IN EITHER DIRECTION ON SITE ROADS.
3. BRENNAN STREET SWEEPING ACTIVITIES OCCUR TWICE PER WEEK, WEATHER PERMITTING.
4. THE ENTIRE SITE IS UNPAVED EXCEPT AREAS IDENTIFIED AS PAVED.
5. THREE FLOOR DRAINS ARE LOCATED INSIDE THE SCALE HOUSE. BULK MATERIALS ARE NOT STORED INSIDE THE SCALE HOUSE.
6. CONVEYOR UNLOADING/LOADING OPERATIONS MAY OCCUR ANYWHERE WITHIN THE SITE BOUNDARY.

DRAWN BY: AMR	CREATE DATE: 12/08/2017
CHECKED BY: AMR	PLOT DATE: 06/22/2018

Edw. C. Levy Co.
 8800 Dix Ave
 Detroit, MI 48209
 TEL. (313) 429-2200

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Appendix A – Brennan Street Dock Potential-to-Emit (PTE) Calculations

9690 Brennan Street, Detroit, MI Potential-to-Emit Summary

Fugitive PM Potential Emissions (tons per year)		
Emission Source	Uncontrolled PM10	Controlled PM10
PAVED ROADS	1.11	0.22
UNPAVED ROADS	36.61	7.32
STOCKPILES - LOADING/UNLOADING	1.24	1.24
STOCKPILES - WIND	9.41	9.41
Total Potential Emissions	48.37	18.20

Emission Source: Fugitive Dust from Paved Roads
Air Contaminant: Total PM
Calculation Method: AP-42 13.2.1 Paved Roads - Predictive Emission Factor Equations

Emissions calculation for the quantity of particulate emissions from resuspension of loose material on the road surface due to vehicle travel on a dry paved road is estimated using the expression:

$$E = k (sL)^{0.91} \times (W)^{1.02}$$

where: E = particulate emission factor (having units matching the units of k),
 k = particle size multiplier for particle size range and units of interest,
 sL = road surface silt loading (grams per square meter) (g/m²), and
 W = average weight (tons) of the vehicles traveling the road.

If: k = 0.0022 lb/Vehicle Mile Travelled (VMT) See Note 1
 sL = 8.2 g/m² See Note 2
 W = 51 tons See Note 3

Then emission factor, E is calculated as follows:

$$E = k (sL)^{0.91} \times (W)^{1.02}$$

$$E = (0.0022 \frac{lb}{VMT}) \times (8.2 \frac{g}{m^2})^{0.91} \times (51 \text{ tons})^{1.02}$$

$$E = 0.824 \text{ lb/VMT}$$

Assume:

VMT per year = Total no. of trips per year x miles per trip

No. of customer truck trips per year = total tons of aggregate / capacity of average customer truck

If maximum annual material throughput = 1,000,000 tons/year (See Note 5)

Then, annual PTE is:

Vehicle Type	Capacity per trip (tons)	Miles per trip	VMT	E (lbs / VMT)	Uncontrolled Emissions (lbs / yr)	Control Efficiency	Controlled Emissions (lbs/yr)
Gravel Truck	52	0.14	2692	0.824	2218	80%	444
Total (tons/year)					1.11		0.22

Notes:

- 1) PM-10 size range used for selecting Particle Size Multiplier, k in Table 13.2.1-1 of AP-42.
- 2) Average Quarry Silt Loading value, sL, selected from Table 13.2.1-3.
- 3) The average weight, W, of vehicles travelling paved road surfaces at the Site is based on the assumption that all site traffic consists of trucks pulling two gravel trailers. The approximate weight of an empty truck with trailers is 25 tons, and the maximum legal weight of a truck with full trailers is 77 tons.
 So W = (25 tons + 77 tons) / 2 = 51 tons.
- 4) Each gravel truck travels on approximately 0.14 mi of paved on site surfaces coming to and leaving the Site.
- 5) Average annual material throughput (as product sales) at the facility for the past 5 years is 323,160 tons. Estimated maximum throughput limited by size and configuration of the site. All trucks must weigh-in and weigh-out on one truck scale.

Emission Source: Fugitive Dust from Unpaved Roads
Air Contaminant: Total PM
Emission Calculation Method: AP-42 13.2.2 Unpaved Roads - Predictive Emission Factor Equations

Emissions calculation for the quantity of particulate emissions from resuspension of loose material on the road surface due to vehicle travel on a dry paved road is estimated using the expression:

$$E = k (s/12)^a \times (W/3)^b$$

where: E = site-specific emission factor (lb/Vehicle Mile Travelled (VMT)),
 k = particle size multiplier constant,
 s = surface material silt content (%),
 a = empirical constant from AP-42 Table 13.2.2-2,
 W = average weight (tons) of the vehicles traveling the road, and
 b = empirical constant from AP-42 Table 13.2.2-2

Assume:	k (lb/VMT) (See Note 1)	s (%) (See Note 2)	a (See Note 1)	W (tons) (See Note 3)	b (See Note 1)	E (lb/VMT)
Front Endloader	1.5	8.3	0.9	66.5	0.45	4.34
Customer Trucks	1.5	8.3	0.9	51	0.45	3.85

VMT per year = Total no. of trips per year x miles per trip

No. of front end loader trips per year = total tons of aggregate / capacity of front loader bucket

No. of customer truck trips per year = total tons of aggregate / capacity of average customer truck

If maximum annual material throughput = 1,000,000 tons/year (See Note 6)

Then, annual PTE is:

Vehicle Type	Capacity per trip (tons)	Miles per trip	VMT	E (lbs / VMT)	Uncontrolled Emissions (lbs/yr)	Control Efficiency	Controlled Emissions (lbs/yr)
Front End Loader	12	0.1	8333	4.341	36173	80%	7235
Gravel Truck	52	0.5	9615	3.852	37040	80%	7408
Total (tons/year)					36.61		7.32

Notes:

- 1) PM-10 size range used for selecting k, a and b values in Table 13.2.2-2 of AP-42.
- 2) Estimated silt content for stone quarrying and processing haul roads from AP-42 Table 13.2.2-1.
- 3) The average weight, W, of customer vehicles travelling paved road surfaces at the Site is based on the assumption that all site traffic consists of trucks pulling two gravel trailers. The approximate weight of an empty truck with trailers is 25 tons, and the maximum legal weight of a truck with full trailers is 77 tons. So W = (25 tons + 77 tons) / 2 = 51 tons.
- 4) Assume each customer truck travels approximately 0.5-mi on unpaved on site surfaces.
- 5) Assume loader travels approximately 530 ft (0.1-mi) per truck loaded.
- 6) Average annual material throughput (as product sales) at the facility for the past 5 years is 323,160 tons. Estimated maximum throughput limited by size and configuration of the site. All trucks must weigh-in and weigh-out on one truck scale.

Emission Source: Fugitive Dust from Stockpiles (Wind)

Air Contaminant: Total PM

Calculation Method: USEPA Control of Open Fugitive Dust Sources -

4.1.3 Wind Emissions from Continuously Active Piles

Equation for total suspended particulate emissions from wind erosion on continuously active stockpiles:

$$E = 1.7 \left(\frac{s}{1.5} \right) \left(\frac{365-p}{235} \right) \left(\frac{f}{15} \right)$$

where: E = particulate emission factor (in units of lb/d/acre),

s = silt content of aggregate, percent

p = number of days with ≥ 0.01 in. of precipitation per year

f = percentage of time that the unobstructed wind speed exceeds 12 mph at the mean pile height

Assume:	s	p	f	Then:	E
	(%)	(days)	(%)		(lb/day/acre)
	(See Note 1)	(See Note 2)	(See Note 3)		
	3.9	123	30		9.1

Facility stockpile areas = 11.9 acres

Annual PM Emissions = E x Stockpile Area x 365 days/year
 = 39540 lbs/day
 Annual PM Emissions = 19.8 tons/year
 Annual PM10 = 9.4 tons/year (See Note 4)

Notes:

- 1) Silt content from AP-42 Table 13.2.4-1 Stone quarrying, various limestone products
- 2) From NOAA NEIC Precipitation Data for Detroit City Airport and Detroit Metropolitan Airport weather stations. Precipitation data used from 1/1/2008 through 12/31/2017.
- 3) Default value
- 4) Assume total PM = 2.1* PM10 content of emissions pursuant to AP-42 ratio for aggregate processing.