April 18, 2022

Mr. Renante Marante
Chicago Department of Public Health
Environmental Permitting and Inspections
333 South State Street, 2nd Floor
Chicago, Illinois 60604

Re: Chicago Rail and Port, LLC
Class V Recycling Facility Permit Renewal
Permit No. ENVRE1025078
Chicago Rail and Port Recycling Facility
CEC Project 180-215

Dear Mr. Marante:

Civil & Environmental Consultants, Inc. (CEC) respectfully submits this letter and attachments on behalf of Chicago Rail and Port, LLC (CRP) as a Class V recycling facility permit renewal application for CRP's facility located at 3250 East 106th Street in Chicago, Illinois (site). The current permit expires on April 28, 2022.

1.0 PROJECT BACKGROUND

CRP has developed and operates an approximate 21.3-acre Class V recycling facility at the site under City of Chicago Class V Recycling Facility Permit No. ENVRE1025078 for the past three years. The site receives and stockpiles excavated soils and materials from construction and excavation projects in the Chicago area. The facility receives only inert, inorganic materials for cleaning and separation into generic inert material types. We understand that a permit renewal application for a Class V recycling facility is required to include the information described in the City of Chicago Rules for Large Recycling Facilities (Rules) pursuant to Chapters 2-112 and 11-4 of the Municipal Code of Chicago (Code). The renewal application, and associated supplementary materials, is attached to this letter.

We understand that a check in the amount of $4,500 for the application fee (as listed in Chapter 11-4-2550(a) of the Code) will be required by the Chicago Department of Public Health and will be submitted separately. We further understand that a letter of credit to demonstrate financial assurance was previously provided. The site previously obtained approval as a planned

development through the Chicago Plan Commission; therefore, a zoning review stamp is not required nor provided on the attached application.

2.0 CLOSING

If you have any questions or comments regarding this submittal, please feel free to contact the undersigned at (630) 963-6026.

Sincerely,

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.

Thomas J. Green, P.E., P.L.S., CFM
Project Manager

David A. Kamano, P.E., LEED AP
Principal

Enclosure: Class V Renewal Application

cc: Mr. David Zenere, Chicago Rail and Port, LLC
Mr. Austin Zenere, Chicago Rail and Port, LLC

CLASS V RECYCLING FACILITY PERMIT RENEWAL APPLICATION

CHICAGO RAIL AND PORT, LLC
3250 EAST 106TH STREET
CHICAGO, COOK COUNTY, ILLINOIS

Prepared For:
CITY OF CHICAGO DEPARTMENT OF PUBLIC HEALTH
333 SOUTH STATE STREET, ROOM 200
CHICAGO, ILLINOIS 60604

Prepared By:
CIVIL & ENVIRONMENTAL CONSULTANTS, INC.
NAPERVILLE, ILLINOIS

CEC Project 180-215

APRIL 2022

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1.0 INTRODUCTION

The following information is submitted to request a permit renewal from the City of Chicago Department of Public Health (CDPH) for a Class V large recycling facility located at 3250 East 106th Street in Chicago, Cook County, Illinois (site). The site is an approximately 21.3-acre property located along the east perimeter of the Calumet River between 106th Street and 103rd Street.

The permit renewal application is being submitted in general accordance with Section 11-4 of the Municipal Code of Chicago, and the City of Chicago Rules for Large Recycling Facilities, Effective June 5, 2020 (the Rules).

The site was previously operated by Carmeuse Lime and Stone (Carmeuse), but had been inactive for several years. Chicago Rail and Port, LLC (CRP) purchased the site from Carmeuse in 2016 and has performed material handling operations at the site since that time.

We understand that Section 2 of the Rules includes the following definitions:

- "Large Recycling Facility" means a facility that is authorized to accept 1,000 tons or more per day of recyclable materials, operates a metal shredder that processes vehicles, or that has a rated capacity of greater than 25 tons per hour, or utilizes mechanical sorting equipment in the processing of automotive shredder residue. A Large Recycling Facility does not include activities conducted at a waste transfer station facility operating under a permit issued pursuant to 11-4-250 of the Municipal Code.
- "Recyclable Materials" has the same meaning ascribed in Section 11-4-2510 and shall be categorized as Type A, Type B, Type C or Type D as these terms are defined in said section.
- "Process" or "Processing" means manual, mechanical, or automated separation of Recyclable Materials from other materials; separation of Recyclable Materials from each other; cleaning, bundling, compacting, cutting, packing of Recyclable Material or such other processing of Recyclable Materials as approved by the commissioner.

As such, we understand that the proposed operation will classify the site as a Large Recycling Facility. Each of the items in Section 3 of the Rules is addressed in this application.

1.1 DESCRIPTION OF OPERATIONS [3.3]

The site received an operating permit for a Class V recycling facility [Permit No. ENVREC1025078] (Class V Permit) on April 29, 2019. The Class V Permit allows the site to accept mixed loads of uncontaminated soils, broken concrete without protruding metal bars, bricks, rock, stone, or reclaimed asphalt pavement generated from construction or demolition activities. Incoming materials are separated via a screener in accordance with the Class V Permit.

1.2 APPLICANT SUMMARY [3.4]

Owner:

South Chicago Property Development, LLC
700 East Joe Orr Road, Chicago Heights, Illinois 60411
Contact Person: David Zenere
Phone: 708-906-9799

Applicant/Operator:

Chicago Rail and Port, LLC
3236-3258 East 106th Street
Chicago, Illinois 60617
Contact Person: David Zenere
Phone: 708-906-9799

South Chicago Property Development, LLC and Chicago Rail and Port, LLC are affiliated with Z Force Transportation, Inc. (Z Force). Z Force is a multi-generation, family-owned business that provides trucking and related services to a number of large industrial and waste hauler operations.

1.3 FACILITY AND PROPERTY SUMMARY [3.5]

Site Information:

Chicago Rail and Port, LLC
3236-3258 East 106th Street
Chicago, Illinois 60617
On-Site Manager: Austin Zenere
Phone: 815-530-1678

Property Index Numbers:

- 2607401003
- 2607401003
- 2607401008
- 2607401009

Description of Other Site Operations:

The facility will receive construction/demolition materials for either transfer or recycling depending upon content and market. Transferred materials will be taken to fill sites, and construction/demolition materials is stored and/or redistributed to alternative destinations for re-use. Raw and recycled construction/demolition materials will be inventoried on-site until adequate volumes are accumulated for processing and/or redistribution.

List of Other Businesses Operating on the Property:

No other businesses are operating on the property

1.4 PROPERTY OWNER'S AUTHORIZATION [3.6]

A notarized letter, signed by the owner, authorizing the operator to use the property as a Large Recycling Facility is provided as Attachment A.

1.5 PROPERTY TAXES [3.7]

Documentation showing payment of real estate property taxes in 2021 is provided as Attachment B.

1.6 NATURE OF A SPECIAL USE [3.8]

Attachment C provides a copy of the 2018 zoning approval for use of the property as a Class V recycling facility.

2.0 DESIGN REPORT [3.9]

This portion of the application describes the design for the facility, as required for an existing facility in Section 3.9 of the Rules.

2.1 SITE SURVEY [3.9.1]

This section is not applicable for existing facilities.

2.2 USGS SITE LOCATION MAP [3.9.2]

This section is not applicable for existing facilities.

2.3 AERIAL PHOTOGRAPH DRAWING(S) [3.9.3]

This section is not applicable for existing facilities.

2.4 LOCATION STANDARDS [3.9.4]

This section is not applicable for existing facilities.

2.5 GENERAL LAYOUT OF THE FACILITY [3.9.5]

Scaled drawings describing the general layout of the facility are included as Drawings 1 through 5. The following summarizes the Rules followed by the corresponding representative drawing number.

Rule	Rule Description	Drawing Number
3.9.5.1	The main areas of the facility, at a legible scale, not less than 1 inch equals 100 feet. The scale shall be represented on each drawing in graphical format.	Drawings 1 and 2
3.9.5.2	The internal and external layout including dimensions of all buildings and structures.	Drawings 1 and 2

Rule	Rule Description	Drawing Number
3.9.5.3	The layout and location including dimensions for all fixed equipment including, but not limited to, all Processing equipment and conveyors.	Drawings 1 and 2
3.9.5.4	The footprints of all Processing, handling, Storage (authorized and unauthorized materials), and staging areas.	Drawings 1 and 2
3.9.5.5	Traffic flow for vehicles used to transport recyclable materials through the facility.	Drawings 1 and 2
3.9.5.6	If present, all pertinent features of the stormwater management system (e.g., onsite stormwater flow, inlets, stormwater pipelines, catch basins, and detention/retention ponds).	Drawings 4 and 5
3.9.5.7	If present, all pertinent features of the wastewater management system (e.g., floor drains, sumps, oil filters/separators, sewer lines, and treatment facilities).	n/a
3.9.5.8	The locations of primary water sources and water distribution system components for employee facilities, fire suppression, facility cleaning, and dust control.	Drawing 1

Rule	Rule Description	Drawing Number
3.9.5.9	The locations of all fire suppression equipment (e.g., sprinklers, hoses, and extinguishers), areas where torch-cutting, plasma-cutting or welding occurs, and all flammable material storage areas.	n/a
3.9.5.10	The locations of all facility or site control features and all screening and access-control devices such as fences, gates, and signage.	Drawings 1 and 2
3.9.5.11	The locations and layout of all onsite and nearby offsite parking and queuing areas, including the number of parking spaces and the maximum number of vehicles that can be queued at one time in the allowed queuing area.	Drawings 1, 2, and 3
3.9.5.12	The locations and layout of all employee facilities.	Drawings 1, 2, and 3
3.9.5.13	The location of all first-aid equipment and other emergency supplies and equipment.	A drawing is not available to show this; however, see section 3.6 below

The layout of the site facilities, including the site boundaries, existing buildings, access roads, parking areas, and ancillary structures, are shown on Drawing 1 - Site Improvement Plan. The drawing also demonstrates the layout and location of fixed equipment, and material receiving, processing, handling, and staging areas. Please note, the drawing also illustrates the location of reprocessing equipment; however, specific requirements associated with the reprocessing equipment will be addressed under separate permit.

The facility maintains an appropriate "Buffer Zone" consistent with the Chicago zoning ordinance requirements. The facility maintains the minimum 300-foot separation between the storage areas

and the nearest residential property, which is located to the east (see Figure 1). The property is bordered to the east by property owned by CRP and residential property beyond, to the south by 106th Street, followed by industrial and commercial properties; to the west by the Calumet River, and multiple industrial properties; and to the north by industrial properties.

The reprocessable facility site location, as detailed in Section 5.0 of this application, is consistent with the location standards established in Section 13.0 of the City of Chicago Department of Environment Waste Handling Facility Regulations.

2.6 PAVEMENTS [3.9.6]

Roads and parking areas within the facility are paved with either concrete, hot-mix-asphalt, or gravel and asphalt grindings. Internal roads and parking areas are designed, constructed, and maintained to accommodate the vehicle flow rates and types of traffic loading expected at the facility. Drawing 1 identifies pavement types at the facility.

2.6.1 Plan Scaled Drawing [3.9.6.1]

Drawing 1 identifies the pavement types used at the facility.

2.6.2 Pavement Maintenance Plan [3.9.6.2]

The pavement onsite will be regularly inspected by CRP and any necessary repairs/maintenance will be performed on an as-needed basis to keep the ponding, dust, and mud to a minimum.

2.7 UTILITIES [3.9.7]

This section is not applicable to existing facilities.

2.8 WATER SOURCES [3.9.8]

This section is not applicable to existing facilities.

2.9 SITE SECURITY [3.9.9]

The point of access to the facility is a gated entrance along 106th Street. A secondary entrance is located along 103rd Street, which remains locked. A sign is placed at each gate, which identifies the facility and a warning to all unauthorized persons. The facility is bordered along the west by the Calumet River. The north, east, and south perimeter is encircled with a fence. No trespassing signs are placed along the fence.

During operating hours, traffic entering and leaving the facility must pass by the scale office. The scale office is positioned and designed to allow full and constant visibility of the driveway entrance off of 106th Street. Unauthorized traffic is stopped at this point. During non-operating hours, the access gate at 106th Street is in the closed and locked position.

2.10 STRUCTURES AND FIXED EQUIPMENT [3.9.10]

Incoming material will consist of reprocessable construction/demolition material generated from construction or demolition activities. Incoming materials will be separated via a screener and recyclable materials will be stored or transferred. Remaining materials will be barged or trucked to a clean construction or demolition debris (CCDD) fill site.

Other structures and fixed equipment include:

- Outgoing trucks travel through a wash bay and rumble strips to prevent mud from being tracked onto 106th Street.
- A scale house and scale is located on-site and is used to inspect all incoming loads to review that only permitted materials are accepted.
- Certain structures from Carmeuse's operations will be razed. Buildings anticipated to remain are indicated on the site drawings.
- An office and garage.
- A grizzly screener.

The facility will add one crusher/screener combination for reprocessing concrete materials, and may add another crusher/screener in the future; however, the reprocessable operation is addressed under a separate permit. No buildings are proposed to be installed as part of the operation.

2.11 TIPPING FLOOR AND STORAGE CAPACITY [3.9.11]

The facility intends to process and remove material from the site at a commensurate rate as the material is accepted. However, to satisfy market needs and operational constraints, certain amounts of unprocessed and processed materials will need to be stored on-site. The site is generously sized for the proposed operations. Incoming (unprocessed) concrete will be staged in either the Type D Mixed Load Area or the Concrete Storage Area shown on the drawings, which has a capacity of approximately 35,000 cubic yards.

2.12 WATER DRAINAGE [3.9.10]

This section is not applicable to existing facilities.

2.13 TRAFFIC [3.9.13]

The facility is designed and located to minimize the impact on the existing traffic flow in the surrounding areas and points of ingress and egress are designed according to Illinois Department of Transportation (IDOT) standards. Vehicles using the site will enter and exit off of 106th Street at the site's entrance, as shown on Drawing 1 - Site Improvement Plan. Internal traffic flow patterns are shown on Drawing 2. The trucks will typically be dumps and semi-dumps. The site entrance was designed to IDOT and Chicago Department of Transportation standards, is approximately 48 feet wide, and capable of accommodating tractor-trailer trucks as well. A truck turning radius plan is provided as Figure 2.

The site was previously owned by Carmeuse and used for the production of lime products. The Carmeuse facility reportedly had the following traffic characteristics:

- Approximately 340 to 360 vehicles entering and exiting during peak production.
- Trucks hauled Hi-Cal and dolomitic lime, raw limestone, pet coke, flue dust, fly ash, plant equipment, and general supplies.
- The type/size/capacity of trucks included flat beds, pneumatic tanks, end dump, van trailers, and straight trucks. These trucks ranged from 30 feet in overall length to 67 feet in overall length, with the majority of them being 63 feet in length. The capacity of the trucks was 80,000 pounds. These trucks were mostly semi-tractor trailers.
- The trucks entered and exited the site from 106th Street from both directions.
- The peak traffic hours for the site were from 4:00 a.m. to 6:00 p.m. with about 75% of the traffic occurring during that time period.

Based on traffic data pulled from IDOT's Geographic Information System website, the average daily traffic (ADT) on the adjacent and nearby arterial streets are as follows:

- 106th Street: 10,450 vehicles.
- South Avenue: 5,350 vehicles (south of 106th Street).
- South Ewing Avenue: 8,450 vehicles (north of 106th Street).
- South Torrence Avenue: 11,100 vehicles north of 106th Street and 6,150 vehicles south of 106th Street.

The IDOT ADT data does not include truck traffic volumes. A copy of the IDOT ADT printout is provided as Figure 3.

The proposed site is anticipated to have the following traffic characteristics:

- Approximately 200 vehicles entering and exiting during peak production.
- The large majority of trucks will enter the site with mixed loads of CCDD for recycling (as part of the Class V Permit operations). Trucks exiting the facility will be empty or hauling product material (either virgin material brought in via barge or recycled material from incoming loads).
- The type/size/capacity of trucks will primarily be end dumps or semi-dumps hauling 40,000 to 42,000 pounds of material. These trucks will generally range from 30 to 35 feet in overall length.
- The trucks will enter and exit the site from 106th Street from both directions.
- The peak traffic hours for the site will be from 7:00 a.m. to 4:00 p.m. with the large majority of the traffic occurring during that time period.
- Anticipated internal traffic flow patterns are shown on Drawings 1 and 2.

It should be noted that the proposed site operations will reduce the overall traffic on Chicagoland roadways. This will occur because the trucks hauling mixed loads of CCDD currently travel significantly longer distances to CCDD fill sites located outside of Chicago. Following dumping at the CCDD fill site, trucks then travel to a separate location to pick up backfill material to haul back to the construction sites.

The proposed reprocessable operations at the facility (addressed under separate permit) will facilitate "round robin" truck trips where the truck will be able to deliver CCDD and/or reprocessable material, and pick up product material for backfill at the same location. The proposed operation will provide a convenient dump/load location to serve many construction projects in proximity to the site. In addition, the transportation of the CCDD material to the fill site is planned to be performed via barge, which minimizes truck traffic to the fill site. One barge can hold approximately 1,500 tons (or approximately seventy-one truckloads).

2.14 EXPECTED WASTE GENERATION [3.9.14]

This section is not applicable for existing facilities.

2.15 PARKING [3.9.15]

This section is not applicable for existing facilities.

2.16 EMPLOYEE FACILITIES [3.9.16]

This section is not applicable for existing facilities.

2.17 PERIMETER BARRIER [3.9.17]

The site is fenced and gated along 106th Street. The east side of the eastern adjacent property is screened by an existing berm, vegetation, and sound wall. Existing buildings also serve as screening towards the east.

An existing garage and office remains on the northern end of the site near 103rd Street. Two additional existing buildings remain on the northern end of the site, and have been preserved to provide visual screening and noise attenuation for the operations. The gate located along 103rd Street will always be locked and will require a code or will require visitors to be buzzed in to gain access.

The site also includes a mix of trees, shrubs, and groundcover to screen the view of the storage area that is located near 106th Street. The site includes concrete block walls and a landscape buffer to screen the storage located at the south end of the site near 106th Street, and along the site entrance at 106th Street.

2.18 STORMWATER POLLUTION PREVENTION [3.9.18]

The facility stormwater pollution prevention plan is provided as Attachment E.

2.19 NOISE IMPACT ASSESSMENT [3.9.19]

The facility is not requesting a waiver to operate outside of the operating hours set forth in Section 4.2 of the Rules, and therefore his section is not applicable to the facility.

2.20 STORAGE TANKS [3.9.20]

The facility does not store oil or petroleum quantities in containers greater than 55-gallons, in excess of 1,320 total gallons. Therefore this section is not applicable to the facility.

Diesel fuel is stored in and dispensed from an approved aboveground storage tank system, the location of which is indicated on the permit drawings. Lubricants and maintenance support chemicals are stored in approved containers in the maintenance facilities, and handled and dispensed in accordance with manufacturer's recommendations.

2.21 AIR QUALITY IMPACT ASSESSMENT [3.9.21]

The facility's air emissions and air dispersion modeling study is provided as Attachment F. The facility's dust monitoring plan (including the calibration plan) is provided as Attachment G.

3.0 OPERATING PLAN [3.10]

This portion of the application describes the operating plan for the facility. The facility will receive construction/demolition materials for either transfer or recycling depending upon content and market. Transferred materials will be taken to fill sites, and construction/demolition materials is stored and redistributed to alternative destinations for re-use. Raw and construction/demolition materials will be inventoried on-site until adequate volumes are accumulated for processing and/or redistribution.

3.1 TYPES OF RECYCLABLE MATERIAL [3.10.1]

3.1.1 List of Materials [3.10.1.1]

The facility receives mixed loads of uncontaminated soils, broken concrete without protruding metal bars, bricks, rock, stone, or reclaimed asphalt pavement generated from construction or demolition activities.

3.1.2 Source Type Descriptions [3.10.1.2]

See Section 3.12 below.

3.1.3 Screening Plan [3.10.1.3]

See Section 3.13 below.

3.1.4 Segregation and Removal Plan [3.10.1.4]

See Section 3.13 below.

3.1.5 Emergency Response Plan [3.10.1.5]

See Section 3.14 below.

3.2 QUANTITY OF RECYCLABLE MATERIAL [3.10.2]

The site to accept mixed loads of uncontaminated soils, broken concrete without protruding metal bars, bricks, rock, stone, or reclaimed asphalt pavement generated from construction or demolition activities. Quantity of materials accepted varies throughout the year, with higher volume typically received during active local construction. Average monthly tonnage throughout 2021 was 1000 and peak month was July which saw acceptance of 1500 tons. The facility acceptance is expected to grow over time, but will depend on local construction. The facility has capacity to accept up to 4000 tons of Class V materials.

3.3 DEVICES, APPARATUS, AND PROCESSES [3.10.3]

3.3.1 Flow Diagram [3.10.3.1]

The flow of materials through the site is indicated on drawing 1. The process includes truck entry at 106th street and acceptance of mixed loads of uncontaminated soils, broken concrete without protruding metal bars, bricks, rock, stone, or reclaimed asphalt pavement generated from construction or demolition activities.

3.3.2 Health and Safety Plan [3.10.3.2]

The following is an overview of the safety program at CRP:

- Check-in and escort procedures: signage posted in prominent locations directs all non-employees visiting the facility to check in at the trailer or office building, and any visitors on the site will be escorted at all times by facility personnel.
- Personal protective equipment: all visitors to the facility will be provided with safety glasses and a hardhat that will be worn at all times during the facility visit.
- Potential hazards: the greatest hazard at the facility stems from the volume of truck and heavy equipment traffic. Another potential hazard is loose or slippery material on the ground surface or material sliding down the slope of a stockpile.
- Evacuation procedures: In case of an emergency evacuation, visitors will be returned to the trailer or office building, escorted to their car, and accompanied until they are safely out of harm's way.
- Other safety procedures: caution is to be exercised when moving in or near proximity to fixed equipment used in the sorting and separating processes because the machinery is potentially dangerous to a casual observer.

Diesel fuel is stored in and dispensed from an approved aboveground storage tank system, the location of which is indicated on the permit drawings. Lubricants and maintenance support chemicals are stored in approved containers in the maintenance facilities, and handled and dispensed in accordance with manufacturer's recommendations. A water pump house and fire hydrants located in proximity to the site are available for firefighting purposes and are shown on the permit drawings. Emergency telephone numbers are posted and employees have been instructed in notification procedures.

3.3.3 Air and Noise Exposure Sampling [3.10.3.3]

Personal protective equipment is required per the Occupational Safety and Health Administration, as necessary for work activities.

3.4 FIRE PREVENTION AND RESPONSE PLAN [3.10.4]

Facility includes basic fire protection equipment such as fire extinguishers and water trucks may be utilized, if necessary.

3.5 EMERGENCY COMMUNICATIONS [3.10.5]

The facility is equipped with voice and data communication capability by the local service provider of choice. The facility also maintains a mobile phone communication network and has contact with truck drivers for dispatching purposes. The management group maintains communications via cellular and landline telephone.

A listing of emergency phone numbers is posted at various locations throughout the facility, and is maintained to include contact information for:

- Police;
- Fire;
- Emergency medical;
- Ambulance service;
- Weather reporting;
- Supervision; and
- General management.

The internal chain of command in the event of an emergency includes:

- Operator;
- On-site manager

3.6 FIRST AID EQUIPMENT [3.10.6]

First aid supplies maintained on-site include an assortment of bandaging materials, disinfectant, burn treatment, eyewash, and immobilizing devices. First aid equipment is located in the trailer or similar location.

3.7 RODENT/VECTOR CONTROL [3.10.7]

A service contract is in place with a vector control specialist to maintain an effective service program and records are maintained as required.

The most effective means of rodent control is the elimination or minimization of available food. The inert nature of the material to be accepted minimizes potential food for vectors.

3.8 VEHICLES [3.10.8]

The vehicle types, quantities, and uses at the site are anticipated to include:

- Lippman crusher (or similar) - two units (to be added for reprocessable portion of the operation addressed under separate permit);
- McCloskey screening plant(s) - one unit (to be added for reprocessable portion of the operation addressed under separate permit);
- Grizzly bar screen - one unit;
- Barge loader/unloader - Sennebogen or similar;
- Astec Tracked Hopper Feeder - one unit for large barges;
- John Deere (JD) 850 Bulldozer - one unit;
- Caterpillar 966 Wheel Loaders - two units;
- JD 270 Excavator with swappable breaker attachment;
- Water truck - one unit; surface watering for dust control;
- Elgin street sweeper - one unit, constantly available to service the site; and
- Misters - one set per JD crusher (to be added for reprocessable portion of the operation addressed under separate permit).

3.9 DISPOSAL FACILITIES [3.10.9]

Names and locations of waste disposal facilities that are used by the site, routes used to each, with estimated travel distances and times include:

- Hanson Material Service - 125 Independence Drive, Romeoville, Illinois:
  Approximately 43 miles and fifty minutes via East 106th Street to I-94 West.
  Monday through Friday, 6:00 a.m. to 3:00 p.m., Saturday 6:00 a.m. to 12:00 p.m.
  Stone, CCDD.

- Hanson Material Service Thornton Quarry - 322 South Williams Street, Thornton, Illinois:
  Approximately 15 miles and thirty minutes via East 106th Street to I-94 East.

- J-Pit - 15th Avenue and Morse Street, Gary, Indiana:
  Approximately 15 miles and twenty-five minutes via East 106th Street to I-90 East.

3.10 DAILY HOUSEKEEPING AND CLEANING [3.10.10]

Daily cleaning/housekeeping activities will include stockpile maintenance and cleaning mud/dirt from roadways using the front-end loaders and/or the vacuum sweeping unit, as needed.

3.11 HOURS OF OPERATION [3.10.11]

The facility's operating hours are as follows:

- Load acceptance: Monday through Saturday, 7:00 a.m. to 4:30 p.m.
- Separation/cleaning/other miscellaneous site activities: Monday through Saturday, 7:00 a.m. through 7:30 p.m.

4.0 CLOSURE PLAN [3.10.12]

This section of the application describes procedures that will take place at the facility when recycling activities cease.

4.1 CLOSURE PLAN ACTIVITIES [3.10.12.1]

The final closure of the CRP recycling facility located at the site will consist of the following activities:

- Removal of all recyclable material from the site;
- Decommissioning and cleaning of the equipment;
- Removal of all equipment; and
- Preparation and submittal of closure documentation.

Closure activities will be initiated within thirty days of the declaration of the acceptance of the last load of recyclable material, or within thirty days of notification of closure, whichever is less. No materials will be accepted at the facility after either of the two above-mentioned activities. Access gates will be secured, and signs will be posted that indicate that the facility is closed and is no longer accepting waste.

4.1.1 Material Removal [3.10.12.2]

Incoming materials are anticipated to be processed within forty-eight hours of receipt to separate the recyclable construction and demolition debris from the non-recyclable construction and demolition debris. The site is anticipated to accept approximately 4,200 tons per day. Recyclable material is planned to be stored in storage bays formed by concrete blocks, or directly unloaded into the reprocessing facility area for immediate reprocessing.

During a "worst-case" closure, it is assumed that two full days amount of incoming material will be stockpiled (8,400 tons) and needed to be hauled to a different facility. This material qualifies as clean construction and demolition debris and could be hauled via truck or barge to Hanson Material Service, located at 125 North Independence Boulevard in Romeoville, Illinois. Recyclable material in storage bays has value as a commodity and could be sold. Under a worst-case closure, it is assumed that the material is provided to customers for free.

4.1.2 Equipment Decommissioning [3.10.12.3]

After the material has been removed from the site, areas and equipment that were in contact with the material will be cleaned. Processing and stockpile areas will be broom swept or cleaned with a sweeper. The screening equipment will be pressure washed as necessary.

After the site has been cleaned, on-site equipment (e.g., loaders, crushers, screening equipment) will be removed from the reprocessing facility for beneficial reuse or resale. No costs are anticipated.

4.1.3 Closure Cost Estimate [3.10.12.4]

A closure cost estimate has been prepared for the completion of all closure activities. The closure cost estimate is based on the cost necessary for closure at any time during the life of the facility, is not discounted for current values, and reflects a worst-case scenario.

The closure cost is estimated at $46,536.00, as shown in Attachment F. The closure cost estimate includes removal and disposal of 8,400 tons of waste (two days volume of the maximum amount of daily incoming waste anticipated), equipment cleaning, and closure certification. As previously stated, under routine closure conditions, no waste would be required to be removed.

4.2 FINANCING [3.10.12.5]

For Class V Facilities, the Closure Plan shall include documentation to demonstrate that sufficient financing is available to complete all closure activities.

Sufficient funding is required to be available to complete all closure activities. The closure cost estimate, as provided in Attachment H, is $46,536. A copy of the irrevocable standby letter of credit in favor of the City of Chicago in the amount of $25,000 will be submitted separately to the CDPH.

5.0 PROFESSIONAL ENGINEER CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

April 18, 2022

David A. Kamano, P.E.
Illinois License Number 062-057977
Expiration Date: 11/30/2023

Date

DRAWINGS

LEGEND

- TRAFFIC FLOW DUMP TRUCK MOVEMENT 1
- TRAFFIC FLOW END LOADER 1
- TRAFFIC FLOW DUMP TRUCK MOVEMENT 2
- TRAFFIC FLOW END LOADER 2
- TRAFFIC FLOW END LOADER 3
- SETBACK LINE
- DRAINAGE SWALE
- ASPHALT PAVEMENT

REFERENCE

1. PROPERTY BOUNDARY AND SITE FEATURES FROM CHICAGO GUARANTEE SURVEY COMPANY ALTA/NSPS LAND TITLE SURVEY, ORDER No. 2018-25124-001, DATED MARCH 7, 2018, AS PROVIDED BY PROFESSIONAL LAND AND CONSTRUCTION SURVEYORS (PLCS), CHICAGO, ILLINOIS.
2. THE HORIZONTAL DATUM IS THE ILLINOIS STATE PLANE COORDINATE SYSTEM EAST ZONE NAD 83 (IL83-EF).
3. THE VERTICAL DATUM IS THE CHICAGO CITY DATUM.
4. THE TOPOGRAPHIC CONTOUR DATA SHOWN HEREON WAS COLLECTED IN THE FIELD ON APRIL 17, 2018 USING AERIAL SURVEY EQUIPMENT (DJI INSPIRE 2), HORIZONTAL AND VERTICAL DATUM IS BASED UPON GROUND CONTROL SET USING A TRIMBLE R10 GNSS ROVER AND BASED ON THE CORS RTK NETWORK.

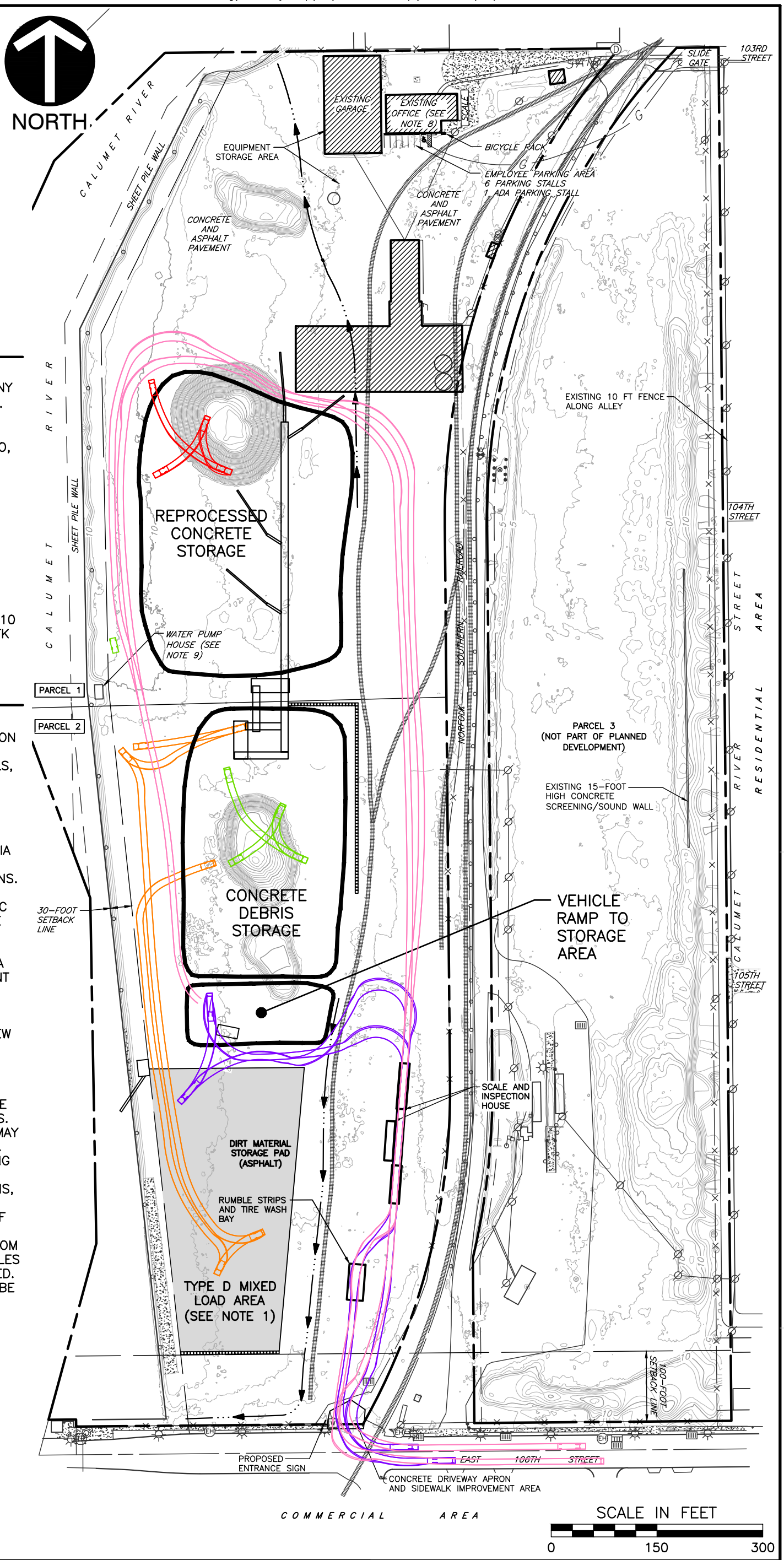
NOTES

1. THE OPERATION INCLUDES RECYCLING OF CLEAN, INERT CONSTRUCTION AND DEMOLITION DEBRIS. INCOMING MATERIAL WILL CONSIST OF MIXED LOADS OF UNCONTAMINATED SOILS, BROKEN CONCRETE WITHOUT PROTRUDING METAL BARS, BRICKS, ROCK, STONE OR RECLAIMED ASPHALT PAVEMENT GENERATED FROM CONSTRUCTION OR DEMOLITION ACTIVITIES.
2. INCOMING MATERIALS WILL BE SEPARATED VIA A SCREENER AND RECYCLABLE CONCRETE WILL BE SIZED TO CUSTOMER SPECIFICATIONS.
3. RECYCLABLE MATERIALS WILL BE HAULED OFF-SITE AND RETURNED TO THE ECONOMIC MAINSTREAM. REMAINING MATERIALS WILL BE BARGED OR TRUCKED OR TRAINED TO AN IEPA PERMITTED CCDD FILL SITE.
4. OUTGOING TRUCKS WILL TRAVEL THROUGH A WASH BAY AND RUMBLE STRIPS TO PREVENT MUD FROM BEING TRACKED ONTO 106TH STREET.
5. A SCALE HOUSE AND SCALE WILL BE USED TO INSPECT ALL INCOMING LOADS TO REVIEW THAT ONLY PERMITTED MATERIALS ARE ACCEPTED.
6. FOR SAFETY PURPOSES, ALL CONCRETE BLOCK WALL HEIGHT WILL NOT EXCEED 20-FEET. BIN LOCATION, HEIGHT, AND SIZE MAY VARY DEPENDING ON FIELD CONDITIONS.
7. DEPENDING ON MARKET CONDITIONS, SITE MAY STORE OR TRANSLOAD OTHER COMMODITIES. SEASONAL SALT STORAGE AND TRANSLOADING IS ANTICIPATED.
8. OFFICE INCLUDES FILE STORAGE, BATHROOMS, LOCKER ROOMS, AND BREAKROOM. WATER, GAS, AND ELECTRIC UTILITIES ORIGINATE OFF OF 103RD STREET.
9. WATER PUMP HOUSE WILL PUMP WATER FROM THE CALUMET RIVER FOR WETTING STOCKPILES OR FIRE PROTECTION PURPOSES, AS NEEDED.
10. AIR QUALITY MONITORS WILL CONTINUE TO BE UTILIZED IN ACCORDANCE WITH CHICAGO DEPARTMENT OF PUBLIC HEALTH (CDPH) REQUIREMENTS.

LIST OF MAJOR EQUIPMENT

- CRUSHERS - LIPPMANN J3062-VGF6220 OR SIMILAR. ASSUME TWO FOR OPERATION
- TWO McCLOSKEY SCREENING PLANTS
- GRIZZLY BAR SCREEN
- BARGE LOADING/UNLOADING: SENNEBOGEN 870 WITH 5-6 YD CLAMSHELL, TRACKED OR WHEELED
- ASTEC TRACKED HOPPER FEEDER FOR LARGE BARGES
- JOHN DEERE (JD) 850 BULLDOZER
- TWO CAT 966 WHEEL LOADERS
- JD270 EXCAVATOR WITH SWAPPABLE BREAKER ATTACHMENT
- WATER TRUCK
- ELGIN STREET SWEEPER
- MISTERS

SIMILAR OR EQUIVALENT EQUIPMENT TO THE ABOVE MAY BE USED.



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CHICAGO RAIL AND PORT, LLC
CLASS V RECYCLING FACILITY
3236-3258 EAST 106TH STREET
CHICAGO, ILLINOIS 60617

CLASS V PERMIT RENEWAL
SITE PLAN

DRAWN BY:	MSK	CHECKED BY:	TJG	APPROVED BY:	*DAK	DRAWING NO.:	1
DATE:	04/12/2022	DWG SCALE:	1"=150'	PROJECT NO:	180-215.0010		

LEGEND

- TRAFFIC FLOW DUMP TRUCK MOVEMENT 1
- TRAFFIC FLOW END LOADER 1
- TRAFFIC FLOW DUMP TRUCK MOVEMENT 2
- TRAFFIC FLOW END LOADER 2
- TRAFFIC FLOW END LOADER 3
- SETBACK LINE
- DRAINAGE SWALE
- ASPHALT PAVEMENT
- EXISTING BUILDING TO BE PRESERVED

REFERENCE

1. PROPERTY BOUNDARY AND SITE FEATURES FROM CHICAGO GUARANTEE SURVEY COMPANY ALTA/NSPS LAND TITLE SURVEY, ORDER No. 2018-25124-001, DATED MARCH 7, 2018, AS PROVIDED BY PROFESSIONAL LAND AND CONSTRUCTION SURVEYORS (PLCS), CHICAGO, ILLINOIS.

LIST OF MAJOR EQUIPMENT

- CRUSHERS – LIPPMANN J3062-VGF6220 OR SIMILAR. ASSUME TWO FOR OPERATION
- TWO McCLOSKEY SCREENING PLANTS
- GRIZZLY BAR SCREEN
- BARGE LOADING/UNLOADING: SENNEBOGEN 870 WITH 5-6 YD CLAMSHELL, TRACKED OR WHEELED
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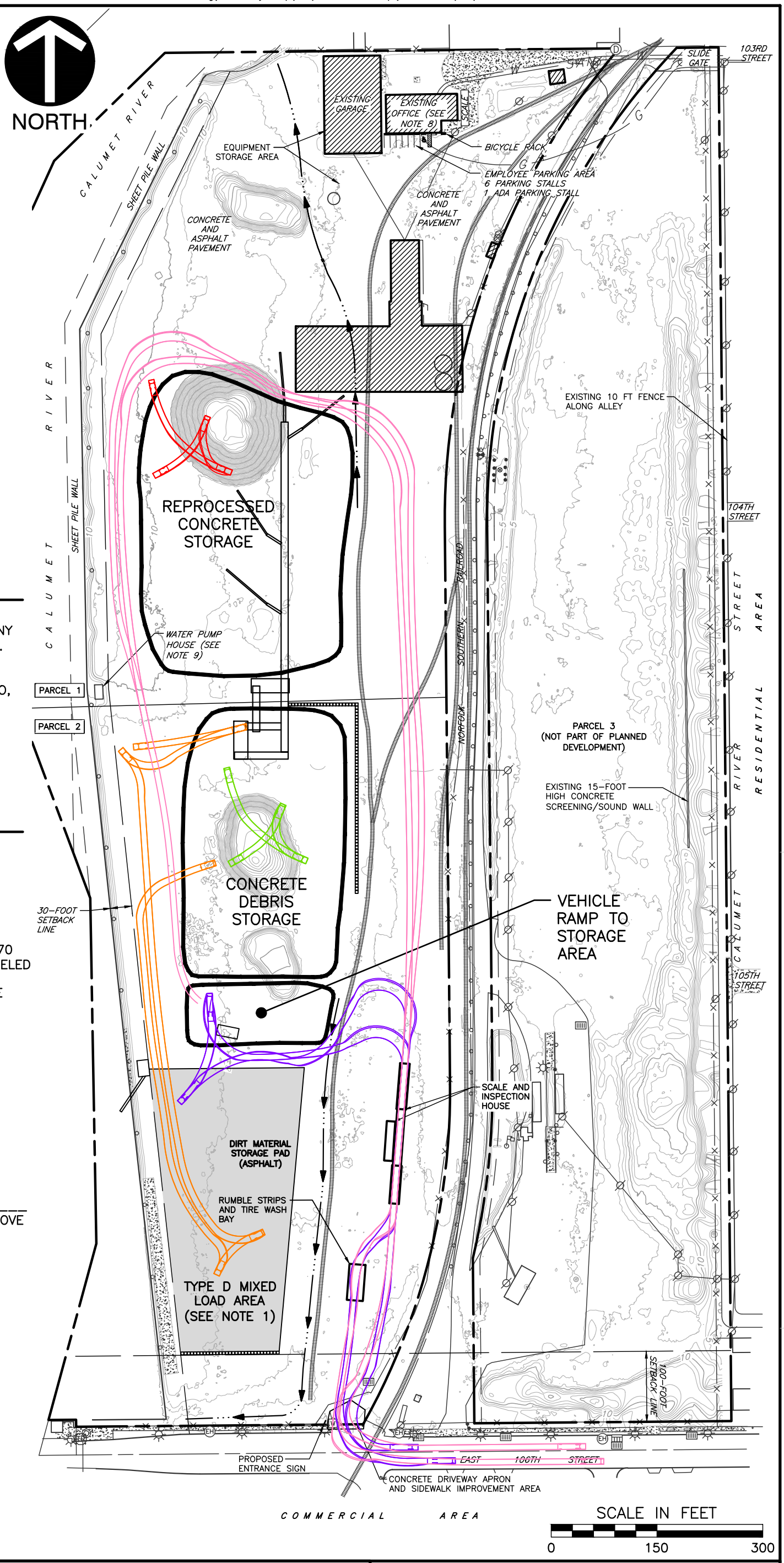
- TWO CAT 966 WHEEL LOADERS
- JD270 EXCAVATOR WITH SWAPPABLE BREAKER ATTACHMENT
- WATER TRUCK
- ELGIN STREET SWEEPER
- MISTERS

SIMILAR OR EQUIVALENT EQUIPMENT TO THE ABOVE MAY BE USED.



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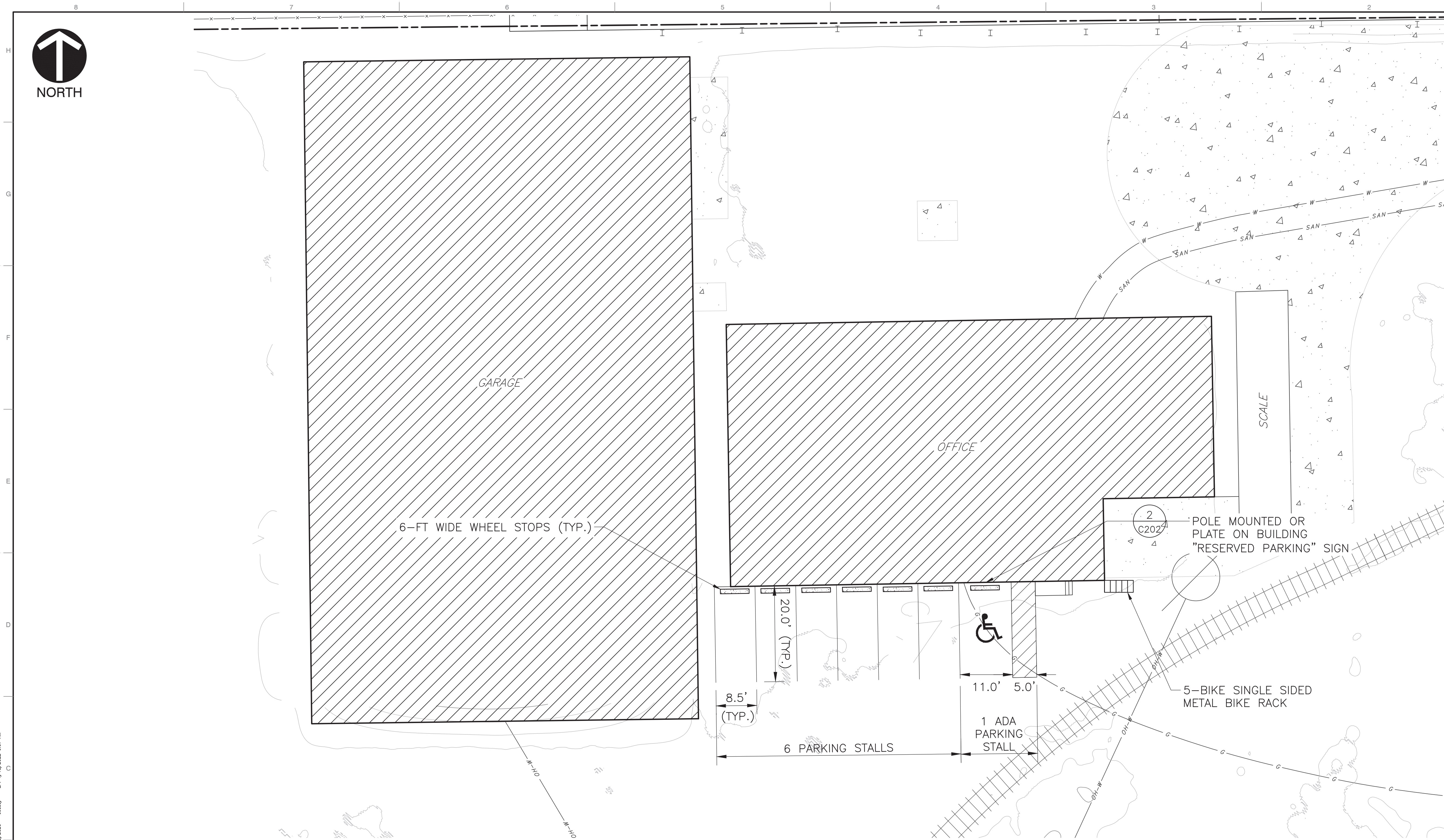
CHICAGO RAIL AND PORT, LLC
CLASS V RECYCLING FACILITY
3236-3258 EAST 106TH STREET
CHICAGO, ILLINOIS 60617

CLASS V PERMIT RENEWAL
INTERNAL TRAFFIC FLOW

DRAWN BY:	MSK	CHECKED BY:	TJG	APPROVED BY:	*DAK	DRAWING NO.:
DATE:	04/12/2022	DWG SCALE:	1"=150'	PROJECT NO:	180-215.0010	2



1 C202 EMPLOYEE PARKING AREA
SCALE: 1"=10'

MUTCD SIGN R7–8 WITH R7–I101
(SEE NOTE 3):

2 C202 ACCESSIBLE PARKING STALL SIGN
NOT TO SCALE

SCALE IN FEET
0 10 20

NOTES

1. PROPOSED PARKING SHALL COMPLY WITH CHICAGO MUNICIPAL CODE CHAPTER 17–10.
2. PROPOSED ACCESSIBLE PARKING SHALL COMPLY WITH CHICAGO BUILDING CODE CHAPTER 18–11 AND ICC/ANSI A117.1–2003; ILLINOIS ACCESSIBILITY CODE; AND 2010 AMERICANS WITH DISABILITIES ACT.
3. PROPOSED SIGNS SHALL COMPLY WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) FOR STREETS AND HIGHWAYS, 2009 EDITION AND THE ILLINOIS SUPPLEMENT TO THE MUTCD, 2009 EDITION.

REFERENCE

1. PROPERTY BOUNDARY AND SITE FEATURES FROM CHICAGO GUARANTEE SURVEY COMPANY ALTA/NSPS LAND TITLE SURVEY, ORDER No. 2018–25124–001, DATED MARCH 7, 2018, AS PROVIDED BY PROFESSIONAL LAND AND CONSTRUCTION SURVEYORS (PLCS), CHICAGO, ILLINOIS.
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3. THE VERTICAL DATUM IS THE CHICAGO CITY DATUM.
4. THE TOPOGRAPHIC CONTOUR DATA SHOWN HEREON WAS COLLECTED IN THE FIELD ON APRIL 17, 2018 USING AERIAL SURVEY EQUIPMENT (DJI INSPIRE 2), HORIZONTAL AND VERTICAL DATUM IS BASED UPON GROUND CONTROL SET USING A TRIMBLE R10 GNSS ROVER AND BASED ON THE CORS RTK NETWORK.

P:\2018\180-215\-CADD\Dwg\CV10-Reprocessable Permit App\180215-CV10-3-Parking Plan.dwg{3} LS:(8/25/2020 – ccase) – LP: 4/18/2022 9:07 AM

REVISION RECORD

NO	DATE	DESCRIPTION

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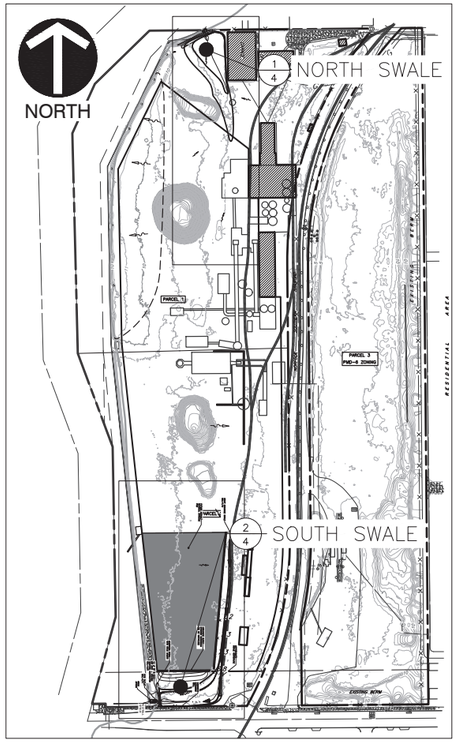
3236-3258 EAST 106TH STREET
CHICAGO, ILLINOIS 60617

PARKING PLAN

DATE:	08/26/2020	DRAWN BY:	CAC
DWG SCALE:		CHECKED BY:	JEH
PROJECT NO:	180-215		
APPROVED BY:	*DAK		

*HAND SIGNATURE ON FILE

DRAWING NO.: 3
SHEET 3 OF 5



SITE OVERVIEW MAP
1" = 200'

AS-BUILT RECORD VOLUME
NORTH DRAINAGE SWALE

STAGE STORAGE TABLE		
CONTOUR	CONTOUR AREA (SF)	CAPACITY (CF)
6	98	0
7	8,949	4,523
7.5	18,302	13,674

VOLUME REQUIRED = 12,867 CF
(EXCEEDS ORDINANCE TO MEET S.D. POLICY)
VOLUME PROVIDED = 13,674 CF

1/4 NORTH SWALE
1" = 20'

AS-BUILT RECORD VOLUME
SOUTH DRAINAGE SWALE

STAGE STORAGE TABLE		
CONTOUR	CONTOUR AREA (SF)	CAPACITY (CF)
5	85	
6	8,816	4,450
7	13,358	15,537

VOLUME REQUIRED = 11,583 CF
(EXCEEDS ORDINANCE TO MEET S.D. POLICY)
VOLUME PROVIDED = 15,537 CF

RECORD DRAWING NOTE:
TOTAL SITE VOLUME REQUIRED = 24,450 CF
(EXCEEDS ORDINANCE TO MEET S.D. POLICY)
TOTAL SITE VOLUME PROVIDED = 29,211 CF

2/4 SOUTH SWALE
1" = 30'

LEGEND

– – – 7 – – –	EXISTING 1-FOOT CONTOUR
——9——	RECORD 1-FOOT INTERMEDIATE CONTOUR
◁~	FLOW DIRECTION
—···◀—···◀—	DRAINAGE SWALE
—— ST ——	DIP VOLUME RESTRICTOR PIPE
× 7.5	RECORD SPOT ELEVATION
▨	EXISTING BUILDING

REFERENCE

1. PROPERTY BOUNDARY AND SITE FEATURES FROM CHICAGO GUARANTEE SURVEY COMPANY ALTA/NSPS LAND TITLE SURVEY, ORDER No. 2018-25124-001, DATED MARCH 7, 2018, AS PROVIDED BY PROFESSIONAL LAND AND CONSTRUCTION SURVEYORS (PLCS), CHICAGO, ILLINOIS.
2. THE HORIZONTAL DATUM IS THE ILLINOIS STATE PLANE COORDINATE SYSTEM EAST ZONE NAD 83 (IL83-EF).
3. THE VERTICAL DATUM IS THE CHICAGO CITY DATUM.
4. THE TOPOGRAPHIC CONTOUR DATA SHOWN HEREON WAS COLLECTED IN THE FIELD BY CEC ON MARCH 1, 2019.

NOTES

1. 100-YEAR BASE FLOOD ELEVATION ESTIMATED FROM FEMA. FEDERAL REGISTER VOLUME 65, No. 173, DATED SEPTEMBER 6, 2000. THE FLOOD ELEVATION IS CONTAINED WITHIN THE WALLED BANK OF THE CALUMET RIVER.

P:\2018\180-215\-CADD\Dwg\CV10-Reprocessable Permit App\180215-CV10-4-Stormwater Management Plan ASBUILT.dwg{C207} LS:(8/25/2020 - ccase) - LP: 4/18/2022 9:12 AM

REVISION RECORD		
NO	DATE	DESCRIPTION

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SITE DRAINAGE IMPROVEMENTS RECORD DRAWINGS

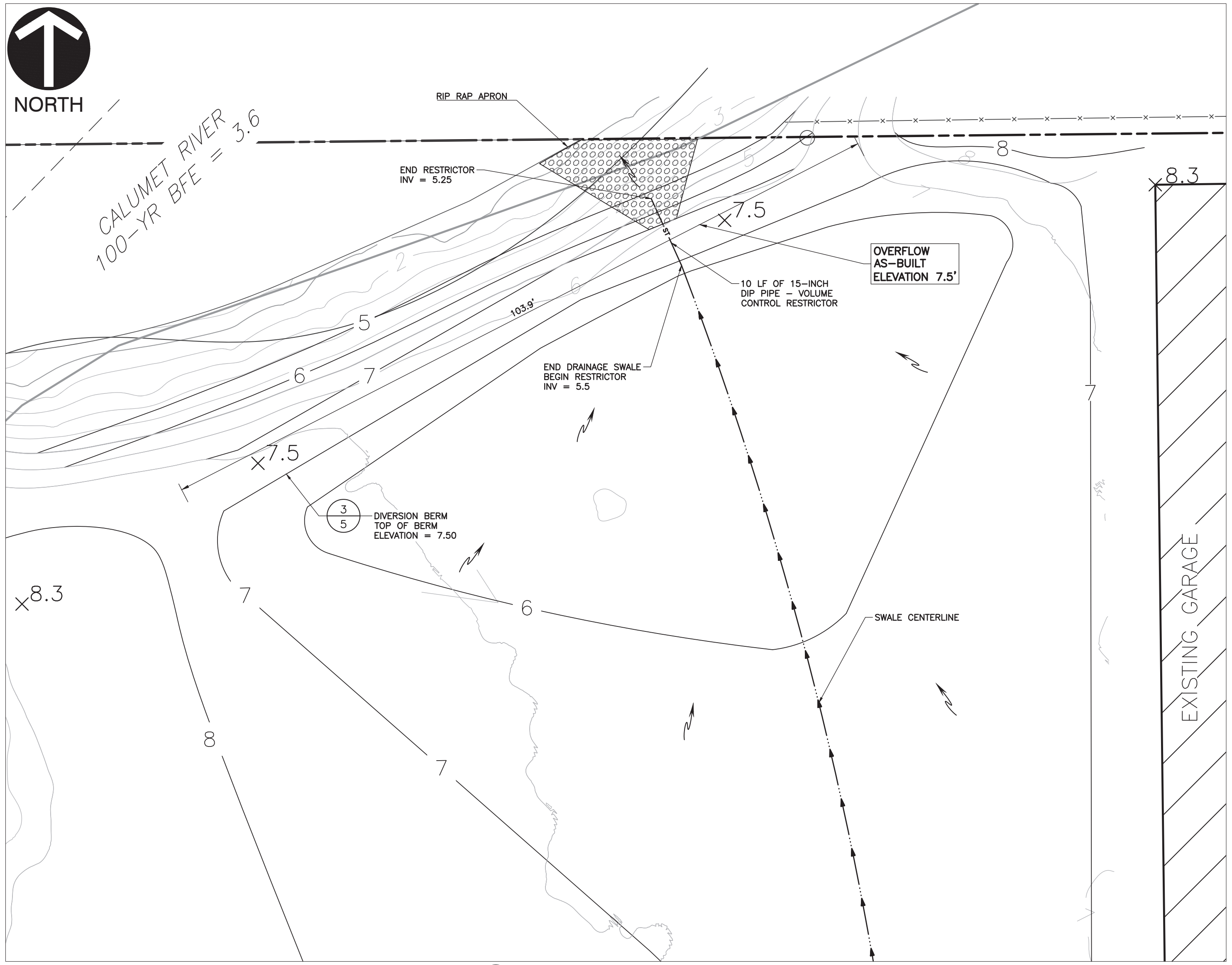
DATE:	08/26/2020	DRAWN BY:	CAC
DWG SCALE:		CHECKED BY:	JEH
PROJECT NO:	180-215		
APPROVED BY:	*DAK		

*HAND SIGNATURE ON FILE

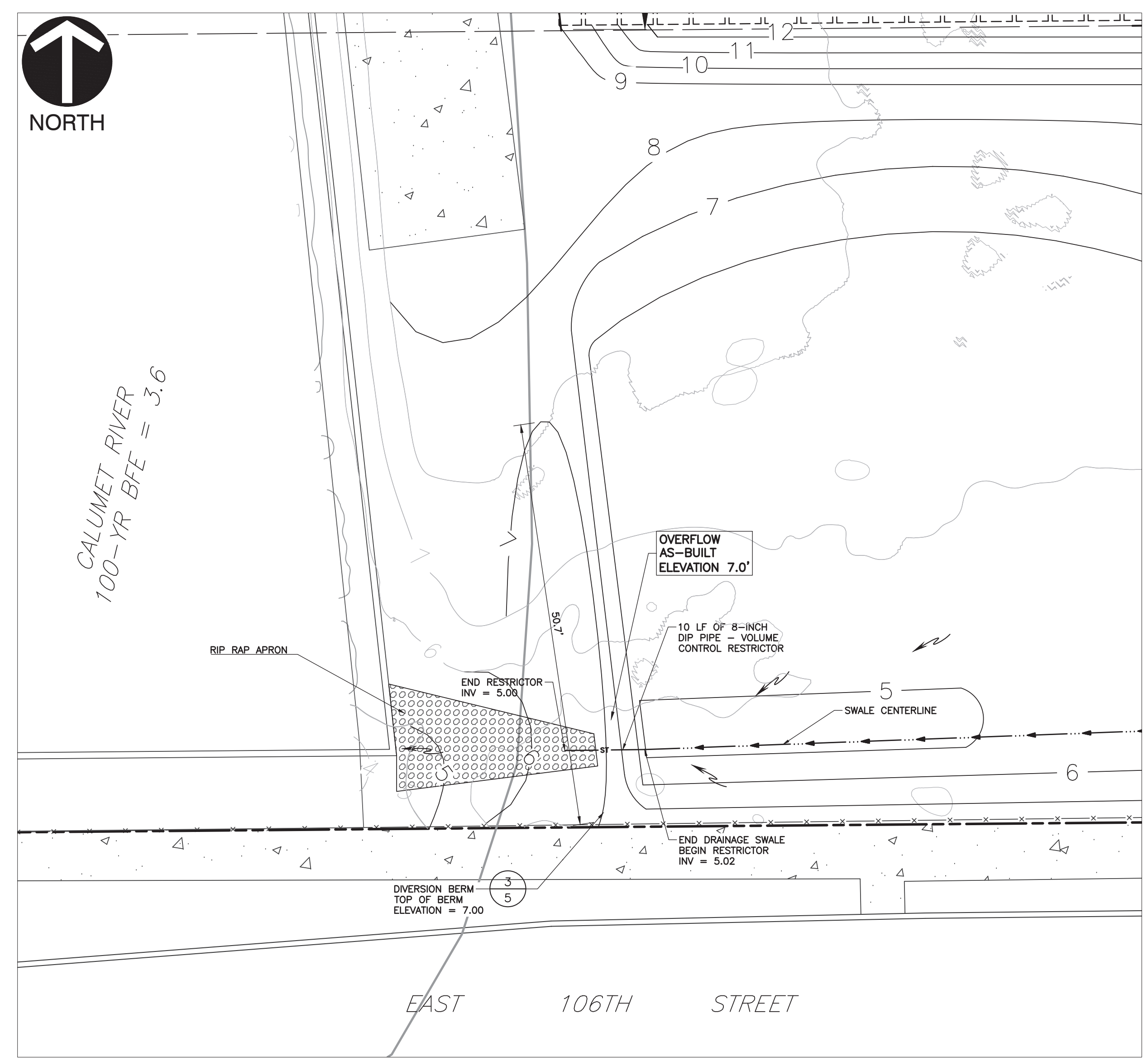
*HAND SIGNATURE ON FILE

DRAWING NO.:
4

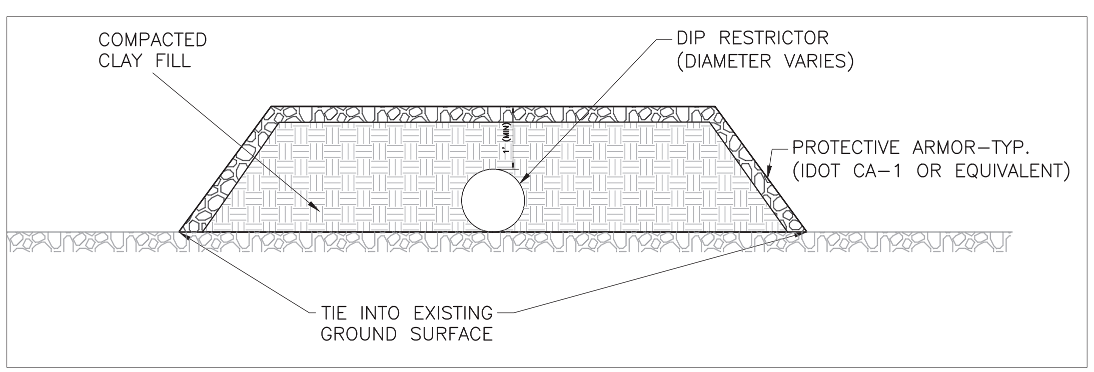
SHEET 4 OF 5



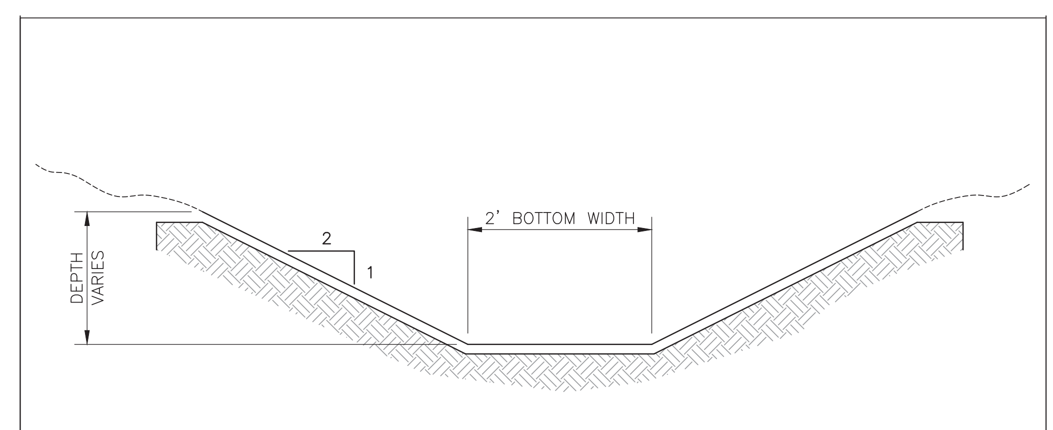
1/5 NORTH SWALE OUTFALL
1" = 10'



2/5 SOUTH SWALE OUTFALL
1" = 10'



3/5 DIVERSION BERM WITH DIP PIPE RESTRICTOR
TYPICAL CROSS SECTION
NOT TO SCALE



NOTE:

1. CHANNEL LINED WITH 6-INCH THICK CA-6 STONE OR EQUIVALENT.

4/5 LOW FLOW CONVEYANCE CHANNEL
NOT TO SCALE

REFERENCE

1. PROPERTY BOUNDARY AND SITE FEATURES FROM CHICAGO GUARANTEE SURVEY COMPANY ALTA/NSPS LAND TITLE SURVEY, ORDER No. 2018-25124-001, DATED MARCH 7, 2018, AS PROVIDED BY PROFESSIONAL LAND AND CONSTRUCTION SURVEYORS (PLCS), CHICAGO, ILLINOIS.
2. THE HORIZONTAL DATUM IS THE ILLINOIS STATE PLANE COORDINATE SYSTEM EAST ZONE NAD 83 (IL83-EF).
3. THE VERTICAL DATUM IS THE CHICAGO CITY DATUM.
4. THE TOPOGRAPHIC CONTOUR DATA SHOWN HEREON WAS COLLECTED IN THE FIELD BY CEC ON MARCH 1, 2019.

LEGEND

7	EXISTING 1-FOOT CONTOUR
9	PROPOSED 1-FOOT CONTOUR
	FLOW DIRECTION
	DRAINAGE SWALE
ST	DIP VOLUME RESTRICTOR PIPE
× 7.5	PROPOSED SPOT ELEVATION

SCALE IN FEET
0 10 20

REVISION RECORD
NO | DATE | DESCRIPTION

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CHICAGO, ILLINOIS 60617

STORMWATER DETAILS
RECORD DRAWINGS

DATE:	08/26/2020	DRAWN BY:	CAC
DWG SCALE:		CHECKED BY:	JEH
PROJECT NO:	180-215		
APPROVED BY:	*DAK		

*HAND SIGNATURE ON FILE

DRAWING NO.: 5

SHEET 5 OF 5

P:\2018\180-215\-CADD\Dwg\CV10-Reprocessable Permit App.\180215-CV10-5-Stormwater Details-ASBUILTS.dwg{DRAWING 5} LS:(8/25/2020 - ccase) - LP: 4/18/2022 9:15 AM

FIGURES

LEGEND

Zoning - Color-Coded

- Business
- Commercial
- Manufacturing
- Residential
- Planned Development
- Planned Manufacturing
- Downtown Mixed
- Downtown Core
- Downtown Residential
- Downtown Service
- Transportation
- Park and Open Space

REFERENCE

1. AERIAL IMAGE PROVIDED BY GOOGLE EARTH DATED APRIL 7, 2017.
2. ZONING INFORMATION TAKEN FROM CITY OF CHICAGO ZONING AND LAND USE MAP DEPARTMENT OF PLANNING AND DEVELOPMENT GIS WEBSITE, ACCESSED AUGUST 14, 2020.

SCALE IN FEET

0 1000 2000

*HAND SIGNATURE ON FILE

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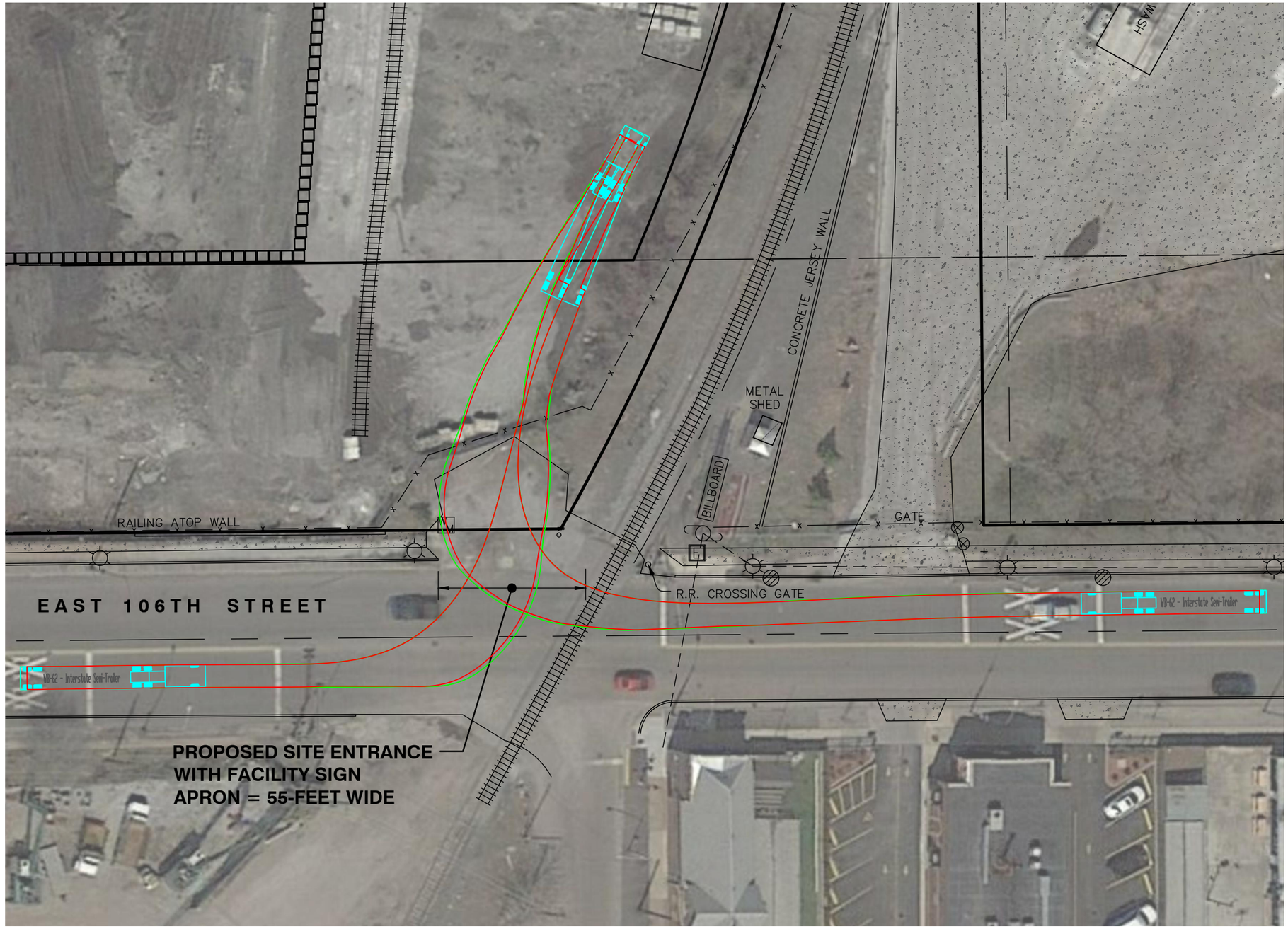
RESIDENTIAL BUFFER & EXISTING ZONING MAP

DRAWN BY:	CAC	CHECKED BY:	JEH	APPROVED BY:	DAK*
DATE:	08/26/2020	DWG SCALE:	1"=1000'	PROJECT NO:	180-215

FIGURE NO.: 1



LEGEND

- PROPERTY LINE
- SETBACK LINE
- RAILROAD
- POWER POLE
- STREET LIGHT
- STORM STRUCTURE
- ELECTRICAL VAULT
- VALVE BOX

REFERENCE

1. PROPERTY BOUNDARY AND TOPOGRAPHIC FEATURES FROM CHICAGO GUARANTEE SURVEY COMPANY ALTA/NSPS LAND TITLE SURVEY, ORDER No. 2018-25124-001, DATED MARCH 7, 2018, AS PROVIDED BY PROFESSIONAL LAND AND CONSTRUCTION SURVEYORS (PLCS), CHICAGO, ILLINOIS.
2. AERIAL IMAGE PROVIDED BY GOOGLE EARTH. DATE OF IMAGE: APRIL 7, 2017.

SCALE IN FEET
0 40 80

*HAND SIGNATURE ON FILE

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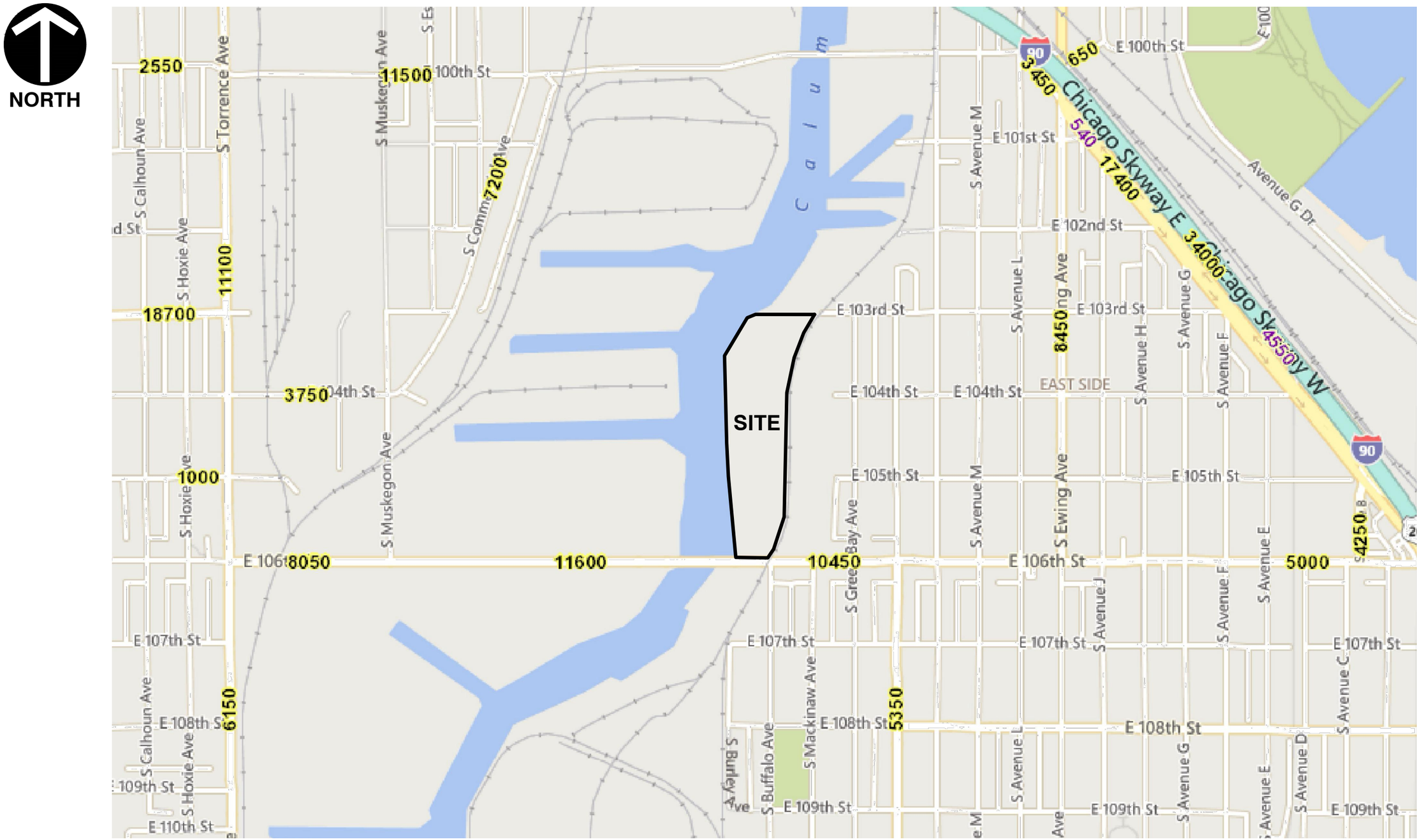
PERMIT APPLICATION
3236-3258 EAST 106TH STREET

TRUCK TURNING RADIUS PLAN

DRAWN BY:	CAC	CHECKED BY:	JEH	APPROVED BY:	DAK*	FIGURE NO.:	2
DATE:	08/26/2020	DWG SCALE:	1"=40'	PROJECT NO:	180-215		

P:\2018\180-215\-CADD\Dwg\CV10-Reprocessable Permit App\180215-CV10-FIGURE 2 -Truck Turning Radius.dwg[LAYOUT1] LS:(8/25/2020 - ccase) - LP: 3/23/2022 3:28 PM



REFERENCE

1. MAP AND DATA ACCESSED THROUGH IDOT GEOGRAPHICAL INFORMATION SYSTEMS WEBSITE ON 3/19/2018.

NOTES

1. TRAFFIC DATA FROM 2014.
2. TRUCK VOLUME NOT AVAILABLE.

*HAND SIGNATURE ON FILE

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3236-3258 EAST 106TH STREET

IDOT TRAFFIC DATA

DRAWN BY:	CAC	CHECKED BY:	JEH	APPROVED BY:	DAK*	FIGURE NO.:	3
DATE:	08/26/2020	DWG SCALE:	NTS	PROJECT NO:	180-215		

ATTACHMENT A

PROPERTY OWNER'S AUTHORIZATION LETTER

South Chicago Property Development, LLC

April 12, 2022

Chicago Rail & Port, LLC
3245 E 103rd St
Chicago, IL 60607

Re:
Project Name: Recycle Facility
Project Address: 3245 E 103rd

Dear Mr Zenere,

Please be advised that we here by authorize you, Chicago Rail & Port, LLC, to operate a Large Recycling Facility on the property.

This authorization is for the length of your permit as provided by the City of Chicago.

If there are any questions please contact us at (708) 758-5800.

Sincerely,

David Zenere
President
South Chicago Development, LLC

SUBSCRIBED AND SWORN to before me

This 12th day of April, 2022.

Notary Public

MARIE H VOLEK
OFFICIAL SEAL
Notary Public, State of Illinois
My Commission Expires
June 07, 2023

ATTACHMENT B

PROPERTY TAX PAYMENT DOCUMENTATION

TOTAL PAYMENT DUE

$ 24,468.15

By 03/02/21 (on time)

2020 Railroad Tax Bill

Volume	RR	Town	Year	Railroad Name
604	90	HYDE PARK	2020	CHICAGO RAIL & PORT LLC

PAID LATE	OR	IF PAID LATE	OR	IF PAID LATE
03/03/21 - 04/01/21		04/02/21 - 05/03/21		05/04/21 - 06/01/21
$24,468.15		$24,468.15		$24,835.17

PROPERTY LOCATION AND CLASSIFICATION FOR THIS PIN

Taxing District	Amount of Tax	Equalized Assessed Value
SOUTH COOK COUNTY MOSQ ABATEMENT DIST	63.76	644,000
METRO WATER RECLAMATION DIST OF GR CHGO	1,377.84	644,000
CHICAGO PARK DIST. AQUARIUM & MUSEUM BONDS	0.00	644,000
CHICAGO PARK DISTRICT	1,154.69	644,000
BOARD OF EDUCATION	12,822.04	644,000
CHICAGO COMMUNITY COLLEGE DISTRICT 508	527.76	644,000
CITY OF CHICAGO SCHOOL BLDG & IMP FUND	598.60	644,000
CITY OF CHICAGO LIBRARY FUND	428.58	644,000
CITY OF CHICAGO	5,677.83	644,000
FOREST PRESERVE DISTRICT OF COOK COUNTY	208.98	644,000
COUNTY OF COOK	1,608.07	644,000
TOTAL ESTIMATED TAX	24,468.15	

TAX CALCULATOR

2019 FINAL TAX	
	44,487.54
x	55%
2020 ESTIMATE	
=	24,468.15

DETACH & INCLUDE WITH PAYMENT

TOTAL PAYMENT DUE

$ 24,468.15

By 03/02/21 (on time)
If paying later, refer to amounts above

RAILROAD TAX BILL 2020

See the reverse side of this bill for detailed payment instructions. Please include only one check and one payment coupon per envelope. Use of this coupon authorizes the Treasurer's Office to reduce your check amount as necessary to prevent overpayment.

Volume	RR	Town	Year
604	90	70000	2020

Amount Paid

$

Internal use only

SN 0920200400 RTN 500001075 AN (see PIN) TC 008922

Include name, PIN, address, phone and email on check payable to "Cook County Treasurer."

09202004006000000060490701008922400024468151000244681510002446815100024835176

CHICAGO RAIL & PORT LLC

137

COOK COUNTY TREASURER
PO BOX 805436
CHICAGO IL 60680-4155

00000006049070/9/20/E/0002446815/4

TOTAL PAYMENT DUE
$9,568.93
BY 08/03/20 (on time)

2019 Railroad Tax Bill

Volume	RR	Town	Year	Railroad Name
604	90	HYDE PARK	2019	CHICAGO RAIL & PORT LLC

IF PAID LATE 08/04/20 - 09/01/20	IF PAID LATE 09/02/20 - 10/01/20	IF PAID LATE 10/02/20 - 11/01/20
$9,568.93	$9,568.93	$9,712.46

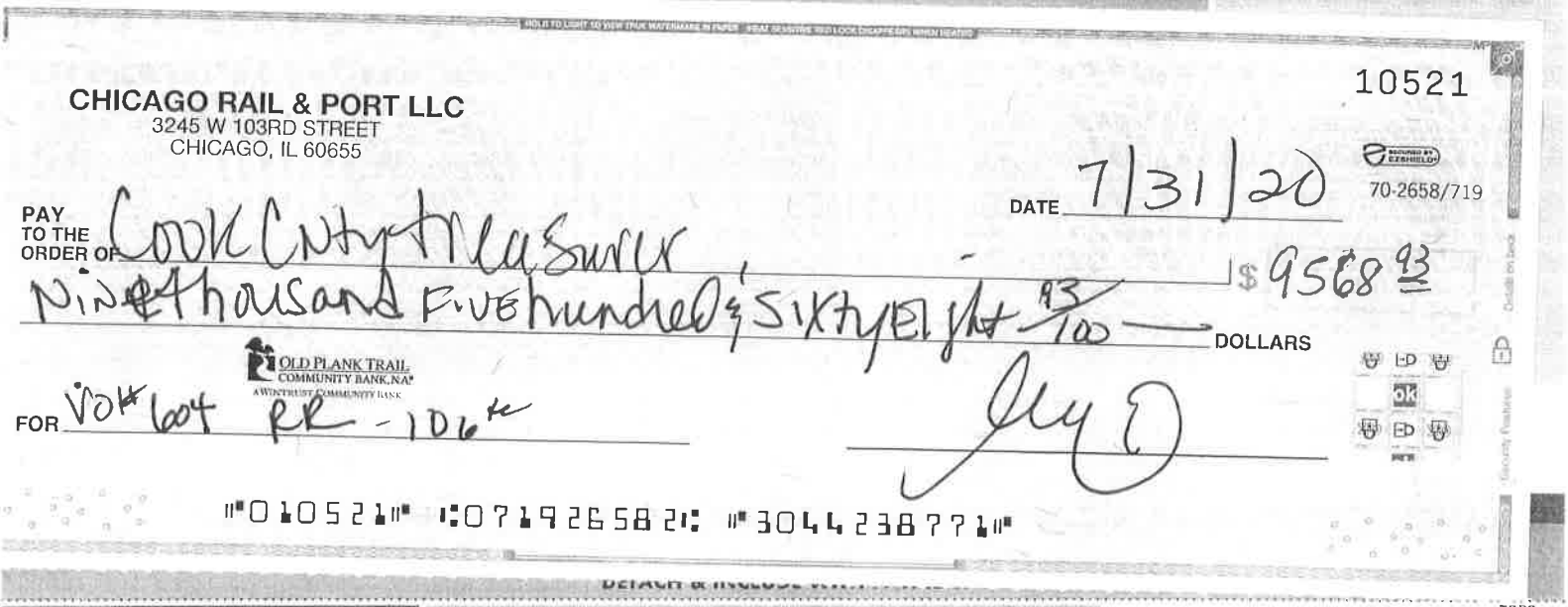
PAYMENT SCHEDULE AMT. PAID 1ST INSTALLMENT: 34,918.59 on 03-03-2020 Thank you.

TAX CALCULATOR

1st Installment 34,918.59
2nd Installment + 9,568.93
2019 Total Tax = 44,487.52

PROPERTY LOCATION AND CLASSIFICATION FOR THIS PIN

Taxing District	Amount of Tax	Equalized Assessed Value
SOUTH COOK COUNTY MOSQ ABATEMENT DIST	115.92	644,000
METRO WATER RECLAMATION DIST OF GR CHGO	2,505.16	644,000
CHICAGO PARK DIST. AQUARIUM & MUSEUM BONDS	0.00	644,000
CHICAGO PARK DISTRICT	2,099.44	644,000
BOARD OF EDUCATION	23,312.80	644,000
CHICAGO COMMUNITY COLLEGE DISTRICT 508	959.56	644,000
CITY OF CHICAGO SCHOOL BLDG & IMP FUND	1,088.36	644,000
CITY OF CHICAGO LIBRARY FUND	779.24	644,000
CITY OF CHICAGO	10,323.32	644,000
FOREST PRESERVE DISTRICT OF COOK COUNTY	379.96	644,000
COUNTY OF COOK	2,923.76	644,000
TOTAL FINAL TAX	44,487.52	



TOTAL PAYMENT DUE
$9,568.93
BY 08/03/20 (on time)
If paying later, refer to amounts above.

RAILROAD TAX BILL 2019

TRR2

Volume	RR	Town	Year
604	90	70000	2019

Amount Paid
$ 9568.93

Include name, PIN, address, phone and email on check payable to "Cook County Treasurer."

SN0920140500 RTN 500001075 AN (see PIN) TC 008911

Internal use only

09201905006000000060490701008911200009712461000095689350000956893500009568935

CHICAGO RAIL & PORT LLC

COOK COUNTY TREASURER
PO BOX 805436
CHICAGO IL 60680-4116

000000060490709/19/F/0000956893/5

Rail

E. Joe Orr Road

60411

Envelope

FIRST CLASS

UNITED STATES POSTAGE PITNEY BOWES

02 1P $ 000.50⁰

0006567929 JUL 31 2020

MAILED FROM ZIP CODE 60411

Cook Cnty Treasurer

P.O. Box 805436

Chgo Il. 60680-4116

TOTAL PAYMENT DUE

$ 19,433.06

By 03/01/22 (on time)

2021 Railroad Tax Bill

Volume	RR	Town	Year	Railroad Name
604	90	HYDE PARK	2021	CHICAGO RAIL & PORT LLC

IF PAID LATE	OR	IF PAID LATE	OR	IF PAID LATE
03/02/22 - 04/01/22		04/02/22 - 05/01/22		05/02/22 - 06/01/22
$19,724.56		$20,016.06		$20,307.56

TAX CALCULATOR

2020 FINAL TAX	
	35,332.83
x	55%
2021 ESTIMATE	
=	19,433.06

PROPERTY LOCATION AND CLASSIFICATION FOR THIS PIN

Taxing District	Amount of Tax	Equalized Assessed Value
SOUTH COOK COUNTY MOSQ ABATEMENT DIST	47.69	510,000
METRO WATER RECLAMATION DIST OF GR CHGO	1,060.29	510,000
CHICAGO PARK DIST. AQUARIUM & MUSEUM BONDS	0.00	510,000
CHICAGO PARK DISTRICT	922.85	510,000
BOARD OF EDUCATION	10,255.08	510,000
CHICAGO COMMUNITY COLLEGE DISTRICT 508	423.56	510,000
CITY OF CHICAGO SCHOOL BLDG & IMP FUND	465.63	510,000
CITY OF CHICAGO LIBRARY FUND	392.70	510,000
CITY OF CHICAGO	4,431.90	510,000
FOREST PRESERVE DISTRICT OF COOK COUNTY	162.69	510,000
COUNTY OF COOK	1,270.67	510,000
TOTAL ESTIMATED TAX	19,433.06	

DETACH & INCLUDE WITH PAYMENT

TOTAL PAYMENT DUE

$ 19,433.06

By 03/01/22 (on time)
If paying later, refer to amounts above

Internal use only

RAILROAD TAX BILL 2021

See the reverse side of this bill for detailed payment instructions. Please include only one check and one payment coupon per envelope. Use of this coupon authorizes the Treasurer's Office to reduce your check amount as necessary to prevent overpayment.

SN 0920210400 RTN 500001075 AN (see PIN) TC 008911

Volume	RR	Town	Year
604	90	70000	2021

Amount Paid

$

Include name, PIN, address, phone and email on check payable to "Cook County Treasurer."

0920210400200000006049070100891120001943306200019724561000200160620002030756 1

90-70000
CHICAGO RAIL & PORT, LLC
700 E JOE ORR ROAD
CHICAGO HEIGHTS IL 60411

RAILROAD----21

COOK COUNTY TREASURER
PO BOX 805438
CHICAGO, IL 60680-4116

00000006049070/9/21/E/0001943306/4

ATTACHMENT C

ZONING APPROVAL

City of Chicago

SO2018-868

Office of the City Clerk

Document Tracking Sheet

Meeting Date:	2/28/2018
Sponsor(s):	Misc. Transmittal
Type:	Ordinance
Title:	Zoning Reclassification Map No. 26-A at 3236-3258 E 106th St and 3302-3346 E 106th St - App No. 19529
Committee(s) Assignment:	Committee on Zoning, Landmarks and Building Standards

FINAL FOR PUBLICATION

SUBSTITUTE ORDINANCE

BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF CHICAGO:

SECTION 1: Title 17 of the Municipal Code of Chicago, Chicago Zoning Ordinance, is amended by changing all the Planned Manufacturing District No. 6 symbols and indications as shown on Map No. 26-A in the area bounded by:

The centerline of West 103rd Street, as extended where no street exists;

The west right-of-way line of the South Chicago and Southern Railroad (Calumet River Railway);

A line perpendicular with the north right-of-way line of West 103rd Street, at the intersection of the north right-of-way line of West 103rd Street and the west right-of-way line of the South Chicago and Southern Railroad (Calumet River Railway);

The centerline of West 106th Street;

The Calumet River;

to those of Manufacturing-Waterway Planned Development No. ____, which is hereby established in the area above described, subject to such use and bulk regulations as are set forth in the Plan of Development herewith attached and made a part hereof and to no others.

SECTION 2: This ordinance shall take effect upon its passage and due publication.

Common Address(es): 3236-3258 East 106th Street

FINAL FOR PUBLICATION

Manufacturing-Waterway Planned Development No. ___

PLANNED DEVELOPMENT STATEMENTS

1. The area delineated herein as Manufacturing-Waterway Planned Development Number ___ ("Planned Development"), consists of approximately 929,889 square feet (21.347 acres) of property which is depicted on the attached Planned Development Boundary and Property Line Map ("Property") and is owned or controlled by South Chicago Property Development, LLC.

2. The requirements, obligations and conditions contained within this Planned Development shall be binding upon the Applicant, its successors and assigns and, if different than the Applicant, the legal title holders and any ground lessors. All rights granted hereunder to the Applicant shall inure to the benefit of the Applicant's successors and assigns and, if different than the Applicant, the legal title holder and any ground lessors. Furthermore, pursuant to the requirements of Section 17-8-0400 of the Chicago Zoning Ordinance, the Property, at the time of application for amendments, modifications or changes (administrative, legislative or otherwise) to this Planned Development are made, shall be under single ownership or designated control. Single designated control is defined in Section 17-8-0400 of the Zoning Ordinance.

3. All applicable official reviews, approvals or permits are required to be obtained by the applicant or its successors, assignees or grantees. Any dedication or vacation of streets or alleys or grants of easements or any adjustment of the right-of-way shall require a separate submittal to the Department of Transportation on behalf of the Applicant or its successors, assign or grantees.

   Any requests for grants of privilege, or any items encroaching on the public way, shall be in compliance with the Planned Development.

   Ingress or egress shall be pursuant to the Planned Development and may be subject to the review and approval of the Departments of Planning and Development and Transportation. Closure of all or any public street or alley during demolition or construction shall be subject to the review and approval of the Department of Transportation.

   Pursuant to a negotiated and executed Perimeter Restoration Agreement ("Agreement") by and between the Department of Transportation's Division of

Infrastructure Management and the Applicant, the Applicant shall provide improvements and restoration of all public way adjacent to the property, which may include, but not be limited to, the following as shall be reviewed and determined by the Department of Transportation's Division of Infrastructure Management:

- Full width of streets
- Full width of alleys
- Curb and gutter
- Pavement markings
- Sidewalks
- ADA crosswalk ramps
- Parkway & landscaping

The Perimeter Restoration Agreement must be executed prior to any Department of Transportation and Planned Development Part II review permitting. The Agreement shall reflect that all work must comply with current Rules and Regulations and must be designed and constructed in accordance with the Department of Transportation's Construction Standards for work in the Public Way and in compliance with the Municipal Code of Chicago Chapter 10-20. Design of said improvements should follow the Department of Transportation's Rules and Regulations for Construction in the Public Way as well as The Street and Site Plan Design Guidelines. Any variation in scope or design of public way improvements and restoration must be approved by the Department of Transportation.

Recycling facility uses and waste-related uses shall have vehicular ingress and egress limited to the 106th Street entrance; such uses shall not allow ingress or egress from 103th Street or from the east property line, including but not limited to the existing east property line railroad crossing right-of-way easement; provided, however, that this restriction does not prohibit material movement by waterway or railroad.

4. This Plan of Development consists of 20 Statements, and:

Bulk Regulations Table,
Existing Zoning Map,
Existing Land-Use Map,
Planned Development Boundary and Property Line Map,
Site Plan – Overview,
Site Plan – North Half,
Site Plan – South Half,
Site Plan – Parking Area, and

Landscape Plan, and
Existing Building Demolition Plan,

prepared by Civil & Environmental Consultants, Inc. and dated August 16, 2018, submitted herein. Full-sized copies of the Site Plan and Landscape Plan are on file with the Department of Planning and Development. In any instance where a provision of this Planned Development conflicts with the Chicago Building Code, the Building Code shall control. This Planned Development conforms to the intent and purpose of the Chicago Zoning Ordinance, and all requirements thereto, and satisfies the established criteria for approval as a Planned Development. In case of a conflict between the terms of this Planned Development Ordinance and the Chicago Zoning Ordinance, this Planned Development shall control.

5. The following uses are permitted in the area delineated herein as a Planned Development:

Reprocessable Construction/Demolition Material Facility.
Recycling Facilities – Class V.
Modified Transfer Station (limited to construction and demolition debris).
Warehouse and Freight Movement (including Outdoor Storage or Raw Materials as a Principal use).
Contractor/Construction Storage Yard, conditioned on minor change and/or site plan approval.
Office, conditioned on site plan approval.
Wireless Communication Facilities (all, including Co-located and Free-standing Towers), conditioned on site plan approval.
Accessory Uses (as defined in § 17-17-0206 of the Chicago Zoning Ordinance).
Non-accessory parking
Coke and Coal Bulk Material Uses and Manganese-bearing Material Operations are prohibited.

6. On-Premise signs and temporary signs, such as construction and marketing signs, shall be permitted within the Planned Development, subject to the review and approval of the Department of Planning and Development. Off-Premise signs are prohibited within the boundary of the Planned Development.

7. For purposes of height measurement, the definitions in the Chicago Zoning Ordinance shall apply. The height of any building shall also be subject to height limitations, if any, established by the Federal Aviation Administration.

8. Material storage piles shall be not more than 30 feet high. Each material storage pile shall also have a storey poles marked for heights from grade.

9. Prior to issuance of Part II approval, the Applicant shall repair and paint the fence immediately west of the north-south alley along South Calumet River Street from 103rd Street to 106th Street and that continues west along 106th Street to the Norfolk Southern Railroad.

   Within three years of planned development approval, the Applicant shall remove the buildings targeted for demolition as indicated on the Building Demolition Plan.

10. The maximum permitted floor area ratio (FAR) for the Property shall be in accordance with the attached Bulk Regulations and Data Table. For the purpose of FAR calculations and measurements, the definitions in the Zoning Ordinance shall apply. The permitted FAR identified in the Bulk Regulations and Data Table has been determined using a net site area of 929,889 square feet and a base FAR of 0.05.

11. Upon review and determination, and pursuant to Section 17-13-0610 of the Zoning Ordinance, Part II Review shall be assessed a fee by the Department of Planning and Development. The fee, as determined by staff at the time of its submission, is final and binding on the Applicant and must be paid to the Department of Revenue prior to the issuance of any Part II approval.

12. The Site and Landscape Plans shall be in substantial conformance with the Landscape Ordinance and any other corresponding regulations and guidelines, including Section 17-13-0800 of the Zoning Ordinance. Final landscape plan review and approval will be by the Department of Planning and Development. Any interim reviews associated with site plan review or Part II Reviews, are conditional until final Part II approval.

13. The Applicant shall comply with Rules and Regulations for the Maintenance of Stockpiles promulgated by the Commissioners of the Department of Streets and Sanitation, and the Department of Fleet and Facility Management, under Section 13-32-085 of the Municipal Code, or any other provision of the Municipal Code.

14. The Applicant acknowledges that the Planned Development project will require air quality monitors and a meteorological station on site. Four air monitors will be required unless the final regulations allow a reduced amount or based on air modeling approved by the Chicago Department of Public Health (CDPH). A monitoring plan will be developed in coordination with the CDPH and will detail the specific

meteorological and monitoring equipment, monitoring locations, monitoring parameters, frequency and averaging time, record keeping and data quality procedures. The monitoring plan will also include establishment of action-level PM10 (particulate matter less than 10 microns) concentrations that, if determined downwind of the facility, will trigger mitigation actions, as described in the plan, by the facility. The Applicant shall submit documentation verifying compliance of the installation of air monitors, installation of a meteorological station, and submittal of a plan from CDPH prior to the issuance of Part II approval. CDPH will make the air monitoring data publicly available in coordination with the operator.

15. The terms and conditions of development under this Planned Development ordinance may be modified administratively, pursuant to Section 17-13-0611-A of the Zoning Ordinance, by the Zoning Administrator upon the application for such a modification by the Applicant, its successors and assigns and, if different than the Applicant, the legal title holders and any ground lessors.

16. The Applicant acknowledges that it is in the public interest to design, construct and maintain the project in a manner which promotes, enables and maximizes universal access throughout the Property. Plans for all buildings and improvements on the Property shall be reviewed and approved by the Mayor's Office for People with Disabilities to ensure compliance with all applicable laws and regulations related to access for persons with disabilities and to promote the highest standard of accessibility.

17. The Applicant acknowledges that it is in the public interest to design, construct, renovate and maintain all buildings in a manner that provides healthier indoor environments, reduces operating costs and conserves energy and natural resources. The Applicant shall obtain the number of points necessary to meet the requirements of the Chicago Sustainable Development Policy, in effect at the time the Part II review process is initiated for each improvement that is subject to the aforementioned Policy and must provide documentation verifying compliance.

18. The Applicant acknowledges that it is the policy of the City to maximize opportunities for Minority and Women-owned Business Enterprises ("M/WBEs") and city residents to compete for contracts and jobs on construction projects approved through the planned development process. To assist the city in promoting and tracking such M/WBE and city resident participation, an applicant for planned development approval shall provide information at three points in the city approval process. First, the applicant must submit to DPD, as part of its application for planned development approval, an M/WBE Participation Proposal. The M/WBE Participation

Proposal must identify the applicant's goals for participation of certified M/WBE firms in the design, engineering and construction of the project, and of city residents in the construction work. The city encourages goals of 26% MBE and 6% WBE participation (measured against the total construction budget for the project or any phase thereof), and (ii) 50% city resident hiring (measured against the total construction work hours for the project or any phase thereof). The M/WBE Participation Proposal must include a description of the Applicant's proposed outreach plan designed to inform M/WBEs and city residents of job and contracting opportunities. Second, at the time of the Applicant's submission for Part II permit review for the project or any phase thereof, the Applicant must submit to DPD (a) updates (if any) to the Applicant's preliminary outreach plan, (b) a description of the Applicant's outreach efforts and evidence of such outreach, including, without limitation, copies of certified letters to M/WBE contractor associations and the ward office of the alderman in which the project is located and receipts thereof; (c) responses to the Applicant's outreach efforts, and (d) updates (if any) to the applicant's M/WBE and city resident participation goals. Third, prior to issuance of a Certificate of Occupancy for the project or any phase thereof, the Applicant must provide DPD with the actual level of M/WBE and city resident participation in the project or any phase thereof, and evidence of such participation. In addition to the forgoing, DPD may request such additional information as the department determines may be necessary or useful in evaluating the extent to which M/WBEs and city residents are informed of and utilized in planned development projects. All such information will be provided in a form acceptable to the Zoning Administrator. DPD will report the data it collects regarding projected and actual employment of M/WBEs and city residents in planned development projects twice yearly to the Chicago Plan Commission and annually to the Chicago City Council and the Mayor.

19. Changes and expansions in Planned Development shall be subject to Site Plan Review pursuant to this section. Prior to the Part II Approval (Section 17-13-0610 of the Chicago Zoning Ordinance) of changes and expansions, the Applicant shall submit a site plan, landscape plan and building elevations for review and approval by DPD. Review and approval by DPD is intended to assure that specific development components substantially conform with the Planned Development (PD) and to assist the City in monitoring ongoing development. The Site Plan Approval Submittal (Section 17-13-0800) need only include that portion of the Property for which approval is being sought by the Applicant. The site plan provided shall include all dimensioned and planned street Rights-of-Way.

No Part II Approval for changes and expansions shall be granted until Site Plan Approval has been granted. Following approval by DPD, the approved Site Plan

Approval Submittals, supporting data and materials shall be made part of the main file and shall be deemed to be an integral part of the PD.

After approval of the Site Plan, changes or modifications may be made pursuant to the provisions of Statement 15. In the event of any inconsistency between approved plans and the terms of the PD, the terms of the PD shall govern. Any Site Plan Approval Submittals shall, at a minimum, provide the following information:

- fully-dimensioned site plan (including a footprint of the proposed improvements);
- fully-dimensioned building elevations;
- fully-dimensioned landscape plan(s); and,
- statistical information applicable to the building expansion, including floor area, the applicable floor area ratio, uses to be established, building heights and setbacks.

Site Plan Approval Submittals shall include all other information deemed necessary by either the Department of Planning and Development, Department of Transportation or Fire Department to illustrate substantial conformance to the PD.

20. This Planned Development shall be governed by Section 17-13-0612. Should this Planned Development ordinance lapse, the Commissioner of the Department of Planning and Development shall initiate a Zoning Map Amendment to rezone the property to the pre-existing Planned Manufacturing District No. 6.

FINAL FOR PUBLICATION

Manufacturing-Waterway
Planned Development No. ___

BULK REGULATIONS AND DATA TABLE

Gross Site Area:	1,339,625	sq. ft.	(30.754 acres)
Area in Adjoining Right-of-Way:	17,903	sq. ft.	(0.411 acres)
Area in Calument River:	391,833	sq. ft.	(8.995 acres)
Net Site Area:	929,889	sq. ft.	(21.347 acres)

Maximum Floor Area Ratio (FAR): 0.05

Minimum Number of Off-Street Parking Spaces: 7 parking spaces

Minimum Number of Bicycle Spaces: 5 bicycle spaces

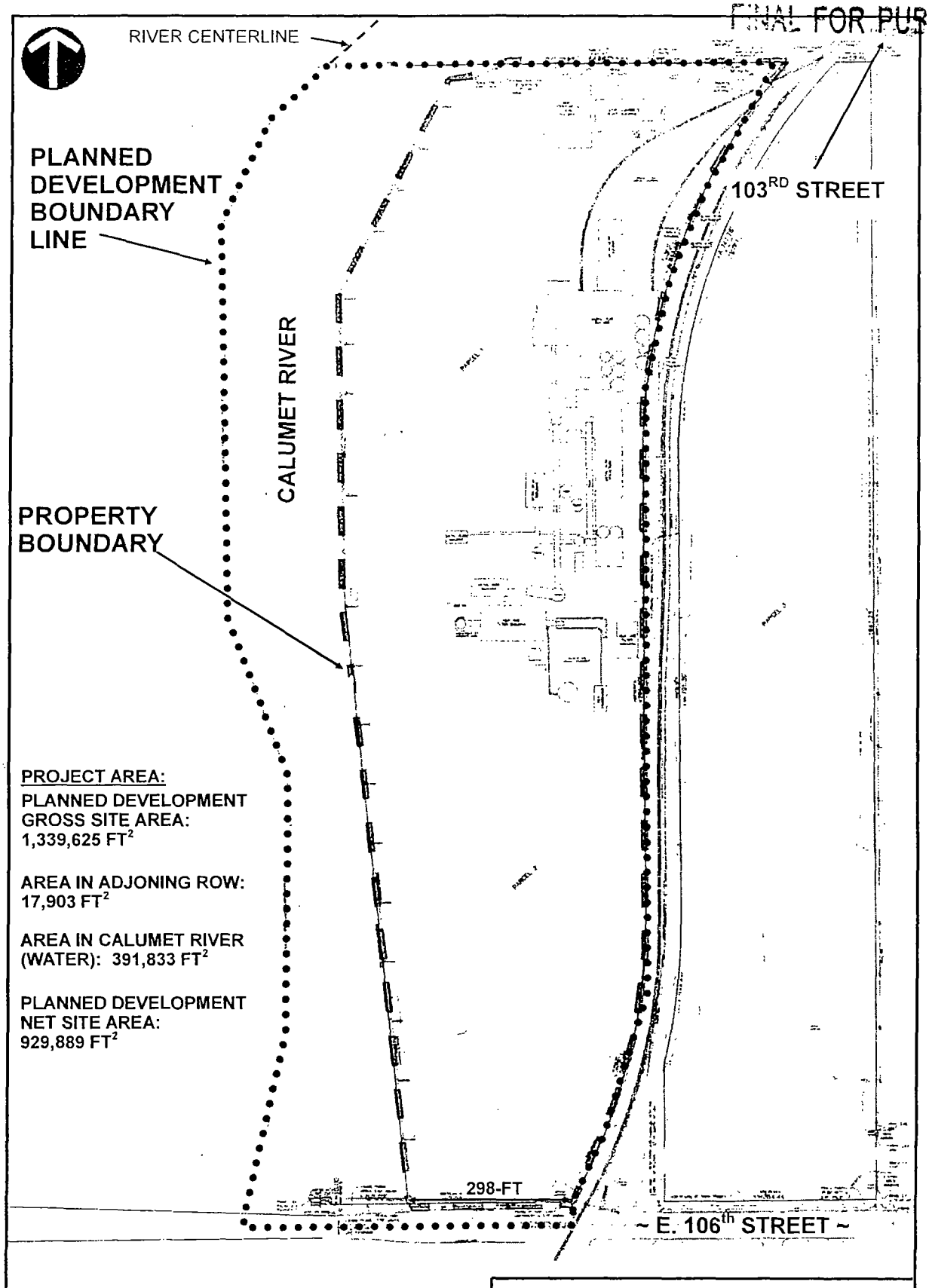
Minimum Setbacks from Property Lines: Per attached site plans.

Maximum Building Height: 80 feet

Maximum Material Pile Heights: 30 feet

APPLICANT: South Chicago Property Development, LLC
ADDRESS: 3236-3258 East 106th Street
INTRODUCTION DATE: February 28, 2018
CPC DATE: August 16, 2018

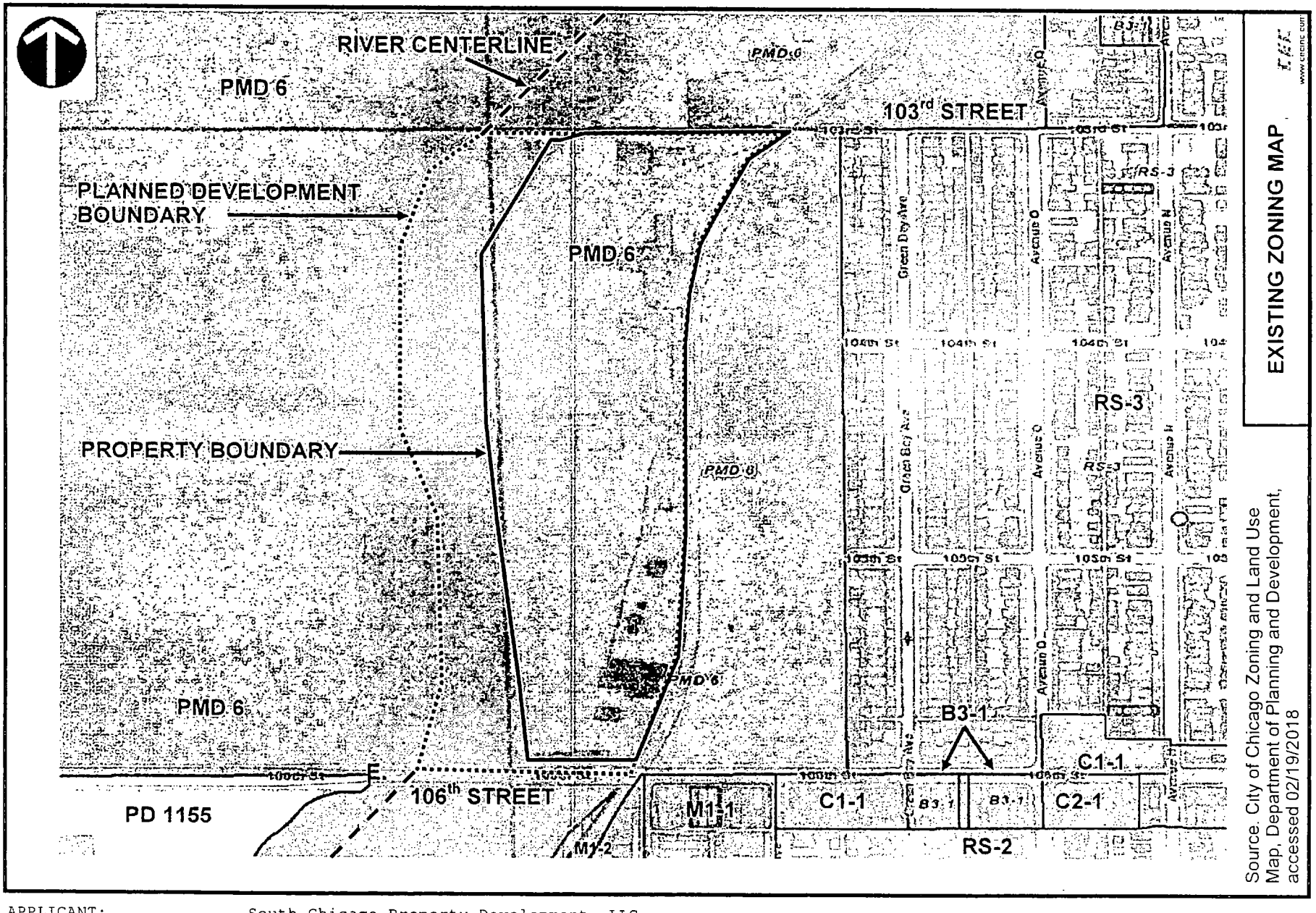
FINAL FOR PUBLICATION



Source: ALTA/NSPS LAND TITLE SURVEY, COMPLETED BY CHICAGO GUARANTEE SURVEY COMPANY,DATED NOVEMBER 3, 2016

PLANNED DEVELOPMENT BOUNDARY AND PROPERTY LINE MAP

APPLICANT:	South Chicago Property Development, LLC
ADDRESS:	3236-3258 East 106th Street, Chicago, Illinois
INTRODUCTION DATE:	February 28, 2018
CPC DATE:	August 16, 2018



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ADDRESS: 3236-3258 East 106th Street, Chicago, Illinois
INTRODUCTION DATE: February 28, 2018
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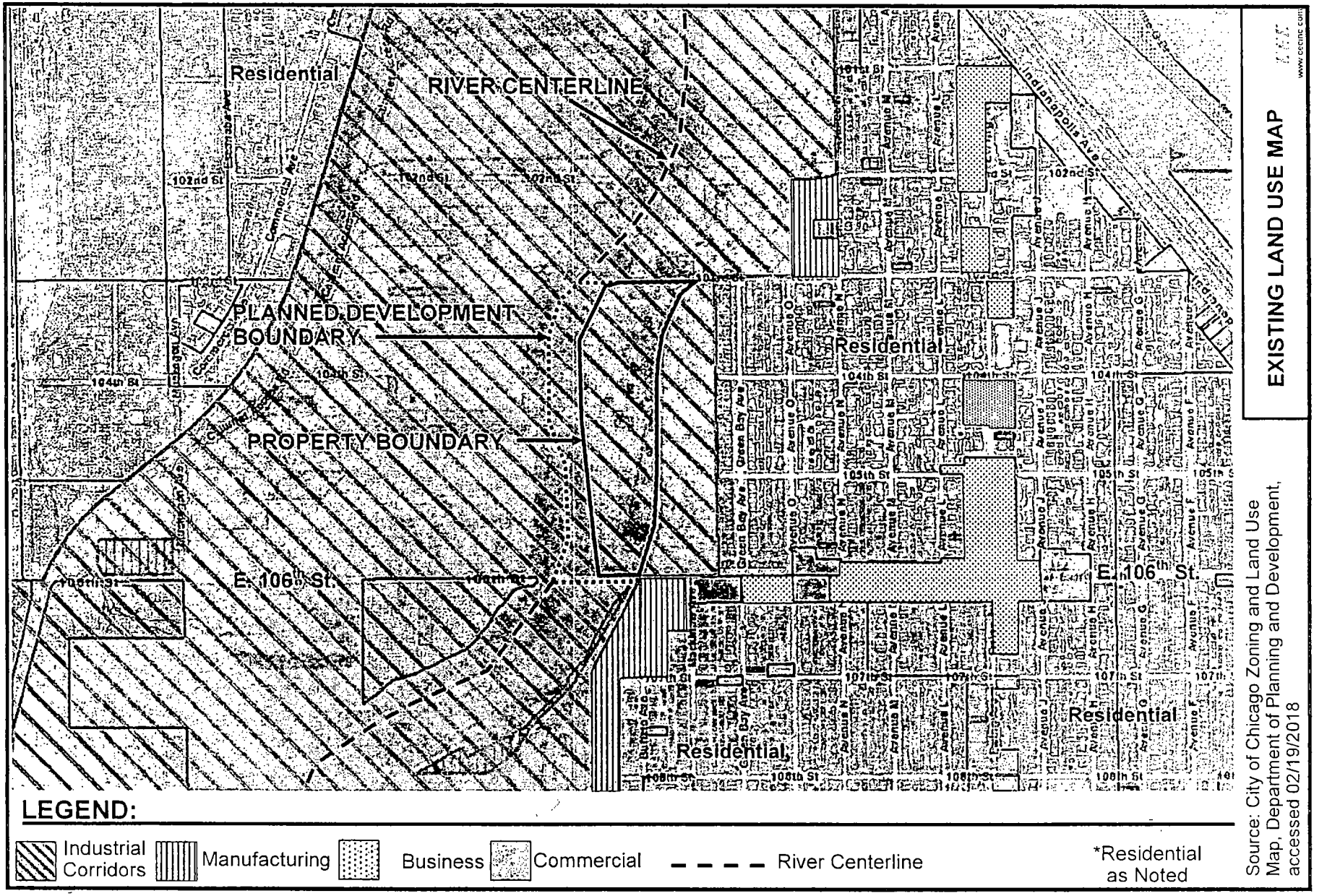

APPLICANT: South Chicago Property Development, LLC
ADDRESS: 3236-3258 East 106th Street, Chicago, Illinois
INTRODUCTION DATE: February 28, 2018
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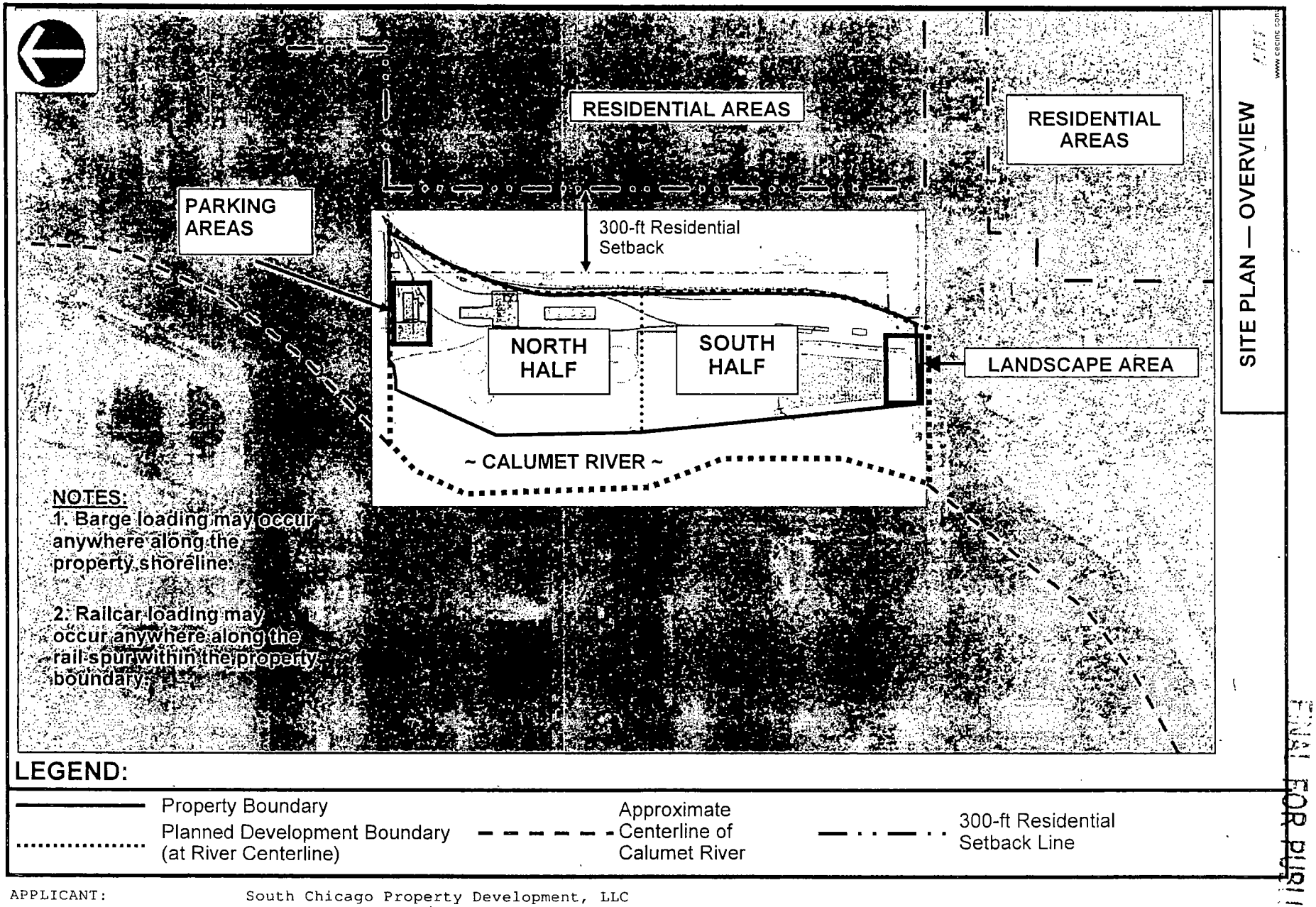

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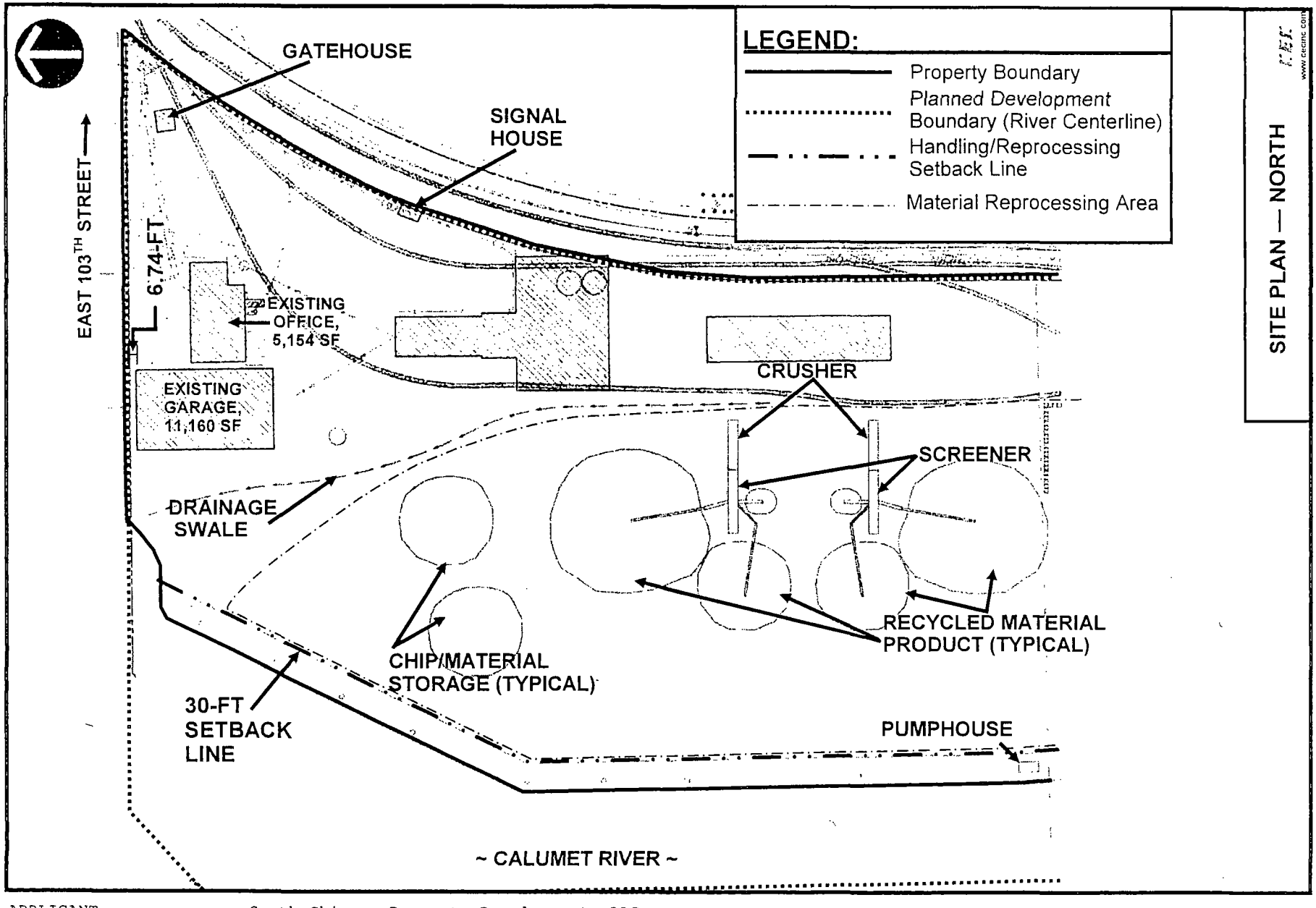

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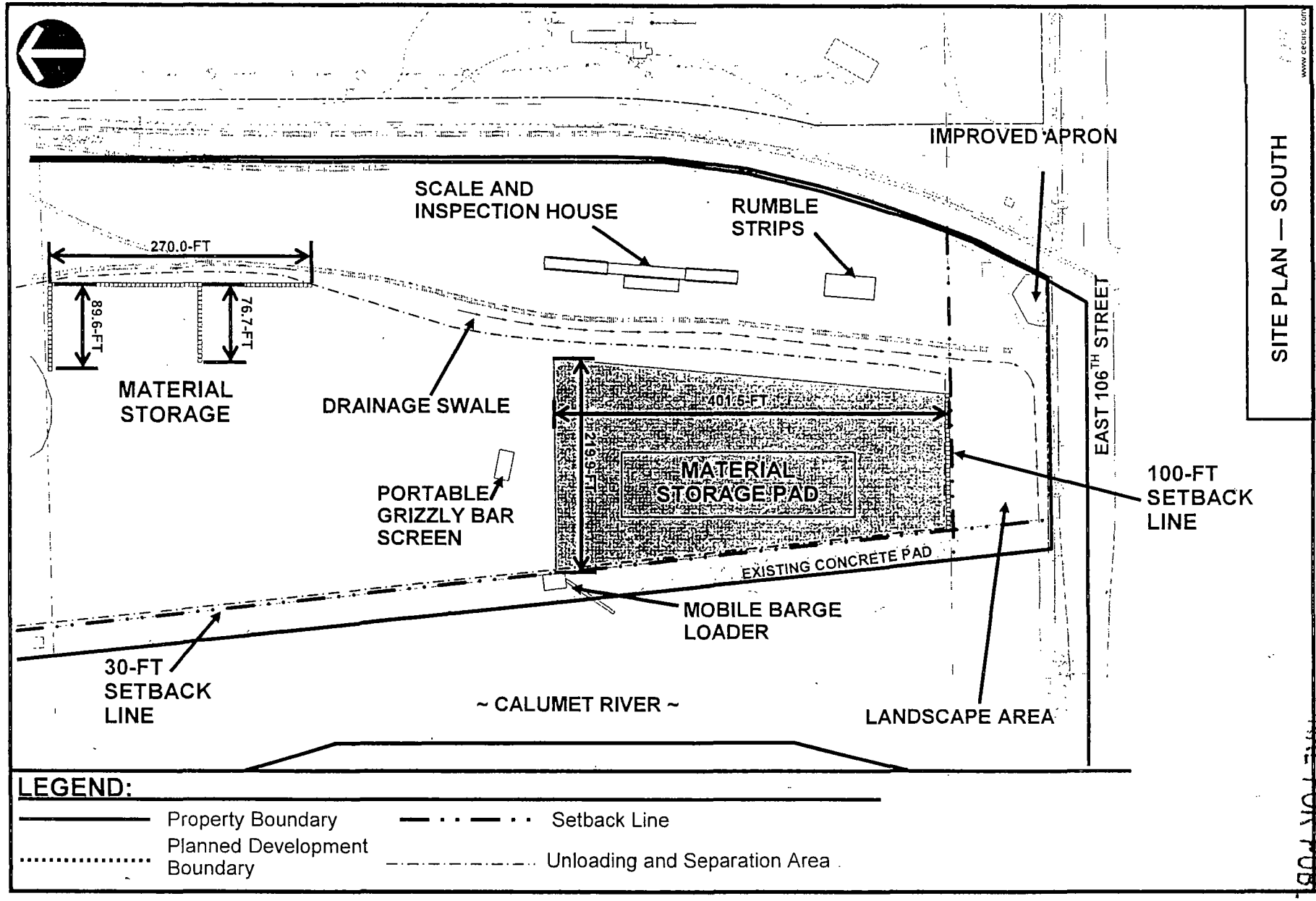

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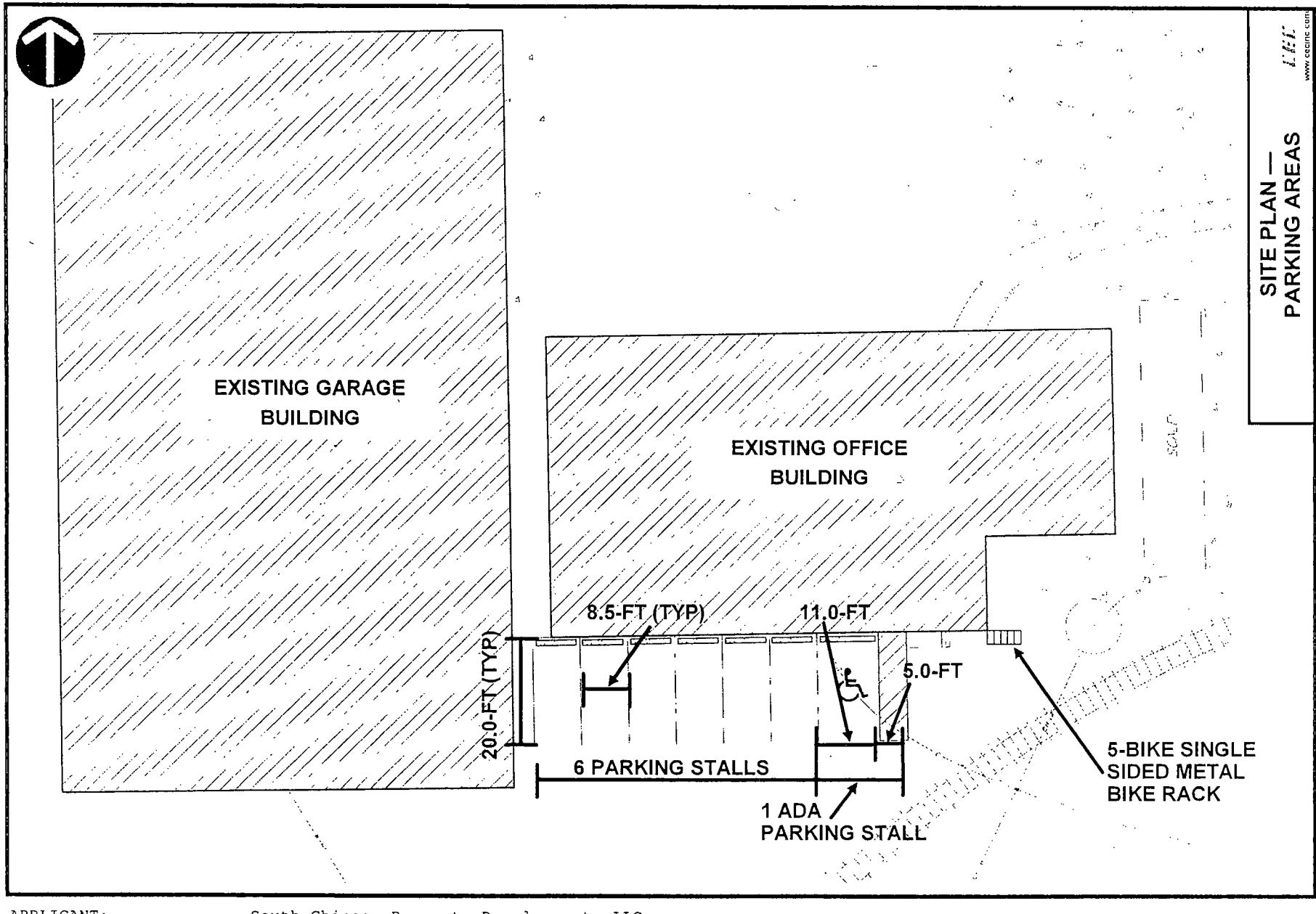

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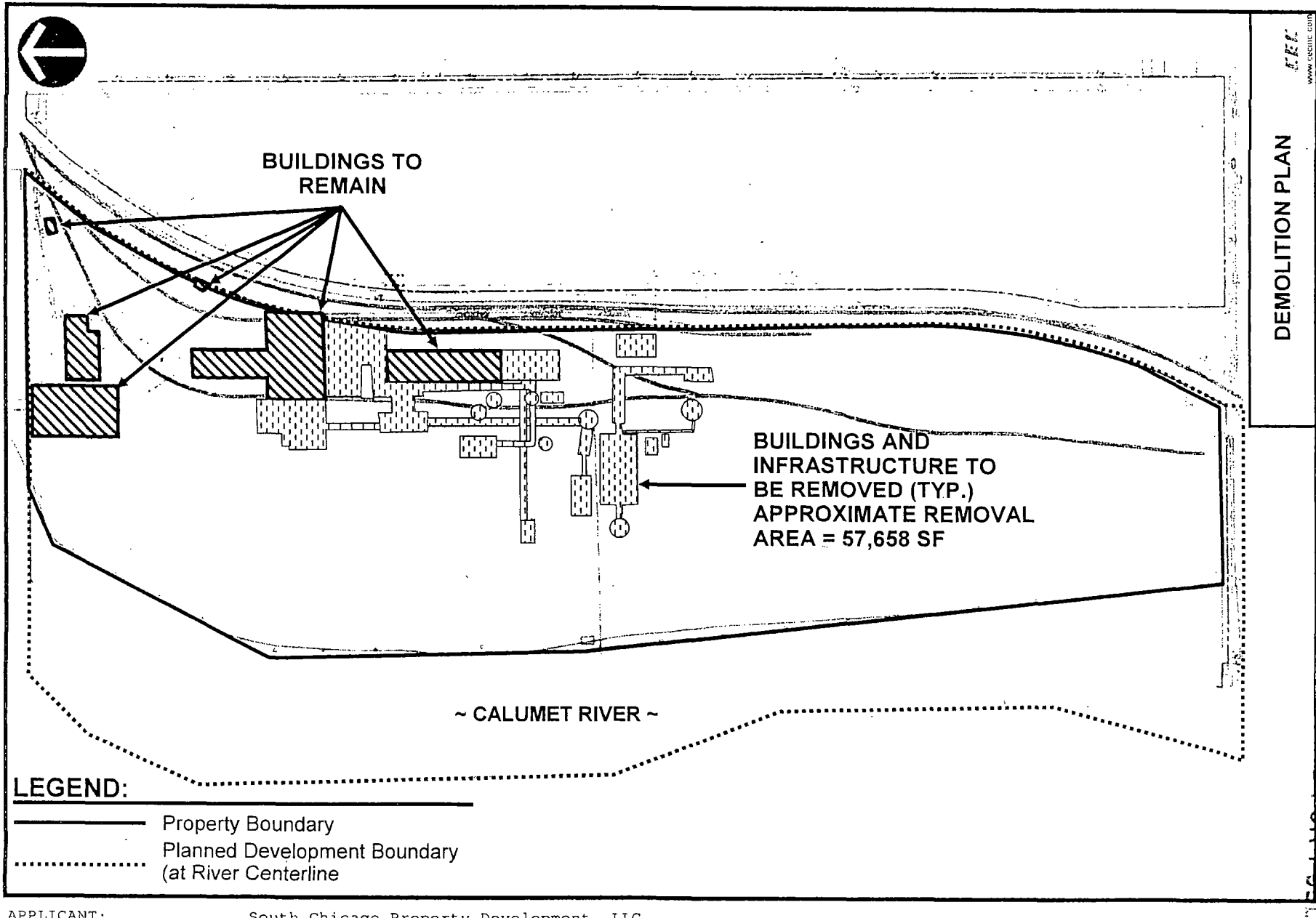

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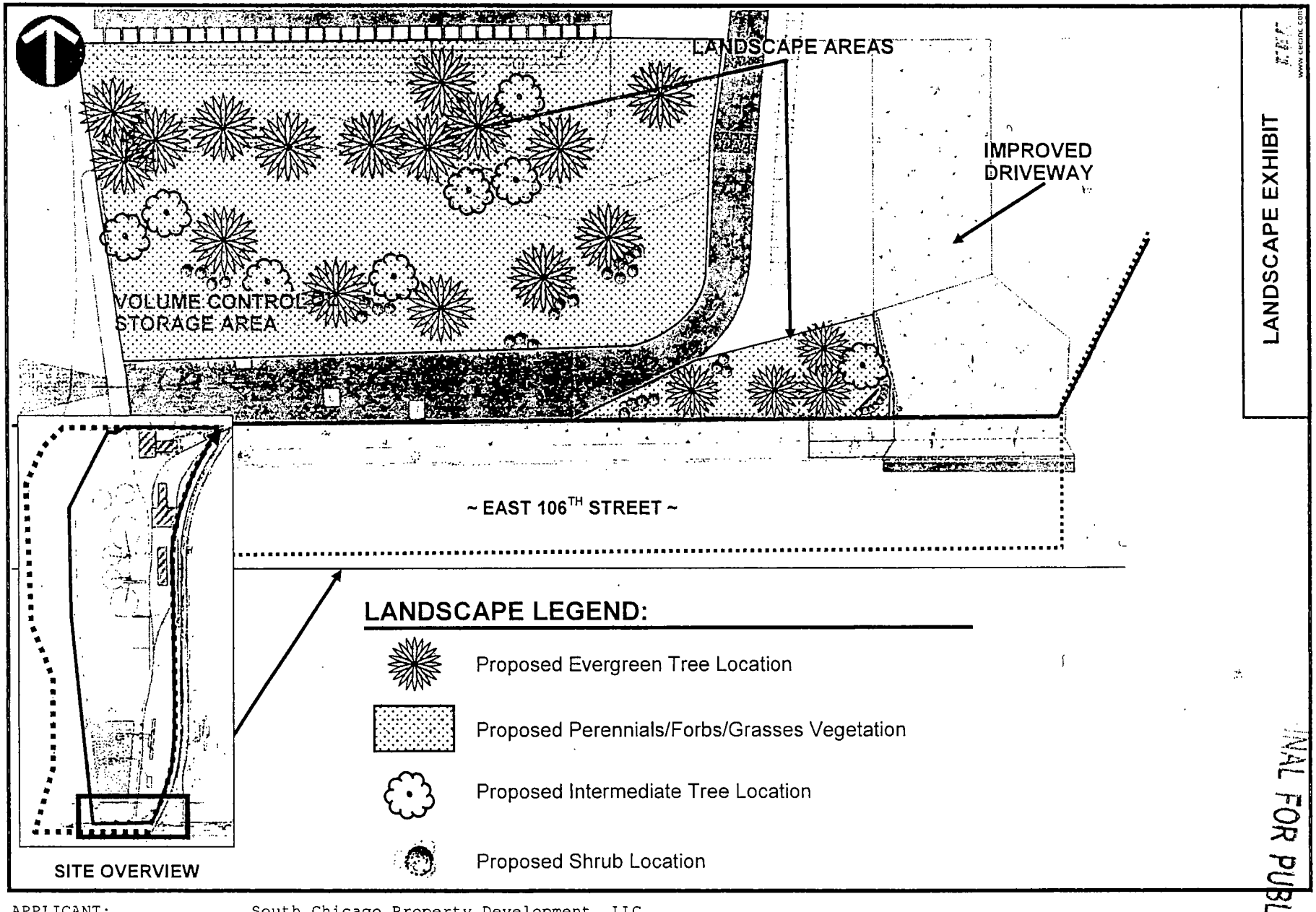
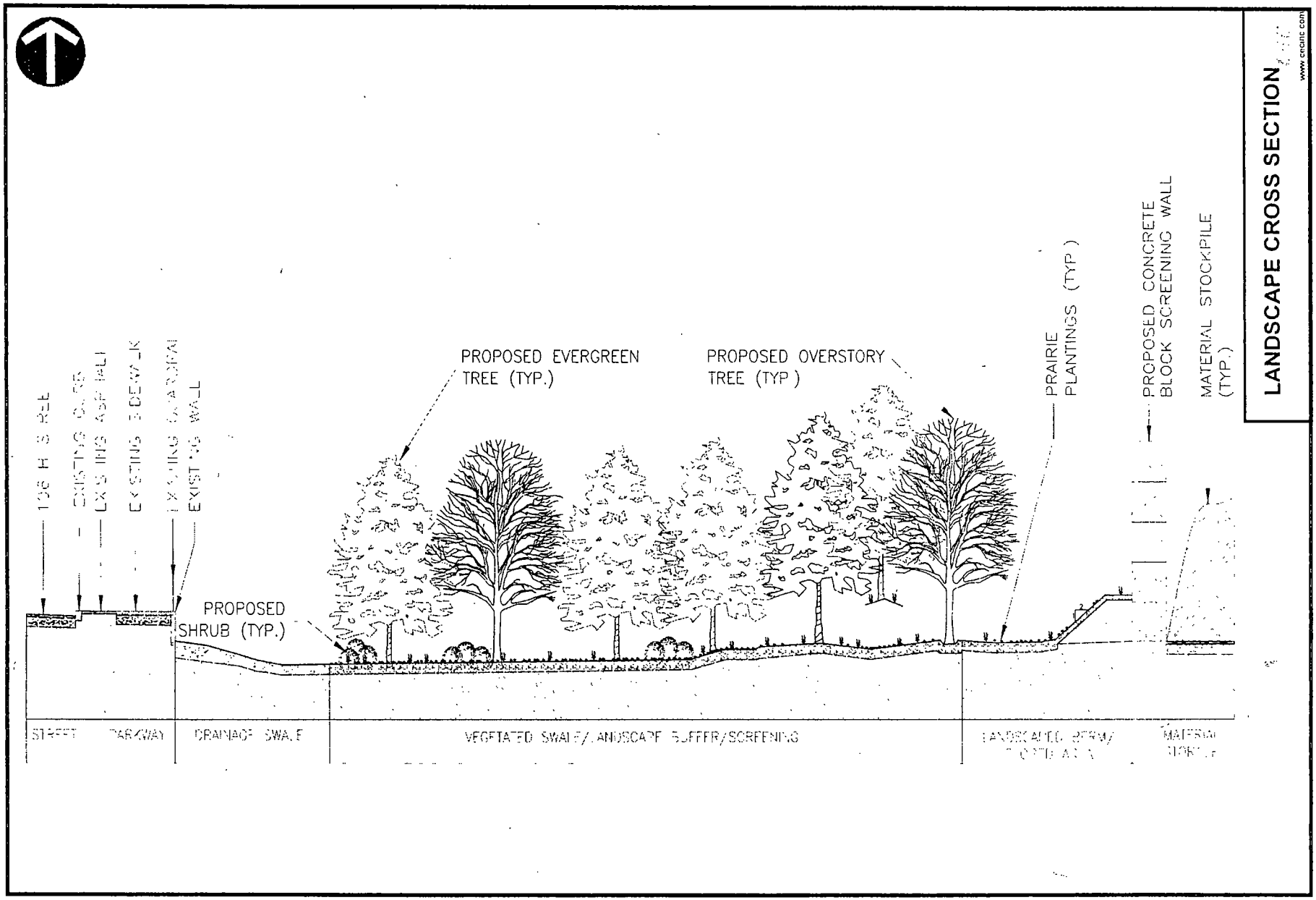


FINAL FOR PUBLICATION

APPLICANT:	South Chicago Property Development, LLC
ADDRESS:	3236-3258 East 106th Street, Chicago, Illinois
INTRODUCTION DATE:	February 28, 2018
CPC DATE:	August 16, 2018



APPLICANT:	South Chicago Property Development, LLC
ADDRESS:	3236-3258 East 106th Street, Chicago, Illinois
INTRODUCTION DATE:	February 28, 2018
CPC DATE:	August 16, 2018

FINAL FOR PUBLICATION

DEPARTMENT OF PLANNING AND DEVELOPMENT
CITY OF CHICAGO

MEMORANDUM

To: Alderman Daniel S. Solis
Chairman, City Council Committee on Zoning

From: _____
David Reifman
Commissioner
Department of Planning and Development

Date: August 16, 2018

Re: Proposed Planned Development (3236-3258 East 106th Street)

On August 16, 2018, the Chicago Plan Commission recommended approval of a proposed Planned Development submitted by South Chicago Property Development, LLC. The project involves rezoning the property from PMD 6 (Planned Manufacturing District No. 6) to a Manufacturing-Waterway Planned Development prior to constructing a reprocessable construction/demolition material facility, a Class V recycling facility to handle Type D recyclable material, and a modified transfer station on the site. A copy of the proposed ordinance, planned development statements, bulk table and exhibits are attached. I would very much appreciate your assistance in having this introduced at the next possible City Council Committee on Zoning.

Also enclosed is a copy of the staff report to the Plan Commission which includes the Department of Planning and Development, Bureau of Zoning and Land Use recommendation and a copy of the resolution. If you have any questions in this regard, please do not hesitate to contact me at 744-0756.

Cc: PD Master File (Original PD, copy of memo)

TO:
CLERK

ATTACHMENT D

FIXED EQUIPMENT LIST (MAKE AND MODEL)

Attachment D – Fixed Equipment List

- CRUSHERS - LIPPMANN J3062-VGF6220 OR SIMILAR. ASSUME TWO FOR OPERATION
- TWO McCLOSKEY SCREENING PLANTS
- GRIZZLY BAR SCREEN
- BARGE LOADING/UNLOADING: SENNEBOGEN 870 WITH 5-6 YD CLAMSHELL, TRACKED OR WHEELED
- ASTEC TRACKED HOPPER FEEDER FOR LARGE BARGES
- JOHN DEERE (JD) 850 BULLDOZER
- TWO CAT 966 WHEEL LOADERS
- JD270 EXCAVATOR WITH SWAPPABLE BREAKER ATTACHMENT
- WATER TRUCK
- ELGIN STREET SWEEPER
- MISTERS

_____

SIMILAR OR EQUIVALENT EQUIPMENT TO
THE ABOVE MAY BE USED.

ATTACHMENT E

FACILITY STORMWATER POLLUTION PREVENTION PLAN

STORM WATER POLLUTION

PREVENTION PLAN

Chicago Rail & Port, LLC Facility
3245 East 103rd Street, Chicago, IL 60617

Illinois NPDES Permit Number: XXXXXXX

Permit Expiration Date: XXXXXXX

SWPPP Plan Date: August 29, 2017

Prepared By:

ROUX

ENVIRONMENTAL CONSULTING & MANAGEMENT
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Oak Brook, Illinois 60523
TEL 630-572-3300 FAX 630-572-8841

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DEFINITION OF TERMS

Agency	Illinois Environmental Protection Agency
AST	Above-ground Storage Tank
BMP	Best Management Practice
Facility	Chicago Rail & Port, LLC
FRP	Facility Response Plan
IDNR	Illinois Department of Natural Resources
MS4	Municipal Separate Storm Sewer System
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
PCM	Pre-work Communication Meeting
Permit	NPDES Permit
Property	Chicago, Rail & Port, LLC Property
SIC	Standard Industry Classification
SPCC	Spill Prevention Control and Countermeasure Plan
State	State of Illinois
SWPPP	Storm Water Pollution Prevention Plan
TMDL	Total Maximum Daily Load
USGS	United States Geological Survey
UST	Underground Storage Tank

1.0 SWPPP CERTIFICATION

I certify under penalty of law that this document and attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature: David Zenere

Printed Name: David Zenere

Title: Owner

Date: 8-31-17

2.0 SWPPP AMENDMENTS

Chicago Rail & Port, LLC (CRP) will amend the SWPPP whenever there is a change in construction, operation, or maintenance which may affect the discharge of significant quantities of pollutants to the waters of the State or if a Facility inspection, required by the Permit, indicates that an amendment is needed. The SWPPP will also be amended if Noramco is in violation of any conditions of the Permit, or has not achieved the general objectives of controlling pollutants in storm water discharges. Amendments to the SWPPP will be made within 30 days of any proposed construction or operational changes at the Facility, and will be submitted to the Agency. SWPPP amendments for the Facility shall be submitted to the Agency at the following email address: epa.indilr00swppp@illinois.gov. SWPPP amendments shall be documented in the table below.

Date	Name of Preparer	Amendments Made to the SWPPP	Date Amendment Transmitted to Agency

3.0 SWPPP INTRODUCTION

A permit is required because the Facility may discharge storm water potentially impacted by industrial activities to a surface water of the State. To protect surface waters of the State from runoff potentially impacted by pollutants, the Permit requires that a Storm Water Pollution Prevention Plan (SWPPP) be developed for the Facility covered by the Permit.

The SWPPP outlines activities associated with the Chicago Rail & Port LLC (CRP) property, which includes two storm water outfalls which both have the potential to contribute to storm water pollution. The industrial activities performed at the Facility which have the potential to impact storm water discharges include the following:

- Road Salt & Bulk Material Storage/Handling
- General Industrial Activities
- Equipment Maintenance
- Equipment Fueling and Fuel Storage
- Equipment Cleaning
- Barge & Train Loading and Unloading Operations
- Temporary Staging of Off-Loaded Material from Barges

This SWPPP is to be used as an active reference guide for Facility personnel, and is to be reviewed and modified, as necessary, at least annually. The plan specifies requirements to be followed by personnel, including other entities retained by CRP, to perform these industrial activities, at the Facility. The SWPPP has been developed to reduce or eliminate storm water pollution from the above listed industrial activities and was prepared in accordance with the requirements outlined in the Permit and the *Storm Water Management For Industrial Activities, Developing Pollution Prevention Plans and Best Management Practices Summary Guidance* (Doc. No. EPA 832-R-92-006).

4.0 GENERAL FACILITY INFORMATION

Facility Name: Chicago Rail & Port, LLC. (CRP)

Facility Mailing Address: 3245 East 103rd Street, Chicago, IL 60617

Facility Contact Information:

> Names, phone numbers and email addresses for the SWPPP Administrator and other CRP personnel can be found within the *SWPPP Facility Information Summary Table* in **Appendix G**.

Business Activity:

> The Facility is used for the bulk storage and transfer of road salt and various stone aggregates including the receiving and unloading of bulk shipments of material via ship from the Calumet River, managing bulk storage onsite, and loading materials into trucks for delivery to end users. The site is equipped with rail spurs for train traffic, which are used for material transfer operations. Potential future materials for bulk storage and transfer onsite may include the following: fertilizers, iron ore products, mill scale, magnesium oxide, scrap products, synthetic gypsum, sand, bauxite, slag, dirt, clay, brick, concrete, asphalt.

Primary SIC Code: 4212

Secondary SIC Code: 4491

Industrial Activity Sector: Subsector P1

4.1 Facility Description

4.1.1 Overview

The CRP Facility (Facility) is located at 3245 East 103rd Street, Chicago, IL 60617, is situated in Cook County and includes three parcels of land totaling 39.38 acres. Bulk material management and transfer takes place on the west side of the property, and truck wash takes place in the southeast portion of the facility. The area designated for salt storage salt storage covers approximately 2.52-acres (asphalt surface), aggregate storage areas cover approximately 2.87-acres (gravel surface), and a second material storage area (asphalt surface) covers approximately 1.05-acres. Material storage areas are shown on Figure 3.

The Facility consists of a series of inactive buildings from a former lime handling, transfer and storage operation and several storage areas. The majority of the buildings are currently vacant. CRP utilizes an office building and storage and maintenance building located on the far north end of the site, as well as the truck wash and scale house located on the southeast portion of the site.

Operational portions of the Facility are paved with asphalt, concrete, or gravel. Non-operational areas, other than the paved areas surrounding the former lime plant, are covered with gravel and fringe areas such as the east edge of the property covered with vegetation. The property is split by a private drive and a parallel active section of railroad (Norfolk Southern and Indiana Harbor Belt). Rail spurs on the west half of the facility provide access to the former lime plant and to the material storage areas. The Facility is bordered by East 103rd Street and industrial properties to the north, East 106th Street to the south, residential properties to the East, and the Calumet River to the West. The overall storm water drainage areas are described below and depicted on *Figure 3 - Site and Drainage Map* **(Appendix D)**.

4.1.2 Salt Storage Area

The Salt Storage Area consists of a paved asphalt pad in the southwest portion of the facility. The salt pad is located adjacent to the Calumet River to provide access for material transfer between the salt pile and cargo ships. The pad is roughly rectangular in shape and tapers slightly towards the south end. The average length and width are 500-ft and 219-ft. A four foot (4-ft) stone block wall borders the pad on its south, east, and west sides. It is estimated this would allow for the storage of up to 115,000 tons. The north side remains open to provide access to the storage area for loading equipment. The pad is sloped to the east towards the drainage swales leading to STM-01. This area is carefully maintained using BMPs and housekeeping procedures to reduce the potential for salt contact with storm water. If additional storage areas beyond those delineated in this SWPPP are required in the future, similar BMPs will be implemented or modified as necessary.

Due to the seasonal nature of the road salt, salt is only unloaded, loaded and stored outside during certain times of the year, otherwise the pads are empty. When the Salt Storage Area is in operation (i.e., unloading, loading, and storing salt), specially-made tarps are deployed to cover the salt piles extending beyond the concrete-block walls, except for the operational (i.e., loading and unloading) face. Tarps are deployed when the working volume of the salt pile is approximately 30,000 tons (referred to as "stage tarping"). The tarps, in conjunction with stone walls, protect the salt from coming into contact with storm water and entering public waterways such as the Calumet River. The tarps also prevent wind mobilization.

4.1.3 Aggregate Storage Areas

The Aggregate Storage Areas consist of various gravel areas to the west of the former lime plant as shown on *Figure 3 - Site and Drainage Map* **(Appendix D)**. These areas are also located adjacent to the Calumet River to provide access for material transfer between the piles and cargo ships. Areas utilized for aggregate storage are roughly round in shape to provide access for loading equipment from all sides and do not utilize stone walls. The areas are sloped to the east towards the drainage swales leading to either STM-01 or STM-02. This area is carefully maintained using

BMPs and housekeeping procedures to reduce the potential for aggregate fines to contact storm water.

When the Aggregate Storage Area is in operation (i.e., unloading, loading, and storing aggregate), the facility utilizes a water truck to wet the storage piles and transfer areas to limit the amount of dust generated. These measures help limit the amount of aggregate fines mobilized by wind or brought into contact with storm water from entering public waterways such as the Calumet River. Water use is carefully controlled so as to not cause an adverse runoff condition.

4.1.4 Remaining Areas

An additional Material Storage Area designated for future use consists of a paved asphalt pad in the southwest portion of the facility, on the opposite side of the track from the salt storage pad. The salt pad is located adjacent to the onsite railway to provide access for material transfer between the pad and rail cars. The pad is roughly rectangular in shape and tapers slightly towards the south end. The average length and width are 380-ft and 120-ft. A four foot (4-ft) stone block wall borders the pad on its south, east, and west sides. The north side remains open to provide access to the storage area for loading equipment. The pad is sloped to the west towards the drainage swales leading to STM-01. This area is carefully maintained using BMPs and housekeeping procedures to reduce the potential for salt contact with storm water.

The office used by CRP is a small 100-foot by 55-foot building near the north property line and is utilized as office space. Its effect on storm water is minimal, with the exception of air-conditioner condensate. No chemicals are stored in the building.

The Storage & Maintenance building adjacent to the office building is used for storage of various pieces of material moving equipment, (fork lifts, material haulers, etc.) and for performance of equipment maintenance activities on said equipment.

The remaining outbuildings from the former lime processing plant are unused or abandoned. The outbuildings include various metal-clad structures and buildings and two (2) kiln gas filter buildings. Building locations can be found in *Figure 3 - Site and Drainage Map* **(Appendix D).**

A 1000-gallon diesel storage tank is located due south of the storage building. The tank is located within a concrete dike for secondary containment.

4.2 Facility Maps

A *Site Location Map (Figure 1),* a *Topographic Map (Figure 2)* and a *Site and Drainage Map (Figure 3)* have been provided in **Appendix D** for reference. Descriptions of each map are provided below.

Site Location Map

The site location map identifies the location of the Facility in regards to major/minor road ways, municipalities and select water features.

Topographic Map

The topographic map identifies the location of the Facility on a USGS quadrangle map which extends (at a minimum) one-quarter mile beyond the property boundaries of the Facility showing surface water bodies, wells (including injection wells), seepage pits, infiltration ponds, and the discharge points where the Facility's storm water discharges to a water of the State. This Facility is located in Lake Calumet Quadrangle in Cook County of Illinois. Information may also be presented on the *Site and Drainage Map*.

Site and Drainage Map

The site and drainage map (Figure 3) identifies specific features of the Facility such as:

- The storm water conveyance and discharge structures.
- An outline of the storm water drainage areas for each storm water discharge point.
- Paved areas and buildings.
- Areas used for outdoor storage or disposal of significant materials, including activities that generate significant quantities of dust or particulates.
- Location of existing or future storm water structural control measures/practices (dikes, coverings, detention facilities, etc.).
- Surface water locations
- Vehicle service areas
- Material loading, unloading, and access areas
- Outfall locations
- Visual Examination Points
- Non-Storm Water Discharge Sources

4.3 Estimate of Facility Size and Percent Impervious

The *Site and Drainage Maps*, **Appendix D**, present the drainage patterns. The total estimated area of impervious surface for each storm water outfall is as follows:

Outfall	Total Drainage Area, Acres	Impervious Area, Acres
1	10.28	10.12
2	11.15	11.06

1) Stormwater from Drainage Area 03 flows to the retention pond and is held there until it evaporates.
2) Stormwater From Drainage Area 04 was not assessed as the area has not been designated for use at this time.

4.4 Storm Water Discharge and Receiving Waters

The *Site and Drainage Maps*, **Appendix D**, present the location of outfalls, or storm water discharge points, from the Facility to waters of the State. The outfalls for the Facility have been identified as Outfall 3, Outfall 4, Outfall 5, Outfall 6 and Outfall 7. The receiving water for all outfalls from the Property is direct discharge to the CSSC. A description of each outfall is provided below.

- STM-01 – A pipe discharging to the west located near the southwest property corner.
- STM-02 – A pipe discharging to the northwest located near the northwest property corner.

4.5 Impaired Receiving Water Evaluation

The receiving water for storm water discharges from the Property has been identified as the Calumet River which is located in the Great Lakes/Calumet Watershed. This Property does direct discharge storm water to an impaired water named on the most current 303 (d) list of impaired waters prepared by the Agency, dated July 11, 2016, as part of the 2016 Illinois Integrated Water Quality Report and Section 303(d) List submitted to the USEPA. The table below provides a detail of the impaired receiving water, designated water use and impairments identified for each Facility outfall.

Facility Outfalls	Water Name	Water ID	HUC-10	Designated Use	Impairments
STM-01, STM-02	Calumet River	IL_HAA-01	0404000106	Fish Consumption Primary Contact Recreation	Mercury, PCBs Fecal Coliform

A Total Maximum Daily Load (TMDL) for this receiving water has not been established.

Section 5.0 Potential Pollutant Sources identifies industrial activities present at the Facility which are potential pollutant sources to storm water discharges. The table identifies significant materials associated with each activity and provides a risk assessment/associated management practices to reduce or eliminate the release of pollutants to storm water. *Section 7.0 Best Management Practices (BMPs) for Specific Industrial Activities* provides a comprehensive list of BMPs which have been installed, implemented and maintained at the Facility to effectively prevent and reduce pollutants at the source. The Facility does not have any potential pollutant sources which could contribute to the impairments associated with the fish consumption and primary contact recreation designated uses.

4.6 Significant Spills and Leaks

Based on record reviews and interviews with Facility personnel, there have been no significant spills at the Facility from three years prior to coverage under the Permit, to the present.

5.0 POTENTIAL POLLUTANT SOURCES

The table below summarizes industrial activities performed at the Facility and the associated significant materials that have potential to contribute pollutants to storm water discharged from the Facility. The pollutants associated with these materials are identified and the risk to contaminate storm water discharged from the Facility is assessed for each activity. The table reflects current Facility conditions and generally reflects Facility conditions three years prior to submitting the Notice of Intent to obtain permit coverage. Best management practices (BMPs) used to reduce the impact of these activities on storm water discharges have also been summarized in the table. A more detailed description of the BMPs associated with each industrial activity can be found in *Section 7.0 Best Management Practices for Specific Industrial Activities* of this SWPPP. Refer to the *Site and Drainage Maps*, **Appendix D**, for additional information on locations of industrial activities and storm water conveyance pathways.

POTENTIAL POLLUTANT SOURCES TABLE

Industrial Activity: Location	Significant Material (Potential Pollutant) Associated with Industrial Activity	Risk Assessment and Associated Management Practices to Reduce or Eliminate Release of Pollutants to Storm Water
Salt Storage, Loading & Unloading: Salt storage is located outdoors on paved salt pads. Loading and unloading take place along the west property line and onsite rail lines.	Sodium Chloride (TDS), Calcium Chloride, Caliber® Salt Additive, SBA-1 Salt Additive, YPS (Sodium Ferrocyanide Anticaking Agent)	No significant discharge of pollutants is anticipated due to: adherence to BMPs; spill prevention and spill response practices; available spill response equipment; good housekeeping practices; no historical reportable spills; and employee training. Regular cleanup during ship/barge unloading conducted at end of day.
Aggregate Storage, Loading & Unloading: Aggregate storage takes place at various locations west of the former lime plant. Loading and unloading take place along the west property line and onsite rail lines.	Aggregate fines, dust, sediment (TSS)	No significant discharge of pollutants is anticipated due to: adherence to BMPs; spill prevention and spill response practices; available spill response equipment; good housekeeping practices; no historical reportable spills; and employee training. Regular cleanup during ship/barge unloading conducted at end of day.
Equipment Fueling: A 1000-gallon (two 500-gallon compartments) diesel AST is located to the south of the storage building.	(Fuels, diesel)	No significant discharge of pollutants is anticipated due to: concrete secondary containment dike around the AST; Adherence to BMPs; equipment is maintained in good condition; spill prevention and spill response practices; good housekeeping practices; no historical reportable spills; and employee training.

Industrial Activity: Location	Significant Material (Potential Pollutant) Associated with Industrial Activity	Risk Assessment and Associated Management Practices to Reduce or Eliminate Release of Pollutants to Storm Water
Vehicle Maintenance: Vehicle maintenance is performed inside the Storage and Maintenance Building.	Solvents, acid/alkaline wastes, ethylene glycol, hydraulic fluids, other automotive fluids, fuel (COD, BOD5, TSS, phosphorus, oil/grease, organics, metals)	No significant discharge of pollutants is anticipated due to: Adherence to BMPs; spill prevention and spill response practices; available spill response equipment; good housekeeping practices; no historical reportable spills; and employee training.
Truck Wash Area: Truck washing is done at the truck wash platform in the southeast portion of the site.	Automotive fluids, fuel, sediment, (COD, BOD5, TSS, phosphorus, oil/grease)	No significant discharge of pollutants is anticipated due to: Discharge of waste water to the detention pond; proper maintenance of the trench drains; adherence to BMPs; spill prevention and spill response practices; available spill response equipment; good housekeeping practices; no historical releases; and employee training.
Material Storage/Handling: Not listed under specific activities above. 1) Refuse stored outside in covered bins or dumpsters in several locations.	Varies: Sediments, floatables, municipal waste	No significant discharge of these pollutants is anticipated due to: Adherence to BMPs; most materials are stored inside; if materials are stored outside they are elevated and covered **or** stored in a leak free container (tanks, drums, etc.); containers are maintained in good condition and external surfaces kept clean; the exposed surfaces are kept free of excessive contaminant build-up; spill prevention and response practices; available spill response equipment; good housekeeping practices; damaged package waste is promptly removed from external surfaces, processed and stored inside; no liquids are disposed of in the waste receptacles; waste is removed regularly from the receptacles; trash and debris is cleaned periodically from the area around the roll-offs; no materials are disposed of on-site; and employee training.

6.0 STORM WATER MANAGEMENT CONTROLS

This section of the SWPPP provides general information concerning storm water management controls which have been implemented at the Facility. Storm water management controls are general facility management practices, facility design controls and specific Permit requirements that ensure proper implementation of the SWPPP and prevent pollutants at the source.

6.1 Storm Water Pollution Prevention Team

The storm water pollution prevention team includes the Facility Manager and the Executive Director of CRP. Identification by job titles, direct telephone numbers and email addresses of the individuals who are responsible for developing, implementing, and revising the SWPPP have been identified in the *SWPPP Facility Information Summary Table* located in **Appendix G**.

SWPPP Administrator

The Noramco Facility Manager is the SWPPP Administrator. The SWPPP Administrator may designate and train an alternate to conduct these activities under his/her supervision.

- Implements the SWPPP at the Facility.
- Assists in the development of the SWPPP.
- Performs or coordinates the completion of the annual comprehensive facility compliance evaluation and quarterly visual storm water discharge examinations.
- Coordinates employee training of personnel.
- Ensures required reviews and modifications to the SWPPP are completed.
- Maintains records in the SWPPP.

6.2 Preventive Maintenance

Preventative maintenance is performed on storm water management equipment and Facility equipment to ensure that they function properly and do not leak pollutants. The following maintenance activities are performed at the Facility, to ensure that equipment is in good repair and free of conditions that could cause breakdowns or failures that may result in the release of pollutants:

- **Equipment**: Equipment that is stored or used at the Facility is inspected frequently for leaks and is maintained in good repair. Maintenance is conducted indoors.

- **Storm Water Conveyance Systems**: Storm water conveyance systems are inspected as part of the annual facility inspection to ensure they are functioning properly.

- **Fuel Areas**: The fuel area is inspected regularly to ensure proper function of components. The fuel island is also inspected as part of the annual storm water facility inspection to ensure the equipment is in good repair and there is no evidence of significant pollutant release.

- **Above-Ground Storage Tanks (ASTs)**: The ASTs are compliant with federal and State leak detection and spill prevention requirements. Periodic preventative maintenance inspections are performed and the records are maintained at the Facility.

- **Material Storage Pads and Associated Equipment**: The pad and walls are regularly inspected for cracks and other structural compromises. Tarps are inspected for wear and tear and promptly repaired or replaced as needed.

6.3 Good Housekeeping

Good housekeeping involves keeping work and storage areas neat and orderly to prevent the discharge of pollutants into storm water discharges. Some of the general good housekeeping practices implemented by the Facility include those listed below.

- Unloading Areas are kept clean and free of debris. Sweeping is performed regularly following the conclusion of loading and/or unloading activities. Material collected from sweeping operations is returned to the proper pad and covered with a tarp at the end of the day, where feasible.

- Material storage areas (i.e., aggregate and asphalt storage areas) are kept clean and spill prevention procedures are followed during loading or unloading procedures.

- Clay absorbent, or other absorbent material, is used on spills of petroleum products. The used absorbent material is removed promptly from exposed surfaces and disposed of accordingly.

- Fueling areas are kept clean and free from excessive residual buildup of oils, greases and fuels on exposed surfaces.

- Dumpsters are used for most solid waste disposal. Open-top dumpsters shall only be used for paper, plastic and cardboard products. Waste receptacles are emptied regularly. No liquids are disposed of in the waste receptacles. No materials are disposed of on-site.

- Fence line debris removal is conducted to prevent trash and debris from migrating to storm water conveyances. Trash is picked up periodically from the entire Facility.

- Debris from inside buildings is collected and thrown away. Trash and debris from the building are NOT swept out of the building onto the ground.
- Chemicals are NOT disposed of down storm drain inlets.
- With the exception of the material storage piles, CPR stores all other chemicals inside the buildings.

6.4 Spill Prevention and Response

Areas where spills may occur that could potentially contribute pollutants to storm water discharges are listed in the *Potential Pollutant Sources Table* (**Section 5.0**) and the associated discharge points are shown on the Site and Drainage Map (**Appendix D**).

Spill Prevention

Spill prevention is accomplished through the development and proper implementation of Best Management Practices (BMPs). BMPs have been developed for the Facility and are discussed in *Section 7.0 Best Management Practices for Specific Industrial Activities*. BMPs are covered in the annual SWPPP training to ensure employees are aware of BMPs implemented at the Facility.

Spill Response

The Facility has established spill response criteria and regularly trains employees on proper use of spill response equipment. Spill response equipment is inspected during the annual facility inspection. Additional information regarding the Facility spill response programs is located in *Section 14.0 Other Programs*.

6.5 Storm Water Management Practices

The following sub-sections provide detailed information on facility-specific storm water management practices which have been implemented at the Facility to provide additional controls other than controlling the potential pollutant source. In conjunction with these practices, the Facility has employed the BMPs identified in Section 7.0 of this SWPPP.

6.5.1 Containment, Oil and Grease Separation, and Storm Water Diversion/Reduction

Containment

The potential for a release of pollutants into storm water runoff is reduced and/or eliminated by both passive and active secondary containment measures. Exterior doorways and openings are

kept closed (passive) when not in use to prevent an immediate release of pollutants to storm water runoff. Spill response equipment (e.g. absorbent materials) is readily available (active) for use by on-site personnel to act as a countermeasure to a leak or spill. Drip pans and absorbent mats (passive) are regularly used during filling and dispensing operations to prevent small spills and leaks from reaching storm water runoff. Containment areas are cleaned as needed and contents disposed of in an approved manner. The diesel AST is located within a concrete containment dike, reducing the potential for a release.

Storm Water Diversion/Reduction

Storm water is directed away from pads where materials are handled and stored, towards stormwater conveyances. Drainage from the Truck Wash and Truck Scale area flows to the onsite retention basin where it eventually evaporates. To reduce storm water, most of the surfaces remain gravel, reducing the runoff volume.

6.5.2 Management of Significant Material Storage

The significant materials currently stored and handled on-site, the storage and handling methods, and the management practices used to minimize contact of these materials with storm water runoff are listed in *Section 5.0 Potential Pollutant Sources Table* and *Section 7.0 Best Management Practices for Specific Industrial Activities.* The addition of significant new material to the Facility inventory or regular use will require an amendment to this SWPPP. By definition within the Permit, significant materials include, but are not limited to: raw materials; fuels; materials such as solvents, detergents, and plastic pellets; finished materials such as metallic products; raw materials used in food processing or production; hazardous substances designated under section 101(14) of CERCLA; any chemical the facility is required to report pursuant to EPCRA Section 313; fertilizers; pesticides; and waste products such as ashes, slag and sludge that have the potential to be released with storm water discharges.

6.5.3 Debris and Sediment Control

Structural storm water control measures (e.g., swales) to reduce and capture debris and sediment prior to discharge have been presented on the *Site and Drainage Map* located in **Appendix D**. Additional information concerning sediment and erosion control has been provided in *Section 6.6 Sediment and Erosion Prevention* of this SWPPP.

6.5.4 Waste Chemical Disposal

Waste chemicals such as hydraulic oil, engine oil, used oils, salt, salt residues, and salt additives are disposed of in an approved manner and in a way which prevents them from entering storm water discharges.

6.6 Sediment and Erosion Prevention

Salt storage areas have been paved or covered with asphalt to minimize the potential for erosion. Gravel surfaces tributary to the onsite swales are are inspected regularly to determine if stabilization is required. There is minimal elevation change in the storage areas, reducing the potential for erosion.

6.7 Storm Water Pollution Prevention Training Program

Storm water pollution awareness and knowledge are key elements to properly implementing the SWPPP. Personnel who manage, supervise, or conduct activities that have the potential to pollute storm water will be trained (at least annually). Training will address program background, spill prevention/response, good housekeeping, material management and best management practices (BMPs). In addition, de-icing practices to be followed at facility will be covered, as will applicable sampling protocols and testing to be conducted under the NPDES Permit. This training will inform personnel of the components and goals of the SWPPP at the Facility. New personnel will receive the applicable SWPPP training within three months of hire or transfer to the Facility.

SWPPP training will be documented on the *Storm Water Pollution Prevention Plan Annual Training Roster* (**Form 2**). Blank training rosters are retained in SWPPP **Appendix F**. Completed rosters will be retained in SWPPP **Appendix B**.

7.0 BEST MANAGEMENT PRACTICES FOR SPECIFIC INDUSTRIAL ACTIVITIES

Pollution prevention practices (PPPs) or best management practices (BMPs) are routine operational practices and control measures that can effectively prevent and reduce pollutants at the source. BMPs have been developed for the following industrial activities conducted at the Facility.

- Salt Unloading and Storage
- General Industrial Activities
- Equipment Maintenance BMPs
- Equipment Fueling and Fuel Storage BMPs
- Equipment Cleaning BMPs
- Material Storage/Handling BMPs
- Barge Unloading of dry chemical totes and steel products

In addition to the BMP's outlined within this section, Guidance Documents are provided in Appendix H for reference. The guidance documents include the Chicago Rail & Port Tarping and Handling Procedures, and The Salt Storage Handbook (published by Salt Institute). This section describes the specific BMPs currently in place for each of the above listed industrial activities.

7.1 Salt Unloading and Storage

Practices currently in place to reduce or eliminate the potential for salt unloading and storage practices to impact storm water discharges from the Facility include the following:

A. Salt is stored on an impervious surface with no drains and is surrounded on three sides by stone block walls.

B. Salt is covered with water-proof tarps when it is being stored outdoors on the salt pads to reduce the potential for salt contact with storm water.

C. Salt pile tarping procedures are designed in such a way that storm water drains away from the storage pad containment areas via sheet flow across a waterproof tarp. Tarp seams overlap in such a way as to minimize or eliminate potential accumulation of storm water in seams or valleys in the tarp or salt pile. The tarp is inspected for tears and holes that would allow for sheet-flow runoff to come into contact with salt. If tears or holes are noticed, they are promptly repaired.

D. Tarps are opened to the minimum extent necessary to load and unload salt during operating hours. Loading and unloading is performed uniformly across an open face of the pile (whenever practical) to ensure a flat operational plane and ensure proper tarp coverage. The open face of the pile will be left open from time to time when practically necessary to facilitate truck loading. Storm water runoff from the face of the pile is contained within the pad area and/or absorbed by the salt.

E. Chunks of salt that form as the crust of the pile are crushed and blended back into the pile and are not allowed to accumulate outside of the storage pad containment areas.

F. When salt is transported from ships/barges to piles, care is taken to avoid spillage and appropriate response procedures are implemented to deal with salt spills outside of containment areas in a timely manner.

G. As needed, loading and unloading areas are swept using a mechanized sweeper, and collected salt is separated from debris and returned to the pad for storage. Impacted debris is collected in closed-top dumpsters and disposed of accordingly.

H. The Facility is regularly inspected for salt residues and is swept and cleaned using dry methods.

I. At the completion of offloading each ship/barge of salt, the receiving area is scraped of salt and added to the salt pile with a front-end loader.

7.2 Aggregate Unloading and Storage

Practices currently in place to reduce or eliminate the potential for stone aggregate unloading and storage practices to impact storm water discharges from the Facility include the following:

A. Aggregate is stored in various graved-paved locations to the west of the former lime plant.

B. Areas used for aggregate storage are graded to surface flow away from the Calumet River and towards onsite drainage swales. The swales help capture sediment prior to discharge of stormwater from the site.

C. The Facility uses a water truck to spray the transfer areas and roads in order to provide a means of dust suppression for industrial activities.

D. The Facility is swept with a mechanical sweeper on an as needed basis. Collected dust is returned to the aggregate storage pile or disposed of accordingly.

E. Trucks with open top trailers used for the transfer of aggregate to/from the site are outfitted with covers to reduce the potential for dust generation and sediment accumulation resulting from the transfer activities.

F. Stormwater leaving the site via the outfalls is tested periodically for total suspended solids to determine if there is a sediment discharge from the site.

7.3 General Industrial Activity BMPs

General practices currently in place to reduce or eliminate the potential for industrial activities to impact the storm water discharges from the Facility include the following:

G. Spill response equipment, including absorbent material and absorbent pads are kept at the Facility to clean up spilled liquid materials.

H. A dry cleaning method will be used to clean up spills, leaks or excessive buildup of contaminants in areas that are exposed to storm water. A dry cleaning method is any method, including those methods that use water, which does not release untreated wastewater to the environment (e.g., using dry absorbent materials, sweeping, mopping, using a floor scrubber, pressure washing if all of the wastewater is captured). For smaller dry chemical spills, a shovel will be used. For larger spills, a front end loader will be used. If absorbent materials are used to clean up spills, the contaminated absorbent material will be removed promptly and disposed of properly after the spilled material has been absorbed.

I. Equipment will be maintained in good condition and free from excessive leaks. Equipment that is leaking will be promptly reported to a supervisor for repair, and leaked material will be cleaned using dry methods and disposed of in an appropriate manner. The external surfaces of equipment will be kept free of excessive contaminant buildup.

J. Facility construction, renovation, or maintenance projects (e.g., paving, painting, cleaning, building repairs, etc.) conducted by employees or outside services shall be performed in a manner that minimizes exposure of storm water to contaminants, and prevents the release of chemicals/wastewater to external surfaces.

    a. Examples: Chemicals will not be used when cleaning unless all of the wastewater is captured for proper disposal; consideration will be given to installing storm drain filtration inserts in areas impacted by paving/construction projects; workers will be asked to remove debris (e.g., cement cutting dust, sanding debris) regularly from surfaces that are exposed to storm water; construction equipment (e.g., forklifts, dump trucks, vehicles, loaders, portable cement mixers) should be well maintained (i.e., not leaking) and free of excessive surface contamination; construction materials (e.g., rebar, cement bags, etc.--anything that can rust or has contaminated surfaces or can be mobilized by storm water) should be stored in a shelter or covered with a tarp and elevated if necessary.

K. Mechanical methods (e.g., snow plows), not deicing chemicals, will primarily be used to remove snow/ice from ground surfaces. This is especially important on gravel roadways in the facility, where salt effectiveness is questionable. Sand can be used on the gravel

roadways for traction. Surface deicing chemicals will only be used under the Salt Institute's recommended conditions and then only the minimal amount necessary for safety will be used.

L. Outdoor use of pesticides, herbicides and fertilizers will be avoided whenever possible. If application of these chemicals can't be avoided, the manufacturer's application instructions will be strictly followed.

7.4 Equipment Maintenance BMPs

Practices currently in place to reduce or eliminate the potential for equipment maintenance activities to impact the storm water discharges from the Facility include the following:

A. Equipment maintenance is conducted inside the Storage & Maintenance building in a designated automotive maintenance area. The maintenance area floor is kept clean and free from excessive build-up of oil and grease. This area is cleaned using a dry cleaning method prior to floor washing or sweeping.

B. The areas where equipment is stored and maintained are kept clean and free from excessive residual buildup of oil/grease and other contaminants. These areas are cleaned using a dry cleaning method, and impacted cleaning materials are disposed of properly.

C. Equipment fluids are drained and contained for recycling or disposal prior to storing out-of-use equipment.

D. Drip pans are placed underneath leaking equipment. This includes equipment that may leak fluids including motor oils, hydraulic fluids, and petroleum fuels. Routine visual inspections for leaks are performed. Drip pans are emptied routinely when in use.

E. Dry absorbent material, brooms, and shovels are kept on hand to clean up spilled materials. Contaminated absorbent material will be promptly removed from exposed surfaces.

F. Equipment is kept clean and free from excessive build-up of oil and grease on external surfaces.

G. Oil filters are drained before recycling, accumulated indoors, and then shipped for recycling.

H. Used oil is consolidated in single containers, which are stored indoors, emptied and disposed of properly, as necessary. The external surfaces of the container are kept clean and free of excessive oil buildup.

I. Employees who perform equipment maintenance are required to complete annual SWPPP training.

J. The maintenance areas are inspected as part of the annual facility inspection to ensure that BMPs are properly implemented and that there is no evidence of pollutant releases.

7.5 Equipment Fueling and Fuel Storage BMPs

Fueling

Practices currently in place to reduce or eliminate the potential for vehicle fueling activities to impact the storm water discharge from the Facility include the following:

A. Dispensers are regularly checked for leaks and are repaired promptly, as necessary.

B. Fuel areas are inspected as part of the annual facility inspection to ensure equipment integrity and that there is no evidence of significant pollutant release.

C. Absorbent material and/or absorbent booms, pads, gloves, and heavy duty plastic bags are available near the fuel islands for spill response and general clean up. The used absorbent material is promptly removed from exposed surfaces and disposed of properly.

D. **Fueling instructions:** To prevent spills from occurring during equipment fueling the practices summarized below will be used.

   a. **Do not "top off" equipment fuel tanks**. Do not use any foreign objects in the fuel nozzle to allow hands free operation.

   b. Lift fuel nozzle up and cock it back as you remove it from the equipment to prevent drips.

   c. Report leaking equipment or equipment in need of repair immediately to your supervisor.

   d. Prevent even small spills, such as drips, as they will accumulate on the pavement or concrete surfaces.

   e. Use dry methods to clean the fueling area. Do not hose down the area. Remove contaminated clean-up material, such as dry absorbent or absorbent pads, **promptly** from surfaces exposed to storm water.

   f. Maintain spill cleanup materials where they will be readily accessible.

Fuel Storage

Practices currently in place to reduce or eliminate the potential for fuel storage activities to impact the storm water discharges from the Facility include the following:

A. The aboveground storage tanks are inspected regularly for leaks and equipment condition. Aboveground storage tanks are equipped with level gauges. The tanks are properly maintained and kept in good working condition

B. Spill response equipment, including absorbent pads, booms, and heavy duty plastic bags are kept at the fueling area to clean up spilled materials.

C. The areas where fuel is stored are kept clean and free from excessive residual buildup of contaminants. These areas are cleaned using a dry cleaning method and residues are promptly removed from exposed surfaces.

D. Fuel storage areas are inspected as part of the annual facility inspection to ensure equipment integrity, and that there is no evidence of pollutant release.

7.6 Truck Cleaning BMPs

Practices currently in place to reduce or eliminate the potential for truck washing activities to impact the storm water discharges from the Facility include the following:

A. Trucks are washed without detergents at the truck wash platform shown on the *Site and Drainage Map* in **Appendix D**. The truck wash area drains to the detention pond where it eventually evaporates. Areas of trucks where oil, grease, and salt may be present are cleaned using dry methods before any water is applied. If such a method cannot be adequately used, truck cleaning takes place offsite or in another suitable location where water can be collected and stored for proper disposal.

B. Debris from the inside of the trucks is collected and thrown away prior to washing the interior. Trash and debris from the inside of the trucks is **NOT** swept out of the trucks onto the ground.

C. Supervisors of personnel that wash trucks are required to complete annual SWPPP training.

D. The truck wash areas are inspected as part of the annual facility inspection to ensure that drainage areas are not affected by significant pollutant release.

7.7 Material Storage/Handling BMPs

Practices currently in place, not discussed in the above sections, to minimize the potential for material storage activities to impact the storm water discharging from the Facility include the following:

A. Most containerized materials are received and stored inside. If containerized materials are received outside of the designated storage areas, they are promptly moved to the final storage location. If materials are stored outside, they are elevated and covered **or** stored in a leak free container (drums, tanks, etc.). The leak free container is maintained in good condition and external surfaces are kept clean. In the loading/unloading areas along the

Calumet River, materials other than salt or aggregate are moved inside within 48 hours or loaded onto trucks for delivery to customers.

B. Spill response equipment, including absorbent material, absorbent pads are kept at the Facility to clean up spilled materials.

C. Material storage areas are kept clean and free from excessive residual buildup of oil/grease and other contaminants. These areas are cleaned using a dry cleaning method and the residue removed promptly from exposed surfaces.

D. Material storage areas are inspected as part of the annual facility inspection to ensure the BMPs are properly implemented and that there is no evidence of pollutant releases.

E. ASTs and associated pipes, fittings, and pumps are regularly inspected for leaks and repaired as soon as possible to eliminate the potential for storm water contamination.

F. Facility personnel are required to complete annual SWPPP training to ensure implementation of these BMPs.

8.0 NON-STORM WATER DISCHARGES

Activities that generate non-storm water discharges are strictly prohibited with the exception of those listed within Section 8.3 below. The prohibited activities include, but are not limited to:

- Equipment washing (when detergents are used);
- Facility wash downs (when detergents are used); and
- Wash down of stained external surfaces, or areas where salt residue may be present.

8.1 Non-Storm Water Discharge Evaluation Methods

The Facility's external surfaces were observed during dry weather conditions to determine if any visible non-storm water flows existed. The storm sewer inlets were inspected for non-storm water flows and for unknown pipe connections. Containment areas and storm water manholes/inlets were examined for evidence of non-storm water flows (unknown pipes, vegetation impacts, staining). The external building walls were inspected for evidence of piping that may discharge externally. During this inspection no evidence of unauthorized non-storm water discharges were identified. Certification of this SWPPP document by CRP indicates the inspection was made and the Facility has no unauthorized non-storm water discharges.

8.2 Authorized Non-Storm Water Discharges

Specific non-storm water discharges are permitted by the Permit, if they are identified and appropriate pollution prevention practices included in the SWPPP. Non-storm water discharges that are conditionally authorized by the Permit provided the non-storm water component of the discharges is in compliance with Part C.1 and Part E.7 of the Permit include:

- Discharges authorized by, and in compliance with, a separate National Pollutant Discharge Elimination System (NPDES) Permit.
- Discharges from fire-fighting activities and fire hydrant flushing.
- Waters used to wash vehicles (without evidence of oil, grease or salt residue), without the use of detergents.
- Waters used as dust control measures.
- Potable water sources including waterline flushing.
- Pavement wash water where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed) and where detergents are not used.
- Air conditioning and refrigerant condensate.

8.3 Secondary Containment Releases

Rainwater and snowmelt (i.e., storm water) that has accumulated in exposed secondary containment structures can only be released to outdoor surfaces at the facility if it will not cause a harmful discharge of pollutants. Containment structures present at the Facility are inspected regularly and the containment is emptied to ensure that the proper spill capacity is maintained. Prior to releasing the accumulated water from these types of containments, or any other type of large containment (e.g., abandoned containments, open-top dumpsters, bins), to outdoor surfaces the *Checklist for Draining Storm Water from Secondary Containments (Form 4)* located in **Appendix F** must be completed. The accumulated water can only be released to outdoor surfaces after completing the checklist and documenting that there are no visible signs of contaminants either in the accumulated water or in the flow path of the discharge and that the discharge will not cause significant erosion or sediment transport to the storm water system. If upon visual examination the accumulated water is found to be significantly contaminated, it cannot be discharged on-site to outdoor surfaces and an alternative disposal method must be identified and used. Blank checklists are retained in **Appendix F**. Completed checklists are retained in **Appendix A**.

9.0 MONITORING OF STORM WATER DISCHARGES

In order to verify that BMPs are meeting expectations of storm water pollution prevention, four evaluations will take place on a regular basis. From all the inspections, an evaluation of the effectiveness of the SWPPP will be made and will determine need for additional measures. Appendix F includes the forms for the various inspections.

Evaluation	Deadline	Responsibility
Routine/Quarterly Inspections of Storm water Quality and Controls	Once during each quarter, within 1-hour of a rain event: 1. January 1 to March 31 2. April 1 to June 30 3. July 1 to September 30 4. October 1 to December 31	1. The SWPPP team will complete inspections. 2. SWPPP team will respond to issues identified in inspections.
Non- Storm water Discharge Inspection	Once during dry weather, annually	1. The SWPPP team will complete inspections. 2. SWPPP team will respond to issues identified in inspections.
Annual Facility Inspection Report*. Kept on File.	Once annually based on the effective date of the NPDES permit.	1. The SWPPP team will complete the compliance inspections. 2. SWPPP team will respond to issues and update the SWPPP as necessary.
Annual Water Body Check	By February 15th each calendar year.	The SWPPP team will check the Impaired Water body and TMDL status with the IEPA. (See Section 9.0)
* To facilitate the inspection, the Annual Facility Inspection is scheduled during the typically wetter period of the year.		

9.1 Routine/Quarterly Visual Observation of Storm Water Runoff Quality

CRP will conduct and document visual inspections of each storm water outfall on a quarterly basis. These inspections should be conducted within the first 30 minutes and no later than 60 minutes after the beginning of storm water discharge. The inspection should be of the first flush (and presumably the most contaminated) of storm water. In the event that no storm water event occurred during the daylight hours from the facility for monitoring quarter, no inspection will be conducted, which will be documented and included in the annual report. The outfalls originate from generally flat areas, and it is possible no discharge will occur.

The observations will consist of collecting grab samples at each of the outfalls that there is discharge occurring. Observation locations are shown as Visual Examination Points (VEPs) on *Figure 3 - Site and Drainage Map* **(Appendix D).**

During the grab sample/inspection, the facility should note any observations of storm water pollution including:

- Color-any unusual color, such as reddish, brown, or yellow hue
- Odor-any noticeable odor, for instance like gasoline, rotten eggs, raw sewage, solvents, or sour smell
- Turbidity-discharge is not clear
- Suspended Solids-particles suspended in the water
- Foam-gently shake the bottle of sample to note any foam
- Oil sheen-any rainbow color, sheen, or discoloration at the surface of the water

If observations provide any unusual indication of storm water pollution, the observation will be confirmed with laboratory testing. The visual observation record will be kept for the duration of the NPDES Permit or three years after the report is generated, whichever is longer. The visual inspections will be documented on blank form included in Appendix F.

10.0 ANNUAL STORM WATER FACILITY INSPECTION PROGRAM

The SWPPP Administrator or designated alternate will conduct a comprehensive program evaluation and facility inspection no less than once during each annual reporting period. The annual reporting period for the Facility is one full year beginning on the effective date of the Permit. The annual evaluation should be scheduled for the last 30 days of the annual reporting period, as the evaluation includes a review of the previous year's compliance records and allows for adequate time to complete the annual report using the information from this evaluation and facility inspection. The results of the evaluation will be recorded on the *Annual Storm Water Program Comprehensive Evaluation Form* (**Form 1a**). As part of the comprehensive evaluation a facility inspection will be performed. The results of this facility inspection will be recorded on the *Storm Water Pollution Prevention Facility Inspection Form* (**Form 1**). Corrective actions taken to address issues noted during the evaluation will be recorded on the respective form where the issues were noted. Completed evaluation and facility inspection records will be retained in **Appendix A**. Blank forms are retained in **Appendix F**.

11.0 ANNUAL REPORT

The SWPPP Administrator will complete the *Annual Inspection Report* as required by the Permit. This form will be completed using information from the annual storm water program comprehensive evaluation, annual facility inspection and the monitoring records completed during the annual reporting period. The report shall also include documentation of any event (spill, treatment unit malfunction, etc.) which would require an inspection, results of the inspection, and any subsequent corrective maintenance activity. If monitoring was performed during the annual reporting period, the results will be summarized and provided as an attachment to the *Annual Inspection Report.*

The annual reporting period for the Facility is one full year beginning on the effective date of the Permit.

The annual report must be submitted to the Agency within 60 days (postmark-date) of the end of each annual reporting period. The completed and signed *Annual Inspection Report* can be submitted via hard copy to the address listed below. Completed inspection reports will be retained in **Appendix A** and will remain on file for at least 3 years. Blank forms should be retained in **Appendix F**.

Mail paper copies to: Illinois Environmental Protection Agency
Water Pollution Control
Compliance Assurance Section #19
1021 North Grand Avenue East
Post Office Box 19276
Springfield, Illinois 62794-9276

12.0 RECORD KEEPING

The table below summarizes the Permit and internal record keeping requirements. The records will be retained for the specified period in the designated appendix of the SWPPP.

Record	**Retention Period**	**SWPPP Appendix**
Annual Storm Water Program Comprehensive Evaluation, Inspection Records, and Report	Three years after permit expiration.	A
Secondary Containment Release Checklists	Three years after permit expiration.	A
Training Records	Three years after permit expiration.	B
Monitoring Event Records	Three years after permit expiration.	C
SWPPP Amendments	Three years after amendment.	E
General Regulatory Correspondence	Three years.	E

APPENDIX A

Inspection Records

APPENDIX B

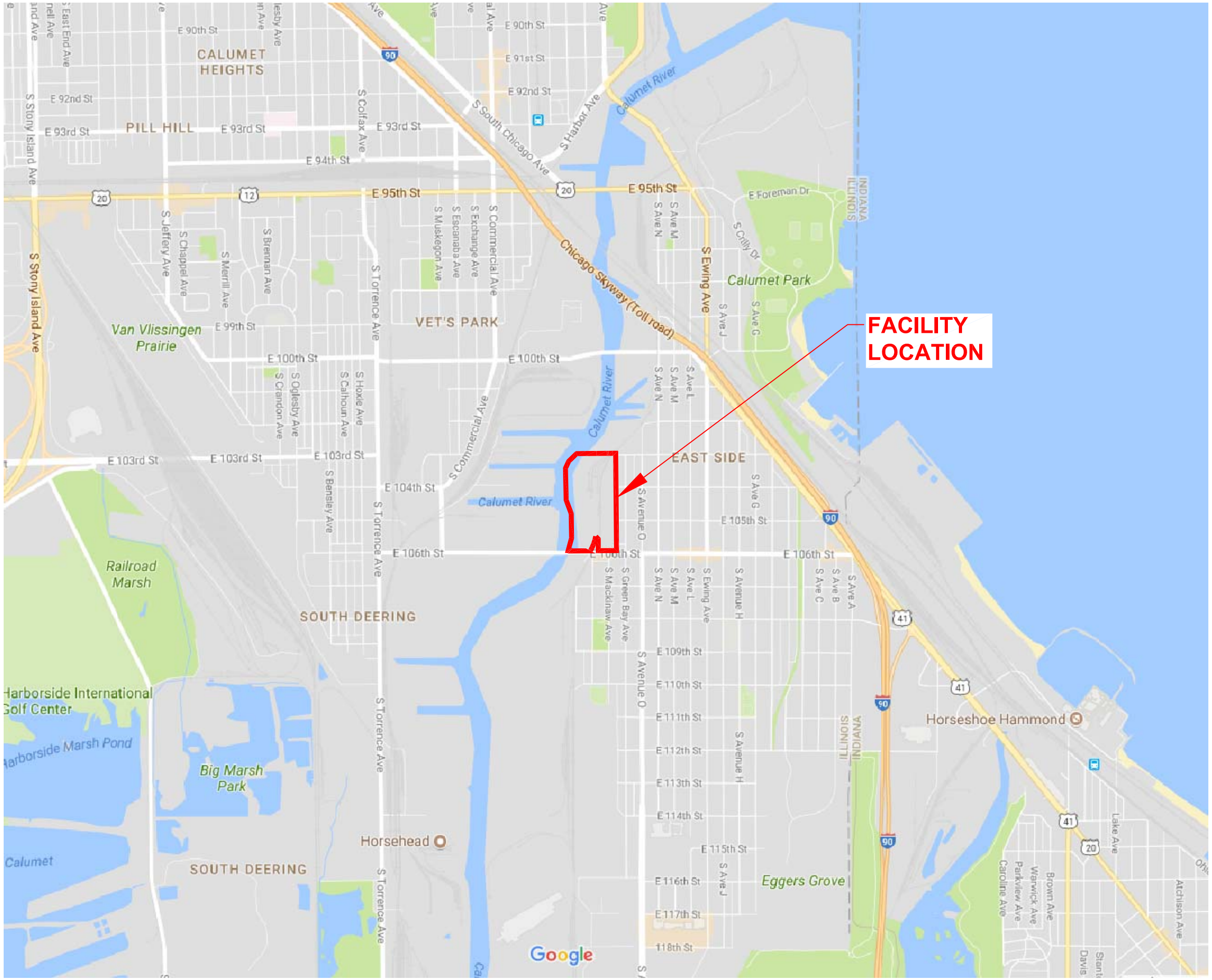
Training Records

APPENDIX C

Monitoring Records

APPENDIX D

Facility Maps



N

2000' 0 2000'

Title:

SITE LOCATION MAP

3245 EAST 103rd STREET
CHICAGO, IL

Prepared For:
CHICAGO RAIL & PORT, LLC

ROUX ASSOCIATES, INC.
Environmental Consulting and Management

Compiled by: AIS	Date: 07/27/2017	FIGURE
Prepared by: AIS	Scale: AS SHOWN	1
Project Mgr: MJH	Project: 2900.0001I000	
File: 2900.0001I000.100.DWG01		

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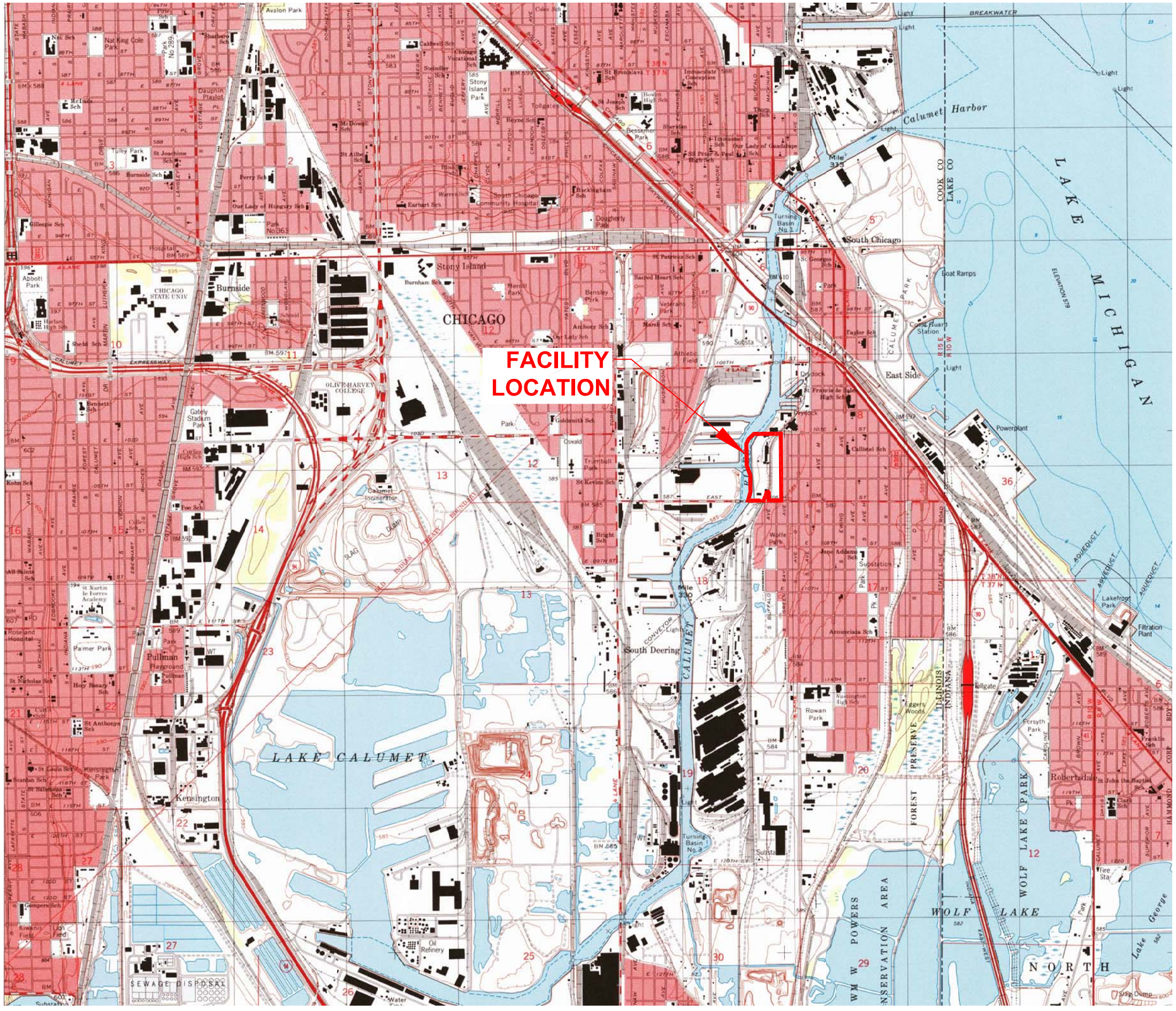

N

LAKE CALUMET QUADRANGLE

3000’ 0 3000’

Title:

SITE LOCATION MAP

3245 EAST 103rd STREET
CHICAGO, IL

Prepared For:
CHICAGO RAIL & PORT, LLC

ROUX ASSOCIATES, INC.
Environmental Consulting and Management

Compiled by: AIS	Date: 07/27/2017	FIGURE 2
Prepared by: AIS	Scale: AS SHOWN	
Project Mgr: MJH	Project: 2900.0001I000	
File: 2900.0001I000.100.DWG02		

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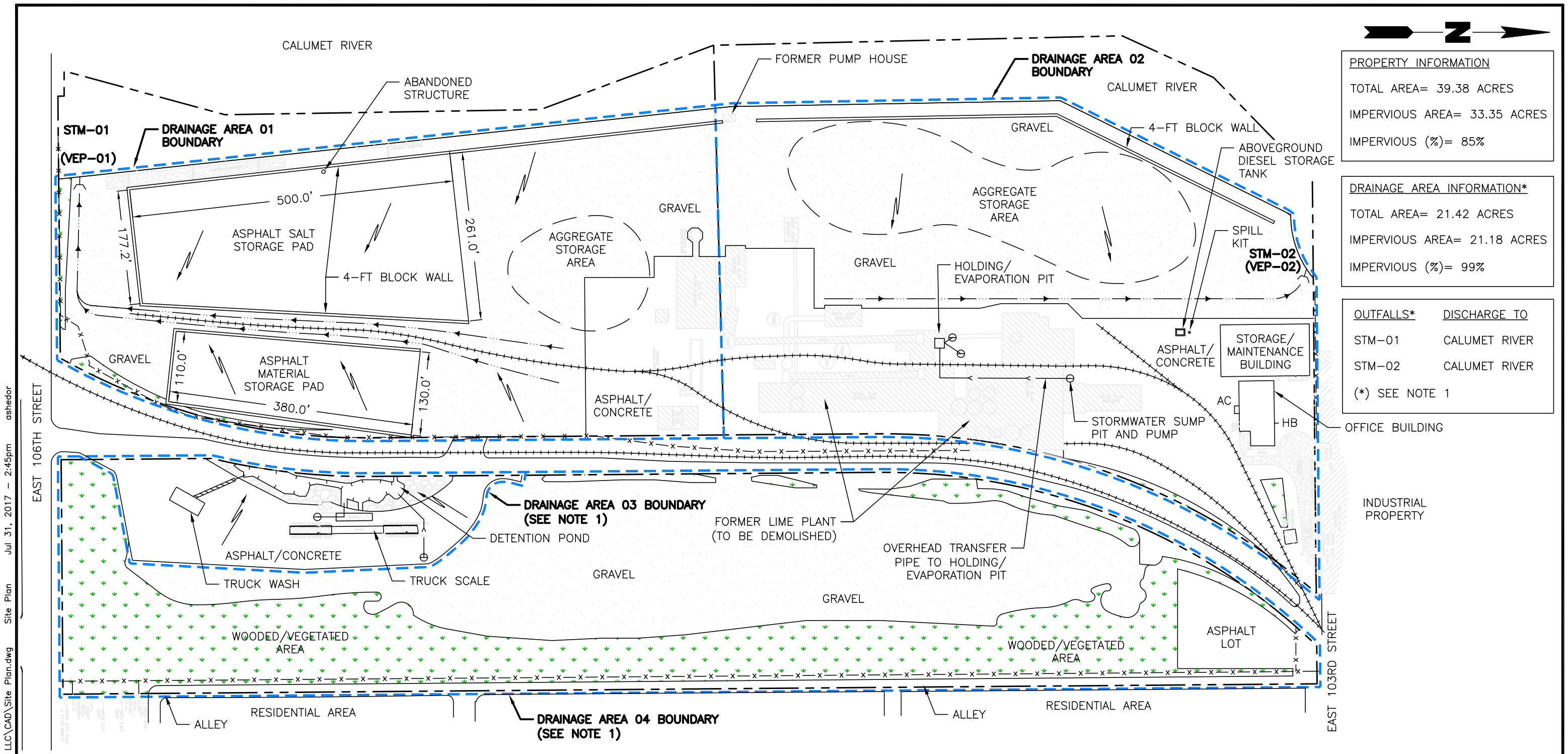


PROPERTY INFORMATION
TOTAL AREA= 39.38 ACRES
IMPERVIOUS AREA= 33.35 ACRES
IMPERVIOUS (%)= 85%

DRAINAGE AREA INFORMATION*
TOTAL AREA= 21.42 ACRES
IMPERVIOUS AREA= 21.18 ACRES
IMPERVIOUS (%)= 99%

OUTFALLS*	DISCHARGE TO
STM-01	CALUMET RIVER
STM-02	CALUMET RIVER
(*) SEE NOTE 1	

PROPERTY LINE
FENCE LINE
STORM SEWER WITH CLOSED LID/OPEN LID STRUCTURE
DRAINAGE AREA BOUNDARY
SWALE
TRENCH DRAIN
DRAINAGE FLOW ARROW
FLARED END SECTION

STM-01 STORM WATER OUTFALL
VEP-01 VISUAL EXAMINATION POINT
GRAVEL AREA
RIP RAP AREA
VEGETATED/WOODED AREA
FORMER LIME PLANT (TO BE DEMOLISHED)

NOTES:

1. AREAS CALCULATED IN THE "DRAINAGE AREA INFORMATION" TABLE ABOVE EXCLUDE DA-03 & DA-04, SINCE THEY DO NOT DISCHARGE TO THE PERMIT OUTFALLS (OUTFALL 01 & 02).
   1.1. STORMWATER FROM DA-03 FLOWS TO THE RETENTION POND AND IS HELD THERE UNTIL IT EVAPORATES
   1.2. STORMWATER FROM DA-04 WAS NOT ASSESSED AS THE AREA HAS NOT BEEN DESIGNATED FOR USE AT THIS TIME.
2. ROOF DRAINS DISCHARGE TO GROUND.
3. TRUCK WASHING IS PERFORMED AT THE TRUCK WASH PLATFORM IN THE SOUTHEAST PORTION OF THE SITE.
4. RUN-ON AND SEDIMENT TRANSPORT FROM ADJACENT PROPERTY.

150' 0 150'

Title:

SITE AND DRAINAGE MAP

CHICAGO RAIL & PORT, LLC

3245 EAST 103rd STREET
CHICAGO, IL

Prepared For:
CHICAGO RAIL & PORT, LLC

ROUX ASSOCIATES, INC.
Environmental Consulting and Management

Compiled by: AIS	Date: 07/27/2017	FIGURE
Prepared by: AIS	Scale: AS SHOWN	3
Project Mgr: MH	Project: 2900.0001I000	
File: 2900.0001I000.101.DWG01		

\\srvbilfp1\technical_projects\Chicago Port & Rail LLC\CAD\Site Plan.dwg Site Plan Jul 31, 2017 - 2:45pm ashedor

APPENDIX E

Permit Coverage Records

APPENDIX F

Forms

STORMWATER POLLUTION PREVENTION FACILITY INSPECTION FORM

FACILITY NAME:		**INSPECTION DATE:**
INSPECTOR(s) NAME:	***PRINTED:***_____ ***SIGNED:***_____	***Certification Statement:*** *By signing this form I certify that the information in this form is to the best of my knowledge and belief, true, accurate, and complete.*

WEATHER INFORMATION:
Description of Weather Conditions (e.g., sunny, cloudy, raining, snowing):_____

I. POTENTIAL POLLUTANT SOURCE AREA INSPECTION AND BEST MANAGEMENT PRACTICES EVALUATION

A. Good Housekeeping:	**Yes**	**No**	**NA**	**Findings and Corrective Action (CA) Documentation:** Describe all findings below along with the actions taken or planned to correct the findings, and the schedule for corrective action completion, including the date initiated and date completed or expected to be completed in the column to the right. SWPPP modifications should be completed within 2 weeks and BMP modifications implemented within 12 weeks of this inspection.	**Date CA Completed:**
1. Are covered waste receptacles (e.g., dumpsters, yard trash cans, trash bins) located outdoors in good condition, not leaking contaminants and are the waste receptacle lids/side doors completely closed (i.e., receptacle isn't overfilled) at all times when the receptacle is not being accessed? Are the external surfaces of covered waste receptacles free of contaminant buildup? If mobile waste receptacles (e.g., used to transport trash) are stored outside, are they covered and leak free? (Note: If waste receptacle is shared with other tenants, these questions only apply to use by Salt Storage Operations.)	☐	☐	☐		
2. Are the following areas free of buildup of salt residue, excess sediment, trash, debris, contaminants, spills/leaks of fluids and/or used absorbent materials that should have been removed promptly after spill clean-ups?					
a. Leasehold/property line and fence lines	☐	☐	☐		
b. Material loading/unloading areas and storage pad perimeters	☐	☐	☐		
c. Equipment staging areas (excavators, loaders, etc.), blending shed, office, and machine shop	☐	☐	☐		
d. Around all outdoor waste receptacles (dumpsters, bins, yard trash cans, open-tops)	☐	☐	☐		
3. Inspect indoor storage and staging areas: If overhead doors are open, is the area free of salt or debris that can be blown by wind?	☐	☐	☐		
4. Inspect all outdoor open-top waste receptacles and their contents (e.g., open-top dumpsters, roll-offs): ***Check NA if there are no open-tops on-site. Skip to next section.***			☐		
a. Is most of the trash that can be mobilized by the wind contained (e.g., boxed, bagged) and are the containers securely closed and not punctured by debris (e.g., wood shards from pallets)?	☐	☐	☐		
b. Is large debris that can't be mobilized by the wind free of excessive contamination on exposed surfaces?	☐	☐	☐		
c. If deemed necessary, is signage posted near open-top waste receptacles informing personnel and passersby of the usage restrictions (e.g., cardboard and pallets only)? ***Check NA if signage not deemed necessary.***	☐	☐	☐		
5. Inspect material loading and unloading areas. Are the areas swept on a daily basis? Are they free from salt and/or other residues which may impact stormwater or the Calumet River?	☐	☐	☐		
6. Inspect salt storage tarps. Are they free from cuts and/or tears? Are they free from low spots where stormwater may accumulate? Do they cover salt piles to the maximum extent possible while an open face is in operation?	☐	☐	☐		
B. Equipment Washing Areas: Loaders, excavators, etc. ***Check NA if equipment washing is not performed on-site. Skip section.***			☐		
1. Is equipment washed in designated areas without the use of detergents? If detergents are used, is wash water completely captured and discharged to a treatment system (e.g., sanitary sewer, pump/haul, reclamation/evaporation system, septic system) or under a separate wastewater permit?	☐	☐	☐		
2. Observe Washing: Is all washing performed without detergents? If detergents are used, is water captured and none released to storm sewers, street gutters or drainage channels, unless specifically allowed under a separate wastewater permit?	☐	☐	☐		
C. Erosion Control:					
1. Is the facility free from areas exhibiting erosion, which may result in excessive sediment contamination of stormwater?	☐	☐			

STORMWATER POLLUTION PREVENTION SITE INSPECTION FORM

I. POTENTIAL POLLUTANT SOURCE AREA INSPECTION AND BEST MANAGEMENT PRACTICES EVALUATION

	Yes	No	NA	Findings and Corrective Action (CA) Documentation: See instructions on page 1	Date CA Completed:
D. Equipment Fueling Areas:					
Check NA if equipment fueling is not performed on-site. Skip section.			☐		
1. Are all equipment fueling areas free of excessive contaminant buildup and evidence of chronic leaks/spills (e.g., paved areas around fuel islands, dispenser cabinets, indoor or covered fueling areas, mobile fueling areas)?	☐	☐			
2. Are all fueling areas free from contaminated absorbent material that should have been removed promptly after spill clean-ups?	☐	☐			
3. Is fuel dispensing equipment free of leaks?	☐	☐			
E. Equipment Maintenance Areas:					
1. Are surfaces that are exposed to stormwater outside of equipment entrances (e.g., overhead doors) to maintenance bays or material storage areas free of salt, sediment or other contaminant buildup?	☐	☐	☐		
2. Are surfaces exposed to stormwater where equipment is stored prior to maintenance free of excessive contaminant buildup?	☐	☐	☐		
3. Are indoor maintenance area floors free from excessive contaminant buildup (e.g., salt, oil/grease, sanding/welding debris) that could be tracked outdoors?	☐	☐	☐		
4. Are equipment maintenance materials (e.g., parts, batteries, small fluid containers, waste products) stored inside a building, a shelter (e.g., shed, sealand container, cabinet) or, if outdoors, elevated and covered? Are all bulk fluid storage containers (e.g., drums, tanks) that are located outdoors in good condition with clean external surfaces? Is the ground around the containers free of contaminant buildup? (Note: Parts without surface contamination normally exposed during operation, such as tires and painted bumpers can be stored outdoors uncovered.)	☐	☐	☐		
5. Are outdoor fluid top-off areas free of contaminant buildup?					
7. Are the outdoor areas inspected above, free from contaminated absorbent material that should have been removed promptly after spill clean-ups?	☐	☐	☐		
F. Spill Response Equipment: Are spill response materials available, in adequate supply and stored where they can be accessed quickly enough to respond to spills before the spill reaches a floor drain or stormwater control structure in the following areas?					
1. Equipment fueling areas	☐	☐	☐		
2. Equipment maintenance areas	☐	☐	☐		
3. Outdoor equipment top-off areas	☐	☐	☐		
G. General Material Storage Areas:					
1. Are damaged or unused materials stored inside a building or another type of storm resistance shelter (e.g., shed, lockers)?	☐	☐	☐		
2. Inspect all outdoor ***equipment*** (e.g., tanks, pumps, scales, etc.) and ***material*** (e.g., building materials, material piles, etc.) storage areas, if not already inspected (including equipment/materials stored on-site by contractors): **1)** Is equipment with contaminants present on outer surfaces, or that can rust significantly, covered (e.g., tarp, roof overhang, canopy) and free of excessive leaks? **2)** Are materials stored in a manner that will prevent contamination of stormwater (e.g., elevated and covered, stored in a covered container)? **3)** Are these areas free of excessive trash, debris and contaminant buildup that can be mobilized by stormwater (e.g., concrete saw-cut dust, metal sanding/grinding dust, leaks from machinery, salt residue, sediment, etc.)?	☐	☐	☐		
3. Are all loose material storage piles (e.g., salt, stone, landscaping materials, excavation dirt) stored in a manner that does not allow discharge of impacted stormwater (e.g., inside a shelter or containment structure; tarp-covered with barriers diverting runoff around the pile)?	☐	☐	☐		

Facility Name:_____ **Inspection Date:**_____

STORMWATER POLLUTION PREVENTION SITE INSPECTION FORM

I. POTENTIAL POLLUTANT SOURCE AREA INSPECTION AND BEST MANAGEMENT PRACTICES EVALUATION

H. Stormwater Control Structures: Visually inspect all stormwater control structures (e.g., catch basins, trench drains, grassy swales, ditches, drywells, channels, detention ponds, curbing – any structure that receives, conveys or holds stormwater at the facility); treatment devices (e.g., silt fences, filtration booms, storm drain filtration inserts); discharge areas (e.g., areas where stormwater flows off-site via sheet flow); and outfalls located on the property shown on the Site and Drainage Map (SWPPP Appendix D). ***(Note: Coordinate corrective actions with Operations Manager if necessary.)***	**Yes**	**No**	**NA**	**Findings and Corrective Action (CA) Documentation:** See instructions on page 1	**Date CA Completed:**
1. Are the control structures and treatment devices free from excessive debris/sediment/contaminant buildup that may block flow or impair function? Are they in good repair? Will the control structures and treatment devices function properly during a storm event or snowmelt? Are catch basin sumps free of excessive sediment/debris buildup that will inhibit settling? Are the control structures, treatment devices, discharge areas and outfalls free from evidence of spills and other pollutants?	☐	☐	☐		
2. Are discharge areas and outfalls free from evidence of non-stormwater flows? **Note**: If an **unauthorized** stormwater flow is identified, document a description and the source in the column to the right and immediately notify the Operations Manager. Refer to the SWPPP *Authorized Non-Stormwater Discharges* section and the Site and Drainage Map for a listing of authorized non-stormwater flows. Flows not listed in this section of the SWPPP, or on the Site and Drainage Map, may be considered unauthorized flows.	☐	☐	☐		
3. Outfalls and discharge areas where stormwater discharges directly to the receiving water (e.g., stream, river): Is the stream channel free from evidence of erosion caused by stormwater discharges from the facility?	☐	☐	☐		
4. Are exposed secondary containment structures free from high levels of stormwater that may significantly reduce the spill containment capacity? Are they free of contaminants that may be released with the accumulated water? Is the release valve locked or a sign present to prevent unauthorized personnel from releasing contents? If accumulated water needs to be removed the **Checklist for Draining Stormwater from Secondary Containments** must be completed *prior to* release to outdoor surfaces. Note: This form must also be used when draining stormwater from any large containment (e.g., dumpsters, outside bins).	☐	☐	☐		

Facility Name:_____ **Inspection Date:** _____

Completed inspection records will be retained in SWPPP Appendix A.

ANNUAL STORMWATER PROGRAM COMPREHENSIVE EVALUATION FORM

FACILITY NAME:	**DATE(s) OF EVALUATION:**

EVALUATOR(s) NAME – PRINTED:	I certify that the information in this form is to the best of my knowledge and belief, true, accurate, and complete. **Evaluator's Signature:**_____

I. REVIEW MAJOR ELEMENTS OF THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP):

	Yes	**No**	**NA**	**Description of Findings and Associated Corrective Actions (CA) and CA Date of Completion:**	**Date CA Completed:**
1. **SWPPP *Potential Pollutant Sources Table*:** Is the information in the *Potential Pollutant Sources Table* current and accurate?	☐	☐		Describe all findings below along with the actions taken or planned to correct the findings, and the schedule for corrective action completion, including the date initiated and date completed or expected to be completed in the column to the right. As a guideline, SWPPP modifications should be completed within 2 weeks and BMP modifications implemented within 12 weeks of this evaluation.	
2. **SWPPP *Best Management Practices*:** Are the best management practices (BMPs) listed in the SWPPP current and accurate? At a minimum review the BMPs listed in the SWPPP *Best Management Practices for Specific Industrial Activities, Good Housekeeping* and *Preventive Maintenance* sections.	☐	☐			
3. **Site and Drainage Map**: Review the Site and Drainage Map.					
a. Are significant structures (e.g., buildings, sheds, salt storage areas) and surface types (e.g., paved, gravel, grass) shown on the map? Is the facility's area (acres or sq ft) and the percentage of that area that is impervious (paved surface and building footprints) shown?	☐	☐			
b. Are the stormwater flow direction arrows correct? Are the flow arrows of sufficient density to define the drainage areas to each outfall and/or discharge area?	☐	☐			
c. Are all stormwater control structures, conveyances and/or BMPs (e.g., storm sewer drain inlets and associated underground piping; curbs/gutters; grassy or impervious drainage swales; etc.) that are located ***on or adjacent to*** the facility and that receive stormwater runoff from operational areas shown on the map? Note: If there is an underground storm sewer system at the facility, the map should include the piping, with flow direction arrows, and the locations where the system discharges (e.g., surface control structure; another underground piping system; water body).	☐	☐	☐		
d. Are all surface water bodies on or immediately adjacent to the facility shown on the map, including the name of the water body?	☐	☐	☐		
e. Are the locations of all visual exam points shown on the map?	☐	☐			
f. Are all discharge points (i.e., outfalls and discharge areas) labeled on the map?	☐	☐			
g. Are all of the authorized non-stormwater flows that discharge to outdoor surfaces shown on the map ***and*** listed in the map legend?	☐	☐	☐		
h. Are all locations and sources of run-on from outside the facility that may contain significant quantities of pollutants noted on the map?	☐	☐	☐		

ANNUAL STORMWATER PROGRAM COMPREHENSIVE EVALUATION FORM

I. REVIEW MAJOR ELEMENTS OF THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP): continued

3. Review the Site and Drainage Map. *continued*	Yes	No	NA	Description of Findings and Associated Corrective Actions (CA) and CA Date of Completion:	Date CA Completed:
i. Are all fueling areas shown on the map? Are the approximate locations of the fuel tanks and the type of storage tanks (e.g., AST, UST) shown on the map? Is the type of fuel indicated on the map (e.g., unleaded, diesel)?	☐	☐	☐	**Findings and Corrective Action (CA) Documentation:** See instructions on page 1	
j. Are all external loading/unloading areas (e.g., external docks, platforms) shown on the map?	☐	☐	☐		
k. Are significant outdoor salt storage, loading, and unloading areas shown on the map?	☐	☐	☐		
l. Are all non-mobile waste receptacles shown on the map (mobile waste receptacles used to transport trash will not be shown) and does the map indicate the waste receptacle type (e.g., dumpster, yard trash can, open-top container) and whether it is covered or not?	☐	☐	☐		
m. If present, are all of the following areas shown on the map: 1) Indoor ***and*** outdoor equipment maintenance areas; 2) Outdoor equipment maintenance material (e.g., parts, fluids, top-off supplies) storage areas and storage shelters (e.g., sheds, trailers, sealand containers, cabinets); 3) Outdoor equipment storage prior to maintenance areas; 4) Outdoor top-off areas; 5) If equipment maintenance fluid containers (e.g., tanks, drums) are stored outdoors, does the map show the location of the containers and does the map include a description indicating the type of fluid stored and the storage container type (e.g., AST, UST, drums); and 6) If the container is stored inside secondary containment is this noted on the map and whether the secondary containment can accumulate stormwater?	☐	☐	☐		
n. Are all outdoor equipment staging areas shown on the map?					
o. Are all indoor ***and*** outdoor equipment wash areas shown on the map (this includes areas used by mobile washing vendors and outdoor wash pads)? If wastewater from equipment cleaning is generated, does the map include a description of the wastewater disposal method (e.g., discharges to sanitary, pump/haul, septic system, reclamation/evaporation system, etc.)? If present, are all wastewater holding tanks and wastewater processing equipment (e.g., evaporation systems, reclamation systems) shown on the map?	☐	☐	☐		
p. If chemical/liquid containers (e.g., hydraulic oil, engine oil, salt additives) are stored outdoors, does the map show the location of the containers and does the map include a description indicating the type of chemical/liquid stored and the storage container type (e.g., AST, UST, drums)? If the container is stored inside secondary containment is this noted on the map and whether the secondary containment can accumulate stormwater?	☐	☐	☐		
q. Are all outdoor loose material storage piles shown on the map (e.g., building materials, salt storage piles, landscaping materials) with a description of the method used to eliminate exposure of stormwater to the material pile (e.g., inside a 3-sided enclosure with a roof; covered with secured tarp and flow is diverted around the pile) or eliminate discharges of stormwater impacted by these materials (e.g., pile is stored in a containment with no discharge)?	☐	☐	☐		

Facility Name: _____ **Evaluation Date**: _____

ANNUAL STORMWATER PROGRAM COMPREHENSIVE EVALUATION FORM

II. SWPPP RECORDS REVIEW:

The inspection requirements, the job functions that require training and the monitoring requirements are described in the SWPPP.	Yes	No	NA	
1. Since the last comprehensive evaluation, have secondary containment checklists (SWPPP Form 4) been completed for all releases of accumulated stormwater and are the records retained in SWPPP Appendix A?	☐	☐	☐	
2. Review the employee training records completed since the last comprehensive evaluation (Appendix B): Has employee training been completed for ***all functions*** as required by the SWPPP and are the rosters retained in SWPPP Appendix B?	☐	☐		
3. Review the results of the visual and analytical (if applicable) monitoring completed since the last comprehensive evaluation (SWPPP Appendix C):				
a. Has visual monitoring been performed as required by the SWPPP (e.g., required frequency, specified locations) and are these records retained in SWPPP Appendix C?	☐	☐		
b. Are the visual observations free of ***repetitive*** findings? NA applies when there were no findings.	☐	☐	☐	
c. If visual evidence of significant pollutant impacts were noted on the **Stormwater Monitoring Event Record** (Form 3), were the sources of the pollutants identified and were corrective actions to address these sources completed and recorded on the form? NA applies when there were no findings.	☐	☐	☐	
d. If visual evidence of significant pollutant impacts were noted on the **Stormwater Monitoring Event Record** (Form 3), were samples collected and submitted to the laboratory for analysis of the analytical indicator parameters described in the **SWPPP**? Are the lab reports for all of the analytical monitoring events retained in SWPPP Appendix C?	☐	☐	☐	
4. Review the **Annual Facility Inspection Report** completed since the last comprehensive evaluation (SWPPP Appendix A): Has the annual report and the associated attachment been submitted to the IL EPA in accordance with the deadline provided in the **SWPPP Facility Information Summary Table** retained in SWPPP Appendix G? If analytical monitoring samples were collected during the annual reporting period noted on the annual report, were the analytical results recorded on the annual report attachment?	☐	☐	☐	
5. Do the visual monitoring, analytical monitoring (if applicable) and site inspection results indicate that the employee training is adequate and that the site inspection frequency is sufficient to ensure that the SWPPP control measures and BMPs are being properly implemented and that control structures are operating properly?	☐	☐		

III. STORMWATER CONTROL MEASURES EFFECTIVENESS EVALUATION

	Yes	No	
1. **General BMP Inspection:** As part of the comprehensive program evaluation a site inspection will be performed. The results of this site inspection will be recorded on the **Stormwater Pollution Prevention Site Inspection Form** (Form 1). Note: The annual comprehensive site inspection can be conducted in conjunction with a scheduled site inspection or in addition to the scheduled site inspections performed each year.			**Findings and Corrective Action Documentation:** Record all findings and corrective actions associated with this inspection on the inspection form (Form 1).
- Has the site inspection been completed and the completed form attached to this evaluation?	☐	☐	

Facility Name: _____ **Inspection Date:** _____

Completed inspection records will be retained in SWPPP Appendix A.

FORM 2

ANNUAL STORMWATER POLLUTION PREVENTION TRAINING ROSTER

Facility Name:_____ **Year**:_____

TRAINING INSTRUCTIONS: The SWPPP Administrator, and/or a designated alternate, will coordinate stormwater pollution prevention training once per calendar year. All Facility personnel and all outside service vendors who perform any job functions ***on-site at the facility*** must receive stormwater pollution prevention training during the annual training period. Personnel that require stormwater pollution prevention training must review the entire **Stormwater Pollution Prevention Plan** and then sign the roster sheet below. Refer to the SWPPP employee training section, for additional information concerning outside service vendor training.

ROSTER SHEET:

DATE TRAINED (MM/DD/YY)	**JOB FUNCTIONS:** Below, list ***ALL*** of the job functions described in the table above that you perform. Use job function #.	**NAME (PRINTED)**	**SIGNATURE**

Completed training rosters will be retained in SWPPP Appendix B.

Rev. Date: 03/02/2015

FORM 3

STORMWATER MONITORING EVENT RECORD

FACILITY NAME:	**NAME(S) OF PERSONNEL PERFORMING STORMWATER MONITORING - PRINTED:**

INSTRUCTIONS: The visual monitoring points are identified as VEP-0i (visual exam point with the numerical designator i) on the Site and Drainage Map. Complete one **Stormwater Monitoring Event Record** for each location where monitoring samples are collected. Record the monitoring point identifier(s) below in Section I. If you observe visual evidence of ***significant*** pollutant impact, **not related to plant material or other natural causes** (e.g., grass, leaves, algae), be prepared to immediately collect additional samples to be submitted to the lab for analysis. Have your analytical monitoring equipment ready (e.g., sample cooler, sample bottles, chain of custody, bottle labels, additional collection containers) every time you perform the visual observations and review the instructions for analytical monitoring sample collection in the **SWPPP**. Blank forms are retained in SWPPP Appendix F. A current copy of these forms should also be retained in your monitoring kit.

Check *all* of the monitoring types completed for this discharge monitoring event:

☐ Visual Monitoring

☐ Analytical Monitoring (Analytical monitoring is only required if you observe visual evidence of ***significant*** pollutant impact. If analytical monitoring is required, the samples must be collected immediately and must meet the monitoring criteria outlined below.)

I. STORM EVENT INFORMATION:

Visual Exam Point:_____
Use a separate form for each visual exam point shown on the Site and Drainage Map (SWPPP Appendix D).

Date of Sample Collection: _____

Nature of Discharge:
☐Rain Runoff ☐Snowmelt

Sample Collection Information: Applies to visual and, if required, analytical samples.

Time 1:_____
Time stormwater started ***flowing*** at the sample collection point.

Time 2:_____
Time sample was collected.

Answer the following questions concerning the storm event: These questions apply to ***both*** visual and, if required, analytical monitoring samples.

1. Were the samples collected within one hour of stormwater, from either rain or snowmelt, starting to flow at the monitoring point (difference between Time 2 and Time 1)?
   ☐Yes ☐No
2. Were the samples collected from a storm event with total rainfall of greater than 0.1 inches (confirm using a rain gauge or Internet weather records from local weather stations)?
   ☐Yes ☐No ☐Not Applicable – Samples collected from snowmelt
3. Did this storm event occur at least 72 hours after the previous storm event that produced greater than 0.1 inches of total rainfall (i.e., it can drizzle, just no runoff)? If collecting samples from snowmelt, has there been at least 72 hrs without a discharge? ☐Yes ☐No
4. Were the samples collected during daylight? ☐Yes ☐No

II. VISUAL STORMWATER MONITORING:

In a well lit area inspect the sample for any visible evidence of pollutant impacts:	Is the stormwater free from visible evidence of pollutant impacts: **NO** – **Significant Impact:**	**NO** – **Minor Impact:**	**YES** – **No Impact:**	**Description of Visible Pollutant Impact:** If you answered "**No**" describe below the visual evidence of stormwater pollution (e.g., ***Clarity, Suspended, Settled Solids***: Sand/sediment particles present, muddy, cloudy; ***Color***: milky, clear-green; ***Odor***: rotten egg smell, petroleum smell; ***Floating Solids***: Trash, grass clippings, leaves).	**Potential Pollutant Source Description:** If you noted ***significant*** evidence of pollutant impact then determine the probable pollutant sources (including run-on of pollutants from neighbors) and record a description of the potential sources below.
				NOTE: If you observed visual evidence of ***significant*** pollutant impacts, not related to natural causes (e.g., grass, leaves), ***immediately*** collect additional samples to be submitted to the lab for analysis of the analytical indicator parameters**.**	
Color (i.e., not colorless)	☐	☐	☐		
Odor	☐	☐	☐		
Clarity (i.e., sample is cloudy)	☐ cannot clearly see indicator markers on exam jar	☐ some cloudiness but can clearly see indicator markers	☐ clear view of indicator markers though the sample		
Floating Solids	☐ All of the surface of the sample in the bottle and of the flow at the VEP are covered	☐ Some of sample surface and flow at VEP covered	☐ Very little of sample surface and flow at VEP covered (a few leaves, grass clippings)		
Settled and Suspended Solids (wait 30 min)	☐	☐	☐		
Foam	☐	☐	☐		
Oil Sheen	☐	☐	☐		
Other:	☐	☐	☐		

STORMWATER MONITORING EVENT RECORD

III. VISUAL AND ANALYTICAL MONITORING SAMPLE COLLECTION ISSUES: Describe below any problems that occurred during sample collection (e.g., samples collected from trickle flow; samples collected from pooled water after the rain stopped; sediments were disturbed in the flow path during collection) that may impact the visual or analytical results. Record below observations concerning evidence of pollutants on facility surfaces or in control structures (e.g., catch basins, ponds, swales) that could help explain high analytical results. Attach additional sheets if needed.

IV. CORRECTIVE ACTIONS: If there is visual evidence of ***significant*** pollutant impacts to stormwater discharges, record a detailed description below of the corrective actions completed to address these probable pollutant source(s), including the date(s) of completion. This space below can also be used to describe corrective actions taken to address non-compliance with the visual monitoring requirement. Attach additional sheets if needed.

V. NO QUALIFIED STORM EVENT OR NO STORMWATER DISCHARGE DURING QUARTER:

☐ **Check here if there were *NO* qualified storm events* or *NO* stormwater discharge during the *ENTIRE* quarter.**

☐ **Check here if there *WERE* qualified storm events* that resulted in a discharge of stormwater during the quarter and no visual monitoring was performed.** *Describe the corrective actions taken to ensure visual monitoring is performed as required by the Permit in the above section (Section III).*

****Qualified Storm Event:*** *A storm event resulting in total rainfall of >0.1", occurs 72 hrs after the previous storm event resulting in total rainfall of >0.1", **and** produces enough flow to collect the samples during daylight within 1 hr of flow starting at the visual exam point (i.e., if flow starts at 3:00 am and is not sampled until sunrise this is not a qualified event).* ***NOTE****: Qualified events **include** those storm events that occur during non-business hours (e.g., weekends, holidays) if the storm event meets all other permit monitoring criteria.*

- Record facility name and name of person completing the form at the top of the form.
- **Form Completion Date**:_____ *Don't complete this section of the form until after the end of the quarter.*
- **Applies To: Year**_____ **Quarter**_____
  (Description of Quarters: First Quarter: Jan-March; Second Quarter: April-June; Third Quarter: July-Sept; Fourth Quarter: Oct-Dec)
- **Applies to Visual Exam Point Numbers:**_____

VI. CERTIFICATION SIGNATURE:

I certify that the information in this form is to the best of my knowledge and belief, true, accurate, and complete.

Sampler's Signature:_____

Facility Name:_____ **Inspection Date:**_____

Completed monitoring records will be retained in SWPPP Appendix C.

CHECKLIST FOR DRAINING STORMWATER FROM SECONDARY CONTAINMENTS

FACILITY NAME:	**EVALUATION DATE:**
NAME OF INSPECTOR(s):	
DESCRIPTION OF TANK: *(e.g., used oil tank, fuel tank, UST piping sumps, dumpster, open-top container)*	

I. INSPECTION STEPS: Complete the following inspections **prior to releasing accumulated stormwater** (e.g., rainwater and/or snow melt) from secondary containment structures to outdoor surfaces.

	Yes	**No**
1. Inspect the ground surfaces in the path that the released water will flow over. Is the flow path free of excessive buildup of contamination that may be washed away by the released water (contaminants must be removed from the flow path **prior to** release)? ☐ Not Applicable (e.g., releases to storm sewer system via an underground pipeline)	☐	☐
2. In ***good light***, visually inspect the accumulated stormwater in the secondary containment		
a. Is the accumulated water free from oil sheen on the water surface?	☐	☐
b. Is the water reasonably clear (e.g., can you see the bottom of the containment), free of odor (e.g., petroleum, chemical, garbage/trash) and discoloration (should be colorless with no evidence of Liquitint® contamination)?	☐	☐
c. Is the accumulated water free from excessive floating debris that might be released with the water?	☐	☐
d. Is the accumulated water free from significant foam and/or scum?	☐	☐
e. Is the bottom of the containment free from an excessive buildup of sludge and sediments that may be released with the accumulated water?	☐	☐
f. Is the accumulated water free from ALL visual evidence of significant pollutant impacts (as defined in Form 3)?	☐	☐
g. Verify the release of the accumulated stormwater will not cause erosion or a discharge of sediments (e.g., release the water onto paved or heavily vegetated surfaces not to dirt surfaces, unless the velocity of the release will not cause a discharge of sediments).	☐	☐
☐ Not Applicable – The containment releases to a storm sewer system underground pipeline.		

II. DETERMINATION OF REMOVAL METHOD:

1. If you answered "***YES***" to **ALL** of the applicable questions listed in Section I (questions 1 and 2.a through 2.g) then the accumulated stormwater can be released on-site to outdoor surfaces. **CHECK HERE:** ☐ and record the date/time of the release below. Skip Section III.

   Date/time accumulated stormwater was released to outdoor surfaces:_____

2. If you answered "***NO***" to **ANY** of the applicable questions listed in Section I (questions 1 and 2.a through 2.g) then the accumulated water **CANNOT** be released on-site and must be removed for off-site disposal and the secondary containment should be cleaned to remove all residual contamination (e.g., have the contractor triple rinse the containment and remove all rinse water for off-site disposal). **CHECK HERE:** ☐ and proceed to Section III.

III. OFF-SITE DISPOSAL OF ACCUMULATED STORMWATER:

Contact the Operations Manager to arrange off-site disposal of the accumulated stormwater. ***Attach a copy of the disposal manifest to this checklist***.

Date accumulated stormwater was removed:_____

Was the secondary containment cleaned properly during removal of accumulated stormwater to remove all residual contamination? ☐ Yes ☐ No

APPENDIX G

General Facility Information

Facility Name (Facility ID): Chicago Rail & Port, LLC.

Site Mailing Address: 3245 East 103rd Street, Chicago, IL 60617

Site NPDES Permit #:

Permit Coverage Date:

Permit Expiration Date:

Permit Original Approved Coverage Date:

NOI Submitted Date:

Annual Reporting Period:

Annual Report Due Date:

Municipal Separate Storm Sewer System (MS4) Information: N/A

Receiving Water(s): Calumet River

Impaired Water Body Assessment:

The receiving water for storm water discharges from the Property has been identified as the Calumet River which is located in the Great Lakes/Calumet Watershed. This Property does direct discharge storm water to an impaired water named on the most current 303 (d) list of impaired waters prepared by the Agency, dated July 11, 2016, as part of the 2016 Illinois Integrated Water Quality Report and Section 303(d) List submitted to the USEPA. The table below provides a detail of the impaired receiving water, designated water use and impairments identified for each Facility outfall.

Facility Outfalls	Water Name	Water ID	HUC-10	Designated Use	Impairments
STM-01, STM-02	Calumet River	IL_HAA-01	0404000106	Fish Consumption	Mercury, PCBs
				Primary Contact Recreation	Fecal Coliform

A Total Maximum Daily Load (TMDL) for this receiving water has not been established.

SWPPP Team:

Position	Name	Telephone	Email
SWPPP Administrator	Austin Zenere, Executive Director	815-530-1678	azenere@zforcetransportation.com
Team Member	Jack Zenere, Operator	815-999-5962	ja.zenere@sbcglobal.net

APPENDIX H

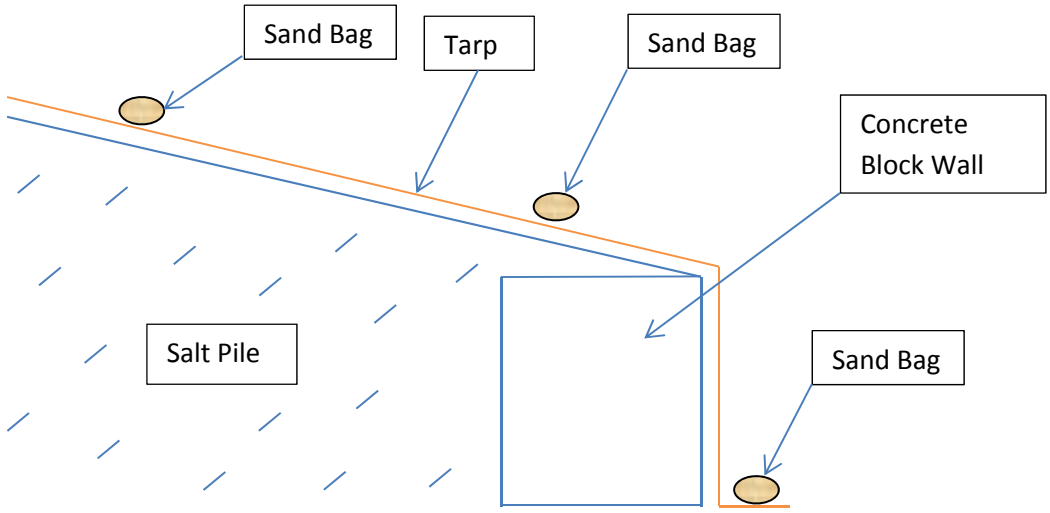
Guidance Documents

Tarping and Handling Procedures
Chicago Rail & Port, LLC

1. As a barge is unloaded the salt will be moved from the dock area to the salt storage pad to build a pile. The pile will be built in sections so that it can be stage-tarped.

2. Once the salt has been moved from the dock area to the salt storage pad, the dock area will be swept with a street-sweeper, as needed. All salt will be moved from the dock area to the salt storage pad daily. No salt is to remain on the dock overnight.

3. Once the first section of the pile is brought up to the proper height (proper height is determined by total salt planned for storage), sand bags will be placed on top of the tarp to secure it in place. This standard methodology is implemented so that precipitation is not trapped at the bottom of the pile and the tarp can be placed over the pile/blocks with no ponding (See schematic below).



4. Once the first section of tarp has been secured over the pile, all tarp seams will be sealed with an impermeable sealer to eliminate infiltration of precipitation to the salt pile.

5. The working face of the salt pile will remain open and will not be tarped in order to continue stockpiling of salt to the pre-existing pile. The tarp system will be installed in stages as the salt is delivered to the Facility.

6. Once all the salt is delivered to the Facility and the stockpile is complete, the tarp system will be finalized. The open face will be tarped and all seams will be sealed.

7. The Field Supervisor who is on-site will monitor the tarp system for rips and/or tears and will schedule and complete repairs as soon as possible once identified.

The Salt Storage Handbook

Salt Institute

The Salt Storage Handbook

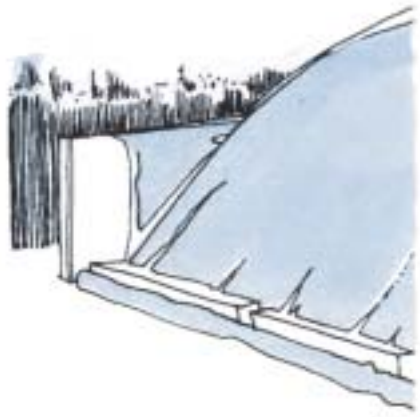
A Practical Guide for Storing and Handling Deicing Salt

Published by

Salt Institute

700 North Fairfax Street, Suite 600, Alexandria, VA 22314-2040

Contents



Foreword

Salt has been used for thousands of years as a food preservative and a taste enhancer. It is essential to human nutrition. Today it has additional functions in food processing and is also used in animal nutrition, in water softening and in industry. The chemical industry uses it to make chlorine and caustic soda that, in turn, are used to produce hundreds of products. One of the principal uses of salt is for deicing of streets and highways to assure safe driving conditions. Use of salt and plowing prevents 7 of every 8 crashes that would occur on untreated snow and ice-covered winter roadways.

Approximately 33 million tons of dry salt are produced each year in the United States and Canada. Some 15-25 million tons of it are used as deicing salt, the largest single usage.

Salt has been used since the 1940s as a major weapon in combating ice and snow on streets and highways. Today nearly all agencies responsible for winter maintenance in the United States and Canada use salt as one of the major tools to remove snow and ice quickly from roads.

Salt prevents the bonding of ice and snow to pavement surfaces, permitting more efficient and faster removal of hazardous snow and ice. Mostly, salt is used in conjunction with plowing. Without salt, snowplows cannot completely remove snow and ice from road surfaces.

On ice, and in cases where snow isn't deep enough, or where it isn't practical to plow, salt often is used alone.

Salt is the ideal deicing material because:

- It is readily available
- It is inexpensive
- It is easy to store and handle
- It is easy to spread
- It is non-toxic and harmless to skin and clothing
- It is harmless to the environment when used and stored properly.

Many deicing salt users are making every effort to ensure protection of the environment through proper storage and application practices, something we call Sensible Salting.

Salt is abundant in the earth and the sea. However, getting it where it is needed and on time has become more difficult with today's necessity for year-round mobility. The availability of ships, barges, railcars and trucks, the time of ordering and the weather itself all play an important role in salt delivery.

Good storage facilities with adequate capacity can go a long way toward guaranteeing sufficient salt when it is needed to maintain a high level of winter maintenance for the safety and mobility of motorists and the unimpeded movement of goods and services. Because salt is so vital, proper storage must be provided to protect it from the elements and to protect the environment. Good storage becomes even better with proper housekeeping around storage areas.

We hope this manual will help you in planning or improving your salt storage facilities and provide guidance for good storage and handling procedures.

Why Bulk Storage?

Why should a public works agency use proper bulk salt storage facilities?

There are three answers - economy, availability and convenience.

Bulk salt is the most economical deicing material available. Initial cost is low. Handling and storage are simple. Spreading is fast and easy.

Salt never loses its ice melting power no matter how long it is stored or how old it is. Salt is already millions of years old when it is mined. Each year thousands of tons of salt are stored and carried over to be used the next year. It is just as effective as though freshly mined or harvested. Neither is there any loss to moisture from the air if salt is stored properly. Salt does not absorb moisture until the humidity exceeds 75 per cent. Moisture that is absorbed will later evaporate, but there may be a thin crusting on the surface of the stockpile that is easily broken up.

Salt, however, can be lost to precipitation. Stockpiles, whether large or small, should never be left exposed to the elements - rain or snow. Storage should always be done on impermeable pads, either in a building or covered with one of the many types of temporary covering materials, such as tarpaulin, polyethylene, polyurethane, polypropylene or Hypalon. These materials are also available with reinforcement for added strength. Proper storage inside a building or under cover will also prevent possible detrimental effects on the environment. When salt is stored outside, runoff must be properly controlled.

Why Store Salt Properly?

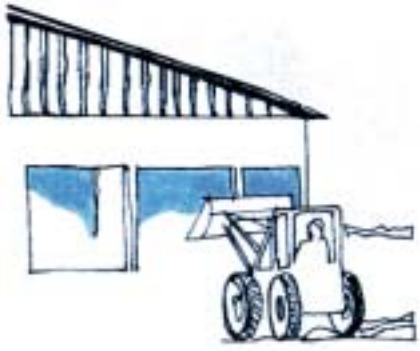
Properly stored salt will:

- Prevent formation of lumpy salt that is difficult to handle with loaders and to move through spreaders,
- Eliminate the possibility of contaminating streams, wells or groundwater with salt runoff,
- Eliminate the loss of salt by runoff and dissolving by precipitation.

Anticaking Additives. The best way to prevent or minimize caking is to store salt under cover. Most salt producers add anticaking agents. However, if left exposed to weather, anticaking agents can be washed from the outer layer of salt.

Crushers. Avoid the necessity to use crushers to get rid of lumps in salt by storing salt under cover where anticaking agents will not be washed out and crusting will be minimal. Crushers are not always readily available and they can be costly.

Adequate bulk storage assures enough salt to fight winter storms, without the problem of arranging emergency shipments throughout the winter months.



How Much is Needed?

Order enough. Ideally, there should be storage room for at least 100% of the estimated average winter's salt requirements.

It is wise to take early delivery of winter supplies and store the material until it is needed. Suppliers do their best to maintain deliveries and service salt users from strategically located stockpiles. However, replenishment of salt stockpiles becomes difficult during heavy demand periods, such as during back-to-back winter storms. It is always best to keep your sheds full to eliminate large backlogs of orders at stockpiles, speeding deliveries.

How Much Salt Will Be Needed This Winter?

Estimating future salt requirements is tough. Few public works officials ever hit the figure right on the nose. Here are a few guidelines for estimating future salt needs:

1. Never reduce last winter's figure simply because you hope next winter will be milder. Make realistic estimates based on average needs over the previous five or ten-year period.

2. Be sure to take into account new mileage added to your road or street system. Don't overlook new subdivision streets, Interstate or express highways and routes acquired from other political subdivisions.

3. Improve winter maintenance operations. Going to straight salt, including applying liquid brine or pre-wet solids, or adding more salt routes can substantially influence salt requirements while providing a higher level of service.

Serious consideration should be given to the possibility of unseasonably cold temperatures, blizzard conditions, prolonged cold spells and unusually large amounts of snow. All of these conditions, though unpredictable, will affect your use of salt one way or the other.

Use the chart below to figure approximate salt needs for your area.

TABLE 1: SALT REQUIRED PER SEASON

SHORT TONS/METRIC TONS
Based on 4 applications per storm Per 2-lane Mi/Km

Number of Storms	Two Lane Highway on Bare Pavement						
Mi	100	200	300	400	500	600	700
Km	161	322	483	644	804	965	1126
4	400	800	1200	1600	2000	2400	2800
	363	724	1089	1452	1814	2177	2540
6	600	1200	1800	2400	3000	3600	4200
	544	1089	1633	2177	2722	3266	3810
8	800	1600	2400	3200	4000	4800	5600
	726	1452	2177	2903	3629	4355	5080
10	1000	2000	3000	4000	5000	6000	7000
	907	1814	2722	3629	4536	5443	6350
12	1200	2400	3600	4800	6000	7200	8400
	1089	2177	3266	4355	5443	6532	7621
14	1400	2800	4200	5600	7000	8400	9200
	1270	2540	3810	5080	6350	7621	8346
16	1600	3200	4800	6400	8000	9600	10200
	1452	2903	4355	5806	7258	8709	9253
18	1800	3600	5400	7200	9000	10800	11600
	1633	3266	4899	6532	8165	9798	10524
20	2000	4000	6000	8000	10000	12000	14000
	1814	3629	5443	7258	9072	10886	12700

Order Salt Early

Plan your salt program early. Summer is best. Remember that your purchasing process can impose waiting periods between the time bid notices are advertised and a supplier is selected. Start your procurement process to allow sufficient time to take pre-season delivery.

Work with your salt supplier to take delivery in the summer or fall, taking advantage of logistics factors in your supplier's supply chain. Early delivery is generally better. It ensures a ready supply and allows your supplier to prepare a suitable stock point in your area. Salt cannot be transported up the Mississippi River, for example, once the waterways are frozen and winter closes most Great Lakes ports.

Should in-season re-supply be required, re-order before on-hand inventories are depleted. Check inventory levels frequently and always before a forecasted storm.

Select the Right Site

The most critical step in providing good storage is selecting the storage site. S-A-L-T-E-D is the key word in picking the right spot.

Safety - Always make safety for workers and the general public a prime concern at a storage site. Equipment operators need good visibility in all directions. Access roads should not open directly into heavily traveled routes. Post signs to warn motorists that trucks enter and leave the area. Make sure the area is secure, preferably fenced, to prevent entrance by unauthorized persons. Children can be attracted by salt piles, which could be dangerous for them. It is also essential to secure the area in such a way as to provide safety for the surrounding environment.

Make it safe!

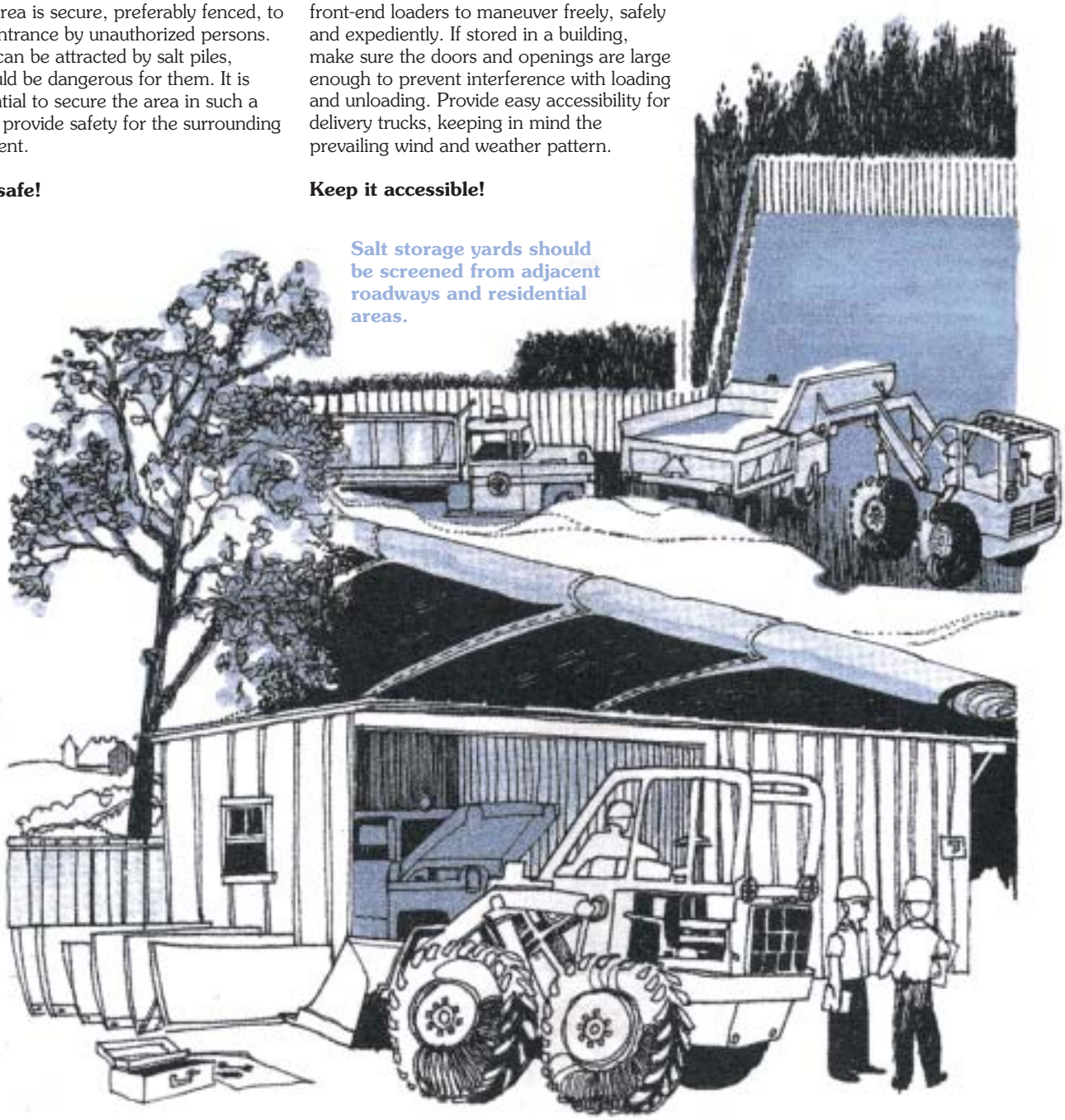
Accessibility - Storage sites should permit easy access by trucks and other equipment entering and leaving these areas during storms, when visibility is low. Plan accordingly.

The storage area must be large enough for front-end loaders to maneuver freely, safely and expediently. If stored in a building, make sure the doors and openings are large enough to prevent interference with loading and unloading. Provide easy accessibility for delivery trucks, keeping in mind the prevailing wind and weather pattern.

Keep it accessible!

Legality - You must comply with local zoning requirements, as well as local, state and federal regulations governing environmental discharge concerns.

Keep it legal!



Salt storage yards should be screened from adjacent roadways and residential areas.

Tidiness - Make storage facilities blend with local surroundings when possible, especially in residential areas. They should be well kept, with no junk or scrap material piled around that would give an impression of sloppiness or waste and allow the possibility of getting foreign objects in spreaders.

"Live" fences offer an attractive alternative to chain link or wood.

Salt spilled during delivery or loading must be cleaned up and returned to the storage structure as soon as possible.

Be a good neighbor. Keep it tidy!

Economics - Locate and distribute storage facilities so that empty trucks don't have to "dead-head" long distances to reload. This reduces operating costs and speeds up spreading operations.

Permanent covered storage is a good method. Unprotected piles waste salt and could be harmful to the environment.

Keep it economical!

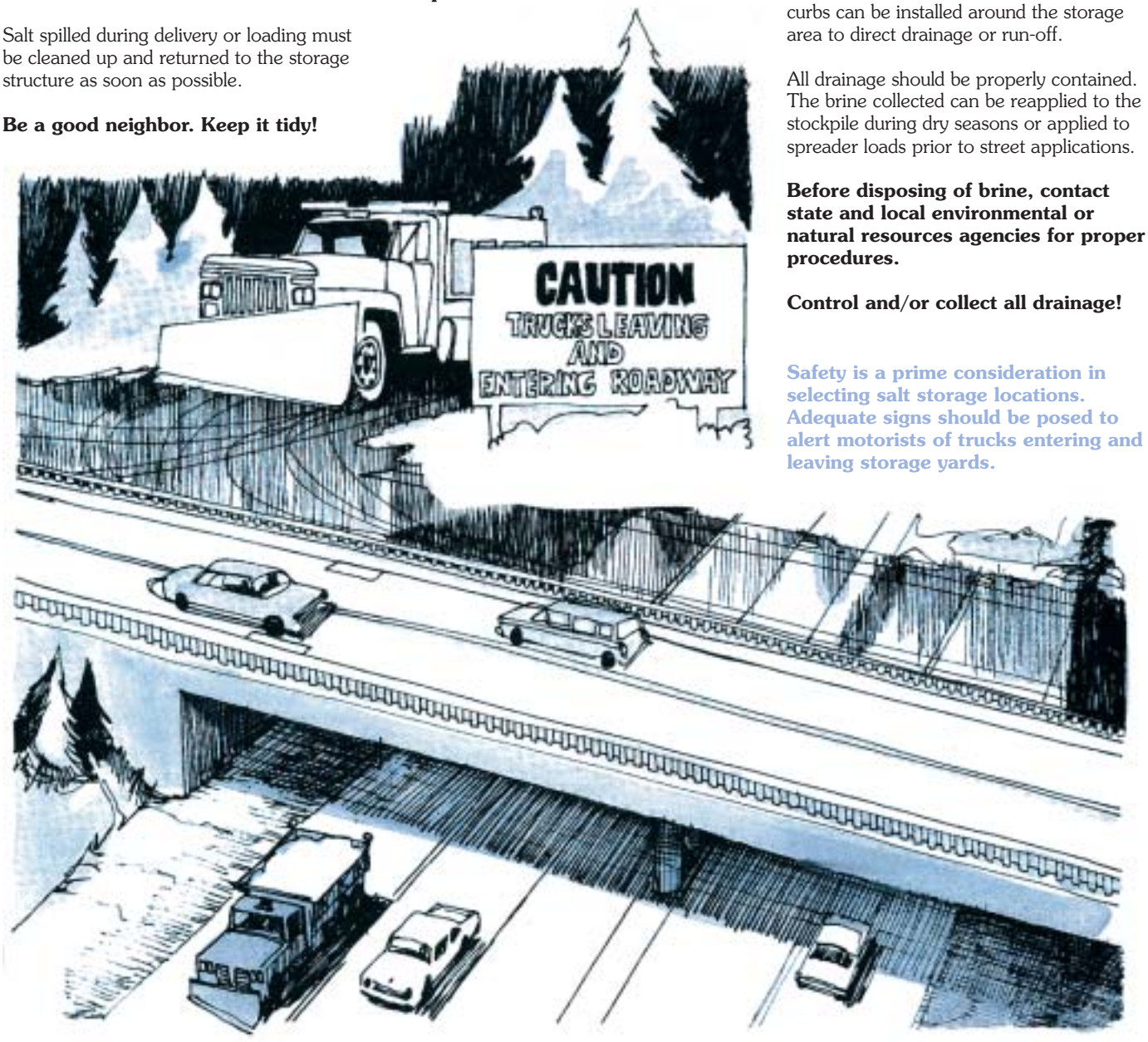
Drainage - Locate all storage structures to provide good drainage away from the stockpile. Pads should have a slope of 1/4 inch per foot away from the center. Pads, aprons and other adjacent work areas should be capable of supporting the stockpile and equipment.

Ensure that your storage area does not accidentally drain into a freshwater reservoir, well or groundwater supply. If needed, curbs can be installed around the storage area to direct drainage or run-off.

All drainage should be properly contained. The brine collected can be reapplied to the stockpile during dry seasons or applied to spreader loads prior to street applications.

Before disposing of brine, contact state and local environmental or natural resources agencies for proper procedures.

Control and/or collect all drainage!



Safety is a prime consideration in selecting salt storage locations. Adequate signs should be posed to alert motorists of trucks entering and leaving storage yards.

How Much Space Will It Occupy?

There is a limit to how much salt you can store in a given area. From certain facts about salt's physical characteristics, we can determine in advance how much space a known amount will occupy.

When deicing salt falls freely into a pile, it forms a cone with sides that slope at an angle of 32 degrees, salt's natural angle of repose. Other types and gradations of salt have slightly different angles of repose but are within one or two degrees.

The density of deicing salt ranges from 72 pounds per cubic foot loose to 84 pounds compacted. When calculating storage space requirements, use the figure 80 pounds per cubic foot (equivalent to 1281.4 kg/m^3).

When using 80 pounds per cubic foot, a cubic yard of salt weights 2,160 pounds. Thus, a ton of salt would require 25 cubic feet of storage space (equivalent to 21.06 m^3/metric ton of salt).

All calculations in this publication are based on a density for salt of 80 pounds per cubic foot.

Space requirements in Stockpiles. It is possible to calculate the area requirements of any cone-shaped salt stockpile, since the slope of the pile is known.

Table 2 lists characteristics of conical salt piles containing varying amounts of salt. For example, look at the column for 1,000 tons of salt and read across to the right. This much salt, stored in a cone-shaped pile, will occupy a space 67'1" in diameter, or 3,540 square feet. The pile's height will be 21 feet and the length of its slope from ground to peak 40 feet. Volume of the pile would be 25,000 cubic feet. It would have an exposed surface area of 4,180 feet (important if you wanted to cover the pile and needed to know how much polyethylene, canvas or other covering material to order).

It is also possible to calculate the dimensions required for salt stored in a windrow shape with conical ends. Table 3 shows how much salt may be stored per running foot in windrows of various heights. Width requirements are also shown. For example, 2.4 tons of salt may be stored per running foot of a windrow-shaped pile with a base 19'4" wide and a height of six feet.

TABLE 2: STORING SALT IN CONICAL PILES

Salt Short Tons metric tons	Diameter of Pile ft m	Space Occupied by Pile ft^2 m^2	Height of Pile ft m	Length of Slope from Ground to Peak ft M	Volume of Pile In ft^3 m^3	Exposed Surface Area ft^2 m^2
24 21.8	19.33 5.89	295 27.41	6.0 1.83	11 3.35	600 17.00	339 31.49
50 45.7	24.67 7.52	479 44.50	8.0 2,44	15 4.57	1,250 35.38	565 52.49
80 72.6	28.92 8.81	655 60.85	9.0 2.74	17 5.18	2,000 56.60	773 71.81
100 90.7	31.17 9.50	765 71.07	10.0 3.05	18 5.49	2,500 70.75	904 83.98
200 81.4	39.33 11.99	1,213 112.69	12.5 3,81	23 7.01	5,000 141.50	143.2 133.3
300 272.2	45.00 13.72	1,595 148.18	14.0 4.27	27 8.23	7,500 212.25	1,877 174.37
400 362.9	49.42 15.06	1,916 178.00	15.5 4.72	29 8.84	10,000 283.00	2,260 209.95
500 453.6	53.33 16.25	2,240 208.10	17.0 5.18	32 9.75	12,500 353.75	2,640 245.26
600 544.3	56.67 17.27	2,530 235.04	18.0 5.49	34 10.36	15,000 424.50	2,980 276.84
700 635.0	59.58 18.16	2,790 259.19	18.5 5.64	35 10.67	17,500 495.25	3,290 305.64
800 725.8	62.33 19.00	3,050 283.35	19.5 5.94	377 11.28	20,000 566.00	3,610 335.37
900 816.5	64.83 19.76	3,310 307.50	20.5 6.25	38 11.53	22,500 636.75	3,900 362.31
1,000 907.2	67.08 20.45	3,540 328.87	21.0 6.40	40 12.19	25,000 707.50	4,180 383.32
2,000 1,814.4	84.50 25.76	5,620 552.10	26.5 8.08	50 135.24	50,000 1,415.00	6,630 615.93
3,000 2,721.6	96.83 29.51	7,380 685.60	30.5 9.30	57 17.37	75,000 2,122.50	8,710 809.6
4,000 3,628.8	106.50 32.46	8,880 824.95	33.5 10.21	63 19.20	100,000 2,830.00	10,470 972.66
5,000 4,536.0	115.00 335. 0 5	10,370 963.37	36.0 10.97	68 20.73	125,000 3,537.50	12,230 1,136.17
6,000 5,443.2	122.00 37.19	11,700 1,086.93	38.5 11.73	72 21.95	150,000 4,245.00	13,810 1,282.95
7,000 6,350.4	128.33 39.11	12,960 1,203.98	40.5 12.34	76 23.16	175,000 4,952.5 0	15,290 1,420.44
8,000 7,257.6	134.17 40.90	14,130 1,312.68	42.0 12.80	779 24.0S	200,000 5,660.00	16,680 1,549.57
9,000 8,164.8	139.83 42.62	15,400 1,430.66	44.0 13.41	83 25.30	225,000 6,367.50	18,170 1,687.99
10,000 9,072.0	144.67 44.10	16,410 1,524.49	45.5 13.87	85 25.91	250,000 7,075.00	19,370 17,911.47

TABLE 3: STORING SALT IN WINDROWED PILES

Salt in Each Running Foot/Meter of Windrow

short tons metric tons	Width ft m	Height ft m	Exposed Surface Volume ft³ m³	Area ft² m²
2.4	19.3	6.0	59	23
2.18	5.89	1.83	1.67	2.14
3.8	24.7	8.0	96	29
3.45	7.52	2.44	2.72	2.69
5.2	28.9	9.0	131	34
4.72	8.81	2.74	3.71	3.16
6.3	31.1	10.0	158	37
5.72	9.50	3.05	4.47	3.44
9.7	39.3	12.5	243	46
8.80	11.99	3.81	6.88	4.27
12.7	45.0	14.0	318	53
11.52	13.72	4.27	9.00	4.92
15.3	49.4	15.5	383	58
13.88	15.06	4.72	10.84	5.39
17.9	53.3	17.0	447	63
16.24	16.25	5.18	12.65	5.85
20.2	56.67	18.0	505	67
18.33	17.27	5.49	14.30	6.22
22.3	59.58	18.5	557	70
20.23	18.16	5.64	15.76	6.50
24.4	62.3	19.5	610	74
22.14	19.00	5.94	17.26	6.87
26.3	64.83	20.5	657	77
23.86	19.76	6.25	18.60	7.15
28.3	67.1	21.0	708	79
25.67	20.45	6.40	20.04	7.34
44.8	84.5	26.5	1,120	100
40.64	25.76	8.08	31.70	9.29
58.8	96.83	30.5	1,470	114
53.34	29.51	9.30	41.60	10.59
771.2	106.50	33.5	1,780	126
64.59	32.46	10.21	50.37	11.71
83.2	115.00	36.0	2,080	136
75.48	35.05	10.97	58.86	12.63
93.6	122.0	38.5	2,340	144
84.91	37.19	11.73	66.22	13.38
103.6	128.33	40.5	2,590	151
93.99	39.11	12.34	73.30	14.03
113.2	134.2	42.0	2,830	158
102.70	40-90	12.80	80.09	14.68
122.8	139.8	44.0	3,070	165
111.4.0	42.62	13,41	80.88	15.33
131.6	144.67	45.5	3,290	171
119 .39	44.10	13.67	93.11	15.89.

Table 3 gives the capacity only for the windrow section of the pile. Figure the dimensions of the cone-shaped end sections from Table 2.

Space requirements in buildings. To figure how much space will be required to store salt in a bin or building, divide the weight in pounds of salt to be stored by 80 to obtain the number of cubic feet required and deduct the amount of space lost due to the slope of the pile at the front of the building.

The amount of storage space that cannot be used due to salt's "angle of repose" will depend upon the height of the pile and the width of the building. Here are some typical calculations:

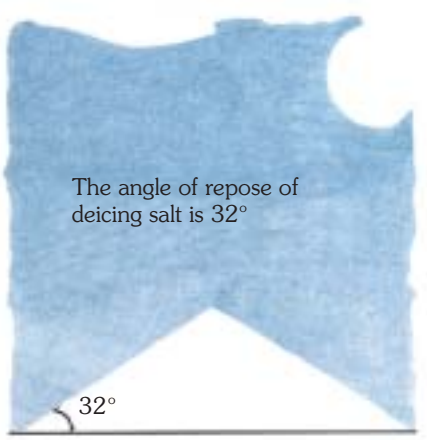
TABLE 4

Height of Pile ft m	Width of Bay ft m	Deduct This Amount short tons metric tons
8	12	24.4
2.44	3.66	22.14
10	12	38.2
3.05	3.66	34.66
12	12	54.9
3.66	3.66	49.81
15	12	85.8
4.57	3.66	77.84
20	12	152.6
6.10	3.66	138.44

H x H x W x 0.0318 = Lost Tonnage due to Angle of Repose

Thus, storage capacity of a building 30 ft wide and 40 ft deep, with salt piled ten ft high, would be 384 tons.

$$\frac{30 \times 40 \times 10 \times 80}{2000} - (10 \times 10 \times 30 \times 0.0318) = 384 \text{ Tons}$$



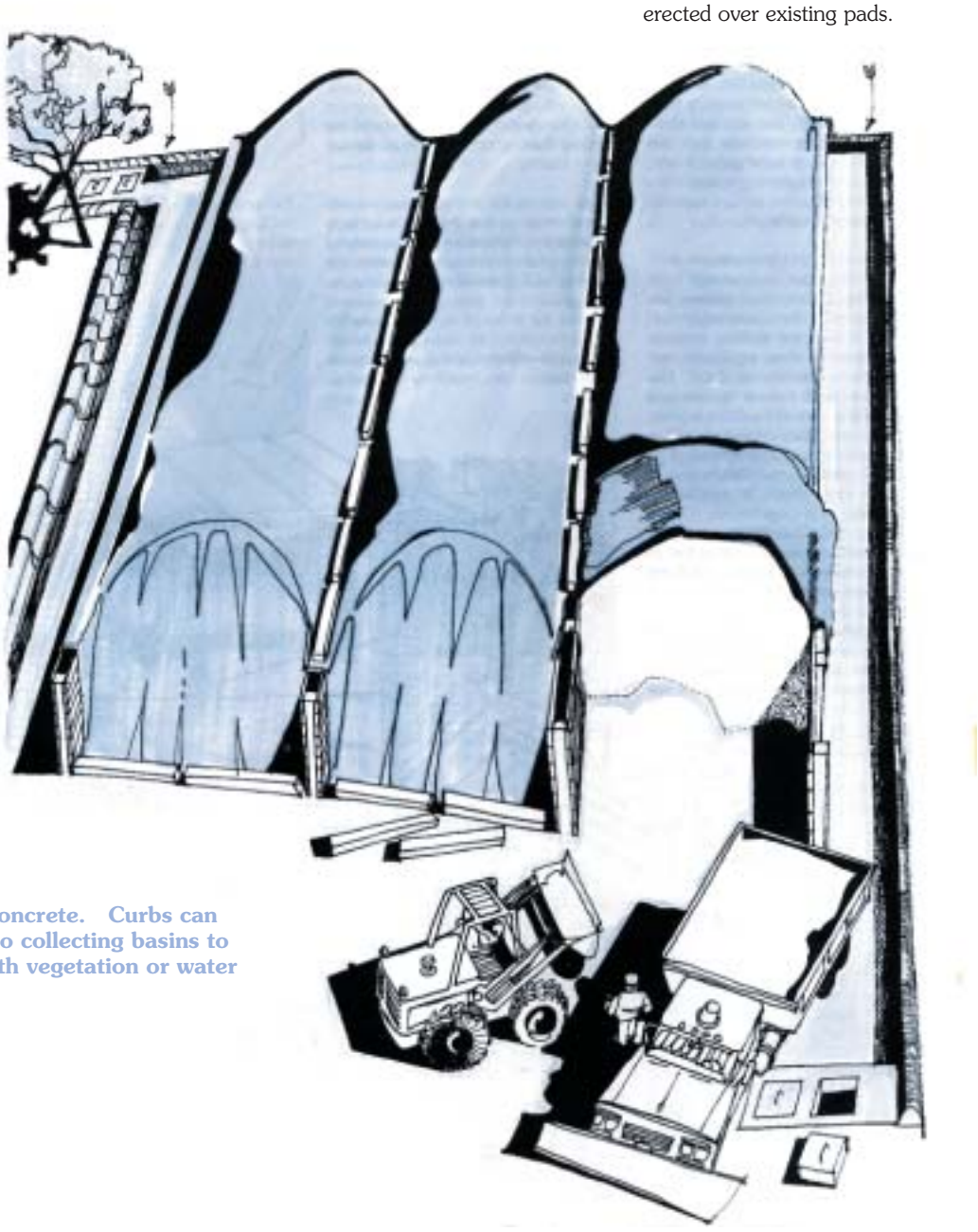
Put It On A Pad

Permanent, covered storage is recommended, particularly for small piles which are not actively managed. It is also acceptable to store salt in outdoor stockpiles on bituminous or concrete pads. This low-cost method provides maximum storage space and easy access. Whether stored inside or outside, salt always should be on a pad. If outdoor storage is used, it must be properly covered.

The pad site should be located away from wells, reservoirs and groundwater supplies. If pads are constructed of concrete, they must be high quality, air-entrained and treated with sealants, asphaltic-type coatings, or other treatments to keep salt out and prevent spalling. Total thickness of surface and base for asphalt pads will vary, depending upon the condition of the subgrade and weight to be supported. Any asphalt surfacing material used by highway departments is satisfactory.

Slope pads to let surface water drain away. Let local conditions control the direction of slope to avoid excessive grading. Minimum slope is one to two per cent. For good drainage, install ditches, pipes and tile where necessary. In some cases, it may be necessary to install pipes, tiles or asphalt berms to channel water to a collection point, preferably a specially designed sump area.

Pads may later be framed on three sides to form a bin, or storage buildings may be erected over existing pads.



Curbing asphalt or concrete. Curbs can direct salt run-off into collecting basins to prevent problems with vegetation or water supplies.

Put it Under Cover

Salt stored in bins or on pads outdoors may be covered with a variety of materials, including:

- Polyethylene
- Polypropylene
- Hypalon
- Polyurethane foam
- Water-resistant canvas
- Any other suitable waterproof cover (All of the above may be reinforced for added strength).

To join flexible coverings, lap and sew together with a two-inch standing seam, using a sewing machine suitable for such purpose. This gives a relatively waterproof and durable seam for most of these coverings. Taping of sewn seams improves waterproofing.

Industrial adhesive tapes may also be used to join coverings but sewing is preferable.

Old tires (which are unacceptable in some places) or sand bags lashed together with rope or cable and placed uniformly over the flexible cover provide a suitable tie-down weighting method. Also available for tying covers are poly-cord nets. Be sure to weight down the base of the cover to keep wind from peeling covers off salt piles. Timbers or sand may be used.

A good method for covering smaller piles of deicing salt is the ground level storage shed or building. Storage structure size will vary with individual needs. There are as many types of storage buildings as there are ideas. Many agencies have developed their own particular style. Most buildings, of course, are let for bid, but there are also many that are built with spare or used materials and the agency's own labor.

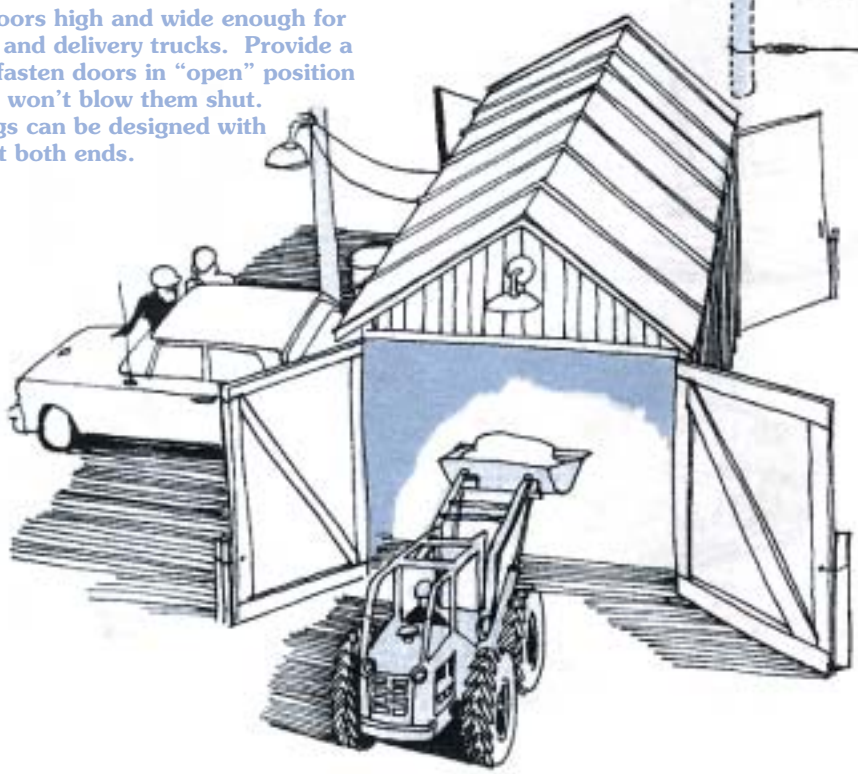
Various pre-fabricated buildings are available. If building your own, storage buildings may be constructed of pressure treated timbers, assorted lumber, old bridge timbers and decking, concrete blocks, corrugated sheet metal or a variety of other materials on hand. Use treated posts and timbers in pole-type buildings. Make sure all hardware is galvanized. Concrete block buildings should be treated inside with a suitable sealant or coated with asphaltic material. In case of open ends, cover should be supplied for exposed salt.

A good, properly drained pad is just as important when salt is stored in a building as when stored on an open pad.

Doors on buildings must be high and wide enough to permit easy access by front-end loaders and delivery trucks. Door openings should be a minimum of 20 feet wide. Hinge doors to allow fastening in the "open" position so that high winds won't hinder operations.

Tie corner posts of storage buildings together with underground galvanized cables with turnbuckles.

Make doors high and wide enough for loaders and delivery trucks. Provide a way to fasten doors in "open" position so wind won't blow them shut. Buildings can be designed with doors at both ends.



Make sure any overhang in front of the building does not complicate truck unloading or loading.

Areas around the building must be well lighted. Inside of buildings, place lights to the side and high to keep from covering wiring or light fixtures with salt when the building is full to avoid corrosion damage.

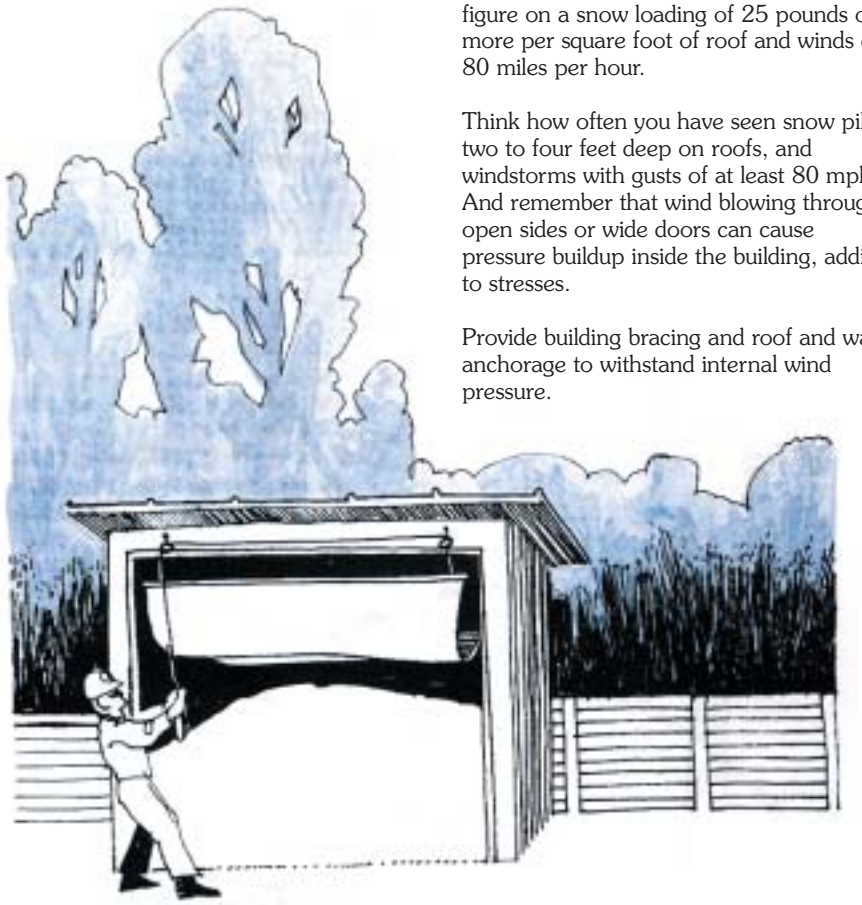
Painting the inside of the storage facility with light-colored or white paint will enhance light reflectance, provide maximum visibility and may be a very worth-while expense.

Build it strong

Wind and snow are enemies of storage buildings. For adequate building design, figure on a snow loading of 25 pounds or more per square foot of roof and winds of 80 miles per hour.

Think how often you have seen snow piled two to four feet deep on roofs, and windstorms with gusts of at least 80 mph. And remember that wind blowing through open sides or wide doors can cause pressure buildup inside the building, adding to stresses.

Provide building bracing and roof and wall anchorage to withstand internal wind pressure.



Provide pull-down cover for open-end storage buildings; one method is shown here.

The following design considerations should be taken into account to allow for effects of wind and snow:

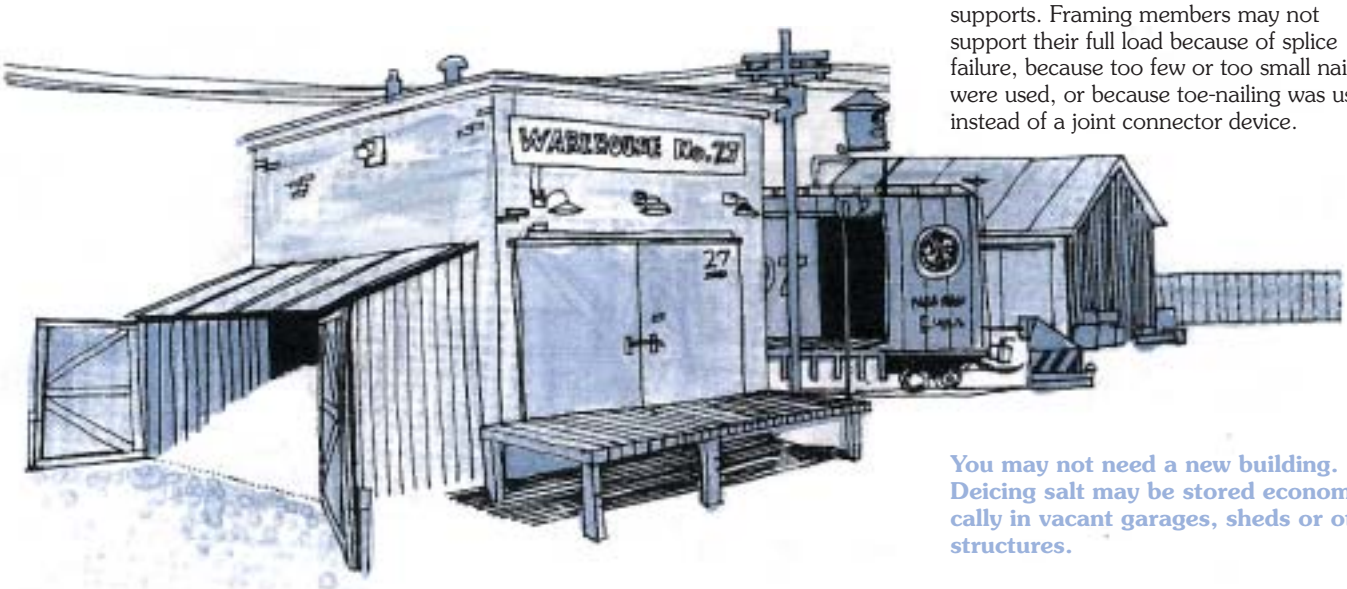
1. Location and Arrangement - Trees and other barriers may help shield a building against strong winds and snow, but putting a building too near a tree line may cause snow to accumulate around the building.

2. Foundation and Anchorage - Buildings tend to move with the wind; strong winds can lift a roof or collapse a wall. Buildings must be anchored securely to resist these pushing and lifting forces. Common mistakes are failing to anchor sills securely to foundations and using poles that are too small, too far apart or not embedded deeply enough.

A general guide is to embed sound, pressure-treated poles four feet or more into undisturbed soil or set in concrete. Use closer pole spacings, heavier poles and deeper embedment for very high pole buildings.

3. Construction practices - Poor construction causes many building failures. Knee bracing may be skimpy, building crossties poorly located, joints poorly fastened or framing members too small.

Whole roof and wall sections may blow off as a unit because a building literally comes apart at the seams. Common failures occur when rafters give way at plate lines, building corners become detached, or purlin and nailing girts are pulled loose from their supports. Framing members may not support their full load because of splice failure, because too few or too small nails were used, or because toe-nailing was used instead of a joint connector device.



You may not need a new building. Deicing salt may be stored economically in vacant garages, sheds or other structures.

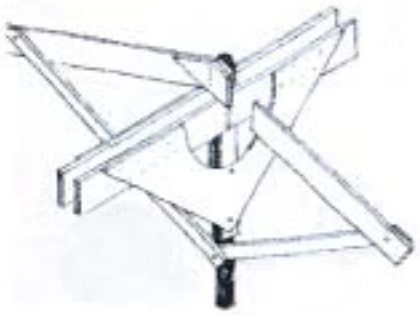
4. Building Materials - Lumber defects, such as knots or splits, may cause main supports to fail, especially under heavy snow weight. Failure of a weak member means adjacent members have to support more load, leading to their failure.

Wind damage to corrugated sheet metal is common. Sheets come loose because of too few nails, poor anchorage or nail heads pulling through. Use 90 to 100 screw shank nails per 100 square feet of corrugated steel roofing. One-half to two-thirds of the nail should be embedded in the support member.

Use only exterior type plywood for sheathing, gusset plates, braces, doors and other building parts exposed to moisture and weathering.

Building and bin walls must withstand pushing from front-end loaders and pressure from stored salt. This calls for deep embedment of poles or proper construction of concrete block sides. Exterior bracing or earthen support may be

Allow adequate tie-down for fastening rafters to purlins. This is typical bracing. Rafters and purlin sizes will vary with building sizes and pole spacing during construction.



To anchor sills, use 1/2-inch anchor bolts 16 inches long. 12-inches deep in 6- or 8-inch poured concrete foundation. Space not over 5 feet. Use 1 3/4-inch round washers; two 2 x 4- or two 2 x 6-inch members for sill.

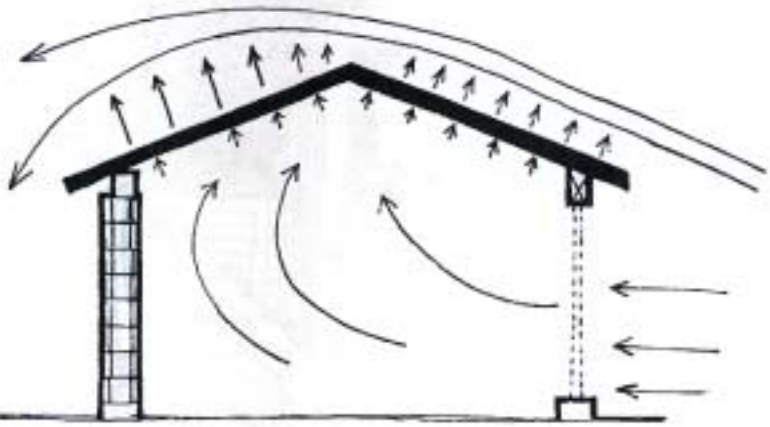
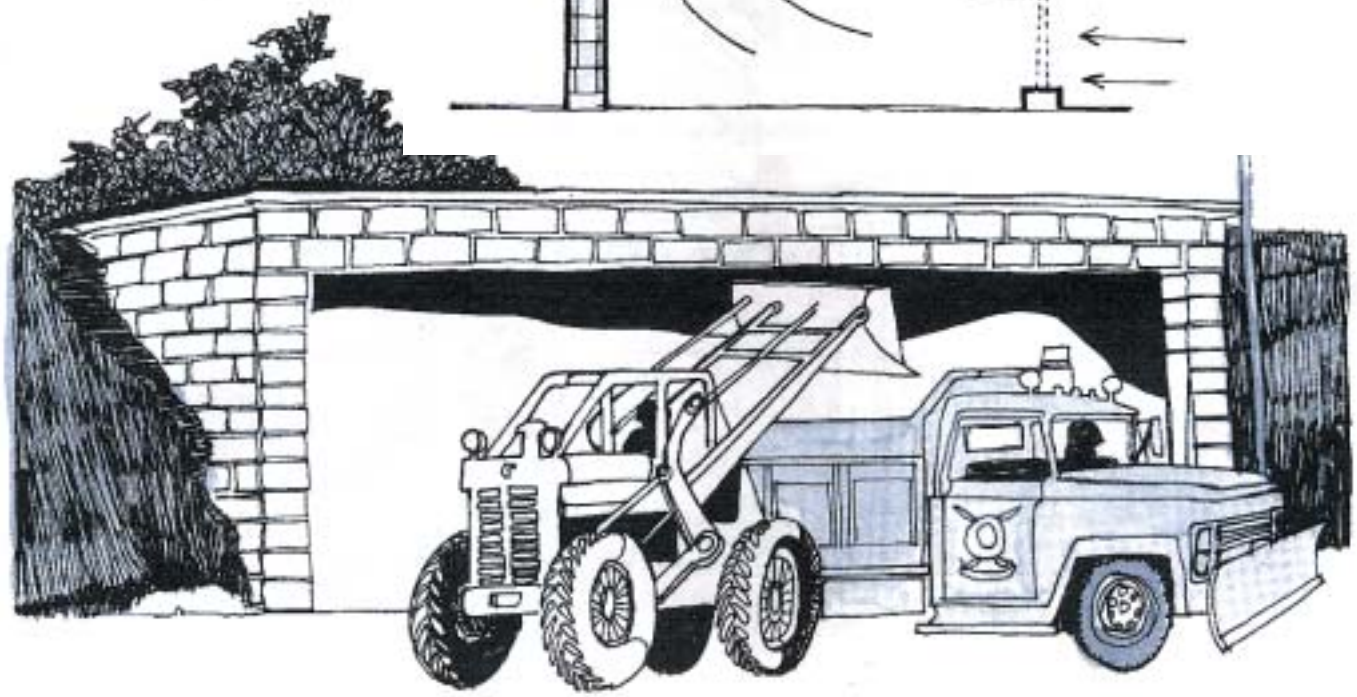


Diagram shows effect of wind blowing into open doors of a salt storage building.



required to prevent loaders from pushing the walls out. The salt alone creates some pressure on the walls, but the loader adds to the pressure when forcing its way into the pile. Another way to lessen pressure on outside walls is to build an interior bulkhead.

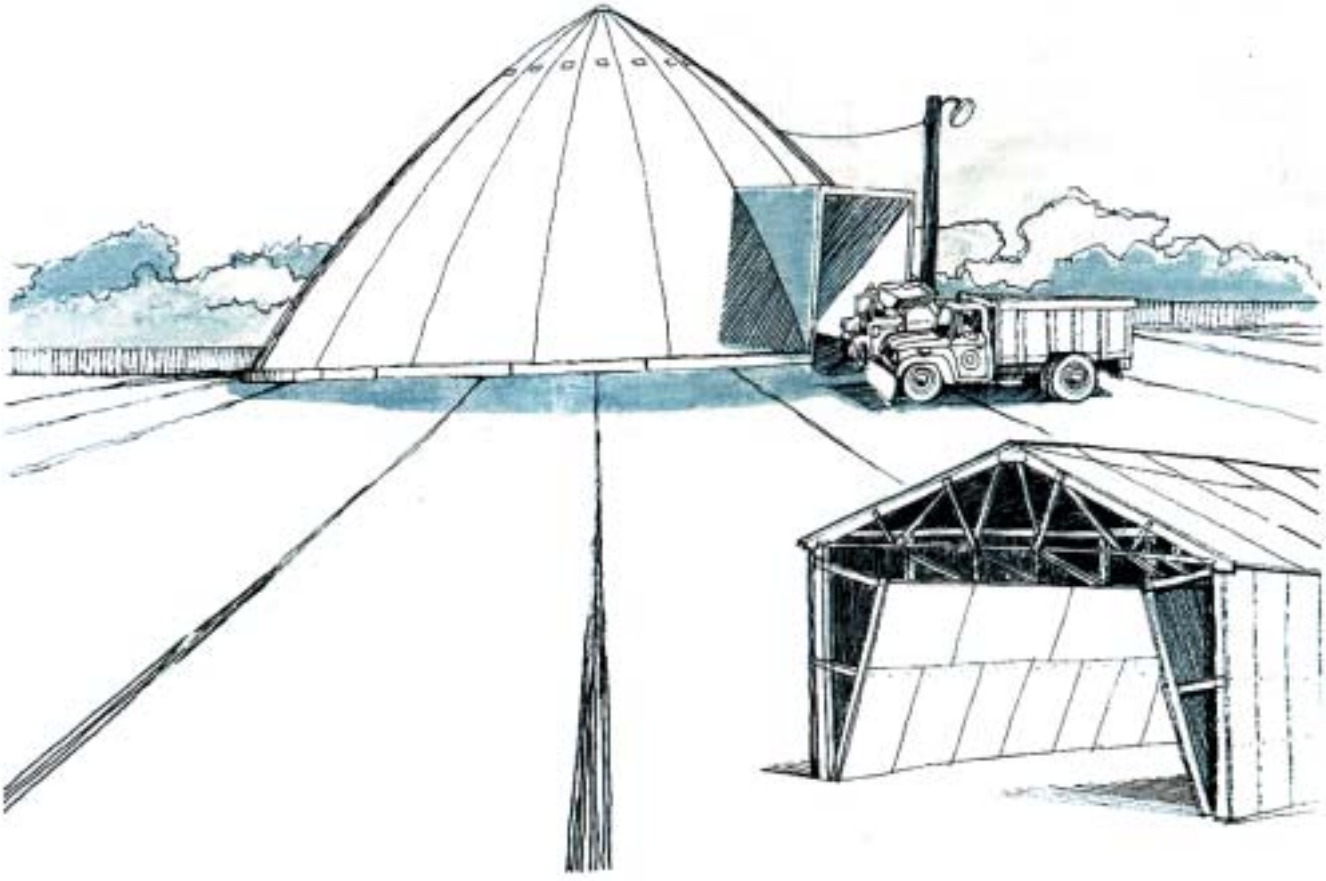
From the floor up, the pressure wall framing should be covered with 2" x 12" boards, which protect the supports from damage by loader buckets. Outside shed walls should be tongue-and-groove carsiding. The roof should be of half-inch plywood topped with 90 pound roll roofing mineral surface.

Vehicle exhaust fumes can become obnoxious or hazardous if the storage facility is not properly ventilated. Sufficient ventilation must be provided to permit operation of a front-end loader and possibly a spreader truck in the case of large under-roof storage facilities. Forced ventilation should be installed in any building with a door opening smaller than the total width of the structure.

Receiving Salt

Shape the pile properly. For covered outside storage on a pad, the stockpile should be windrowed with well-sloped sides so all water will drain off and away from the pile. Ease of re-covering during the course of the winter should be considered in determining the height and overall size of the pile.

For in-building storage facilities, the most common method of filling is by dumping the salt directly in front of the building and pushing it inside with front-end loaders. Conveyors are sometimes used. Slingers, short conveyor belts capable of throwing the salt some distance, are used by some trucking firms. Use of either of these types of equipment requires sufficient volume in order to justify the cost of use. Where conveyors are installed in buildings, support structures and loadings should be carefully evaluated to avoid structural overloading and possible damage or failure. Taller structures (17 plus ft.) are now being built that will allow trucks to empty their load inside the building.



Delivery Tips

No matter how you store salt, it will likely be delivered to the site by truck. There are several ways to speed delivery.

Allow enough room for maneuvering. The average length of large trailer trucks that deliver deicing salt is 48 feet. Some are 55 feet long.

Room for turning and backing should be at least twice the length of the longest delivery truck entering the site.

When dumping, trailer beds may rise 30 feet above ground level. Allow for this when planning the front of storage buildings and when locating power lines and lights.

Provide enough support for heavy equipment. Large trailer trucks weigh up to 80,000 pounds when fully loaded. Total thickness of the pads and base in storage areas served by large loaders and trucks will vary, depending upon the condition of the subgrade.

Help truckers find the spot. A hard-to-find storage site may slow salt delivery. Place signs indicating locations of salt storage points and furnish maps and directions to truckers.

Don't keep truckers waiting. If a storage facility is properly designed, a truckload of bulk salt can be unloaded in three or four minutes. But truckers often stand idle waiting for someone to authorize delivery. These delays can be costly.

Generally, shipments cannot be unloaded unless a delivery ticket is signed. Make sure someone is available to accept and authorize deliveries.

Post names and telephone numbers of persons responsible for receipt of deliveries at storage areas.

Watch what you get. Salt is tested by suppliers for shipping weight. It is supplied in accordance with ASTM specification D-632, which is shown on page 17 and 18. If additional tests are necessary, try to make them quickly, using standardized equipment and procedures.

All trucks should be tarped with a secure cover during transit to prevent sifting, loss of salt and to keep salt dry.

The same trucks that deliver salt may haul other materials. Such foreign objects may damage spreaders and could occasionally get into salt.

Play it safe. Maintenance personnel should stay clear of the rear of trucks at all times. Night deliveries require special precautions. Clearly mark entrances to the storage site. Make sure yards and inside of storage facilities are adequately lighted. Place lights and wiring out of reach of raised truck beds and loaders.

Work Safely

Not only is Safety the #1 listed concern in our S-A-L-T-E-D summary, worker safety merits additional suggestions to support a safe work environment.

Communicate

Open and forthright channels of communication need to be established and maintained between employees and supervisors, and between employees. Employees must be encouraged to take responsibility for their own safety and participate in all efforts to improve the overall safety of the facility. Employees must be able to report to management any unsafe or questionable environmental condition without fear of reprisal, and must be encouraged to make recommendations to correct and improve those concerns. Employees must be provided with opportunities to attend safety meetings and task training to improve their knowledge, and encouraged to participate in the facility's safety program. Management must act as a role model by adhering to all environmental, safety, and health rules and all regulatory requirements governing the site.

General Safety Rules

Salt storage facility employees need to adhere to general industrial safety rules. These include:

- Inspect mobile equipment for hazards and determine safe operating condition before use.
- Do not operate equipment or perform new tasks until properly trained by a qualified person.
- Wear appropriate personal protective equipment to protect against the hazards that exist in the work area. Wear seatbelts when operating mobile equipment.
- Always "lock, tag and test" any equipment before you attempt to repair or troubleshoot.
- Follow required work practices and permit systems for electrical repairs or confined space entry.
- Immediately report all unsafe acts or conditions to a supervisor or manager. Immediately report any work related incident, injury or illness to your supervisor.
- Practice good housekeeping by keeping assigned work areas clean and orderly.
- Do not smoke in and around lubricant storage sites or refueling vehicles.

Salt Stockpile Safety Rules (Rules apply whether stockpile is inside or outside a building)

- Never approach the vertical face of a stockpile on foot or in a vehicle closer than the vertical dimension of the pile; it might collapse and cover you in an avalanche.
- Never park next to a stockpile or next to loaders or other equipment working a stockpile.
- Never position yourself between the face of a stockpile and an immovable object (such as a loader or other vehicle).
- When working on top of a stockpile, never approach the crest closer than 15 feet.
- Always ensure that you have proper footing when accessing the top of a stockpile, and always be alert for sinkholes or other openings in the surface of the pile.

Belt Conveyor and Screw Conveyor Safety Rules

- Employees must be especially careful when operating and working around conveyors - especially when in close proximity to head and tail pulley, idler pulleys, and take-up pulleys.

- Conveyors must be equipped with emergency stop devices or pull cords. These emergency stop devices and pull cords must be checked regularly to ensure they are in working order.
- Conveyors must never be operated unless all guards are in place and securely fastened. Screw conveyors must never be operated unless top covers are in place and secured.
- Employees must never walk on top of a screw conveyor. Employees must never step onto or ride an operating conveyor belt.
- Before making repairs to a conveyor, it must always be de-energized and then locked, tagged and tested to ensure that it will not start unexpectedly. Employees must never attempt to apply belt dressing, or to lubricate an operating conveyor, unless protected by guards and a remote system has been installed to facilitate these procedures.

Electrical Safety Rules

- Only employees who are properly trained should be allowed to work on electrical equipment.
- Employees must be alert for electrical hazards and make an immediate report to their supervisor when electrical hazards are identified.
- Always treat de-energized electrical equipment and conductors as energized until lockout/tagout, grounding, and testing procedures are implemented to verify a zero energy state.
- Determine the reason for fuse and breaker trips before resetting circuits.

Summary

The proper storage of salt is extremely important. Protection of salt and the surrounding environment, and ease of handling salt, are necessary and can be ensured through proper storage of salt either under roof or by covering outside stockpiles.

Street and highway maintenance agencies should make a continuous effort to provide good salt storage. Good storage also must include proper maintenance of facilities and good housekeeping practices.

Storage capacity for 100% of your average winter's needs can help eliminate the need for delivery during critical storm periods and will ensure that salt is available when needed.

Good planning is essential to good storage and proper storage is a vital part of Sensible Salting.

Storage Area Checklist

This sample storage area checklist can be used to keep a record of all your salt storage facilities, their capacities, their condition, and additions or improvements needed. It can also be used to record your estimated salt requirement, salt in stock and salt on order. The form is shown merely as a guideline.

Storage Identification _____

Estimated Salt Requirement _____

Salt in Stock _____

Salt on Order _____

Facilities Available			Facilities Needed	
Total Number: _____ (Specify pad, bin, building, other)	Capacity (tons)	Condition	**Total Number:** _____ (Specify pad, bin, building, other)	Capacity (tons)

Remarks:

Storage Area Checklist (continued)

This part of the form provides a checklist for safety features, proper access, legality, tidiness, economics and drainage.

Yes	No	SAFETY. . .
❒	❒	1. Equipment operators have good visibility in all directions.
❒	❒	2. Access roads do not open directly into heavily traveled routes.
❒	❒	3. Signs are posted to warn motorist that trucks enter and leave the area.
❒	❒	4. Culvert headers, guard rails and other obstructions in storage area are marked so they can be avoided when covered with snow.
❒	❒	5. Outside areas are adequately lighted.
❒	❒	6. Lights are available inside storage buildings.
❒	❒	7. Storage yards are free of junk and other debris.
❒	❒	8. All mechanical parts of storage facility, such as hinges, slides, conveyors, are in safe working condition.
❒	❒	9. All mechanical equipment is in safe working condition.

Comment—

		ACCESS. . .
❒	❒	1. Spreader trucks can easily enter and leave storage sites, even during periods of low visibility.
❒	❒	2. Storage areas are large enough for front-end loaders and trucks to maneuver.
❒	❒	3. Building doors and other openings are large enough to permit loading and unloading.
❒	❒	4. There are no low and weak spots in storage yard.

Comment—

		LEGALITY. . .
❒	❒	1. All storage areas are on state or municipal property or on space for which there is a definite lease rental or use agreement.
❒	❒	2. All storage sites comply with local zoning ordinances and applicable building, environmental, discharge and sanitation codes.

Comment—

		TIDINESS. . .
❒	❒	1. Storage yard is well maintained and clean.
❒	❒	2. Junk or scrap material is not piled around yards.
❒	❒	3. Storage sites are shielded from view of nearby roads or homes by plantings or fencing.

Comment—

		ECONOMICS. . .
❒	❒	1. Storage is covered to prevent loss of material.
❒	❒	2. Sites are strategically located to avoid deadheading to reload.

Comment—

		DRAINAGE. . .
❒	❒	1. Storage pads are on sites with proper drainage.
❒	❒	2. Storage runoff is properly contained, collected and provisions made for use or disposal.

Comment—

Appendix/Salt Specification

When ordering, specify sodium chloride as ASTM Designation: D632 or AASHTO M143. Do not specify year so the current specification will automatically be followed.

AASHTO Designation M143 complies with ASTM D-632.

Standard Specification for Sodium Chloride: ASTM Designation D632-YEAR

This Standard is issued under the fixed designation D632; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (e) indicates an editorial change since the last revision or reapproval.

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1. Scope

1.1 This specification covers sodium chloride intended for use as a deicer and for road construction or maintenance purposes.

1.2 The values stated as SI units are to be regarded as the standard.

1.3 The following precautionary caveat pertains only to the test method portion, Section 9 of this specification: *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 ASTM Standards:

C 136 Method for Sieve Analysis of Fine and Coarse Aggregates[2]

E 11 Specification for Wire-Cloth Sieves for Testing Purposes[2]

E 534 Methods for Chemical Analysis of Sodium Chloride[3]

3. Classification

3.1 This specification covers sodium chloride obtained from natural deposits (rock salt) or produced by man (evaporated, solar, other) and recognizes two types and two grades as follows:

3.1.1 Type 1 - Used primarily as a pavement deicer or in aggregate stabilization.

3.1.1.1 Grade 1- Standard gradation (Note 1).

3.1.1.2 Grade 2 - Special gradation (Note 1).

3.1.2 Type 11- Used in aggregate stabilization or for purposes other than deicing.

Note Grade 1 provides a particle grading for general application, and found by latest research to be most effective for ice control and skid resistance under most conditions. Grade 2 is the grading typical of salt produced in the western U.S. and available in states of the Rocky Mountains Region and west which may be preferred by purchasers in that area.

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4. Chemical Requirements

4.1 The sodium chloride shall conform to the following requirement as to chemical composition:

Sodium Chloride (NaCl), min %, 95.0

5. Physical Requirements

5.1 *Gradation:*

5.1.1 Type 1- The gradation of Type 1 sodium chloride, when tested by means of laboratory sieves, shall conform to the following requirements for particle size distribution:

	Weight % Passing	
Sieve Size	**Grade 1**	**Grade 2**
19.0 mm (3/4 in.)	–	100
12.5 mm (1/2 in.)	100	–
9.5 mm (3/8 in.)	95 to 100	–
4.75 mm (No. 4)	20 to 90	20 to 100
2.36 mm (No. 8)	10 to 60	10 to 60
600 mm (No. 30)	0 to 15	0 to 15

5.1.2 *Type 11*-The gradation of Type II sodium chloride shall conform to the grading requirements imposed or permitted by the purchaser under conditions of the intended use.

6. Permissible Variations

6.1 In the case of sodium chloride sampled after delivery to the purchaser, tolerances from the foregoing specified values shall be allowed as follows:

6.1.1 *Gradation*-5.0 percentage points on each sieve size, except the 12.5 mm (1/2 in.) and 9.5 mm (3/8 in.) for grade 1 and 19.0 mm (3/4 in.) for grade 2.

6.1.2 *Chemical Composition* 0.5 percentage point.

7. Condition

7.1 The sodium chloride shall arrive at the purchaser's delivery point in a free-flowing and usable condition.

8. Sampling

8.1 Not less than three sample increments shall be selected at random from the lot (Note 2). Each increment shall be obtained by scraping aside the top layer of material to a depth of at least 25 mm (1 in.) and taking a 500-g (approximately 1-lb) quantity of sodium chloride to a depth of at least 150 mm (6 in.). Sampling shall be done by means of a sampling thief or other method which will assure a representative cross section of the material. The sample increments shall be thoroughly mixed to constitute a composite sample representative of the lot.

Note 2: A lot may be an amount agreed upon between purchaser and supplier at the time of purchase.

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9. Test Methods

9.1 *Chemical* Test-Test for compliance with the requirements for chemical composition shall be in accordance with the following methods:

9.1.1 *Routine Control* -The "Rapid Method" provided in Annex A1 may be used for routine control and approval.

9.1.2 *Referee Testing*-In case of controversy, determine analysis in accordance with Methods E534.

9.2 Gradation shall be determined by Method C136.

10. Inspection

10.1 The purchaser or his representative shall be provided free entry and necessary facilities at the production plant or storage area if he elects to sample sodium chloride at the source.

11. Rejection and Rehearing

11.1 The sodium chloride shall be rejected if it fails to conform to any of the requirements of this specification.

11.2 In the case of failure to meet the requirements on the basis of an initial sample of a lot represented, two additional samples shall be taken from the lot and tested. If both additional samples meet the requirements, the lot shall be accepted.

12. Packaging and Marketing

12.1 The sodium chloride shall be delivered in bags or other container acceptable to the purchaser, or in bulk lots. The name of the producer and the net weight shall be legibly marked on each bag or container, or, in the case of bulk lots, on the shipping or delivery report.

13. Keywords

13.1 salt; snow and ice removal; sodium chloride; stabilization; winter maintenance.

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[1]This specification is under the jurisdiction of ASTM Committee D-4 on Road and Paving Materials and is the direct responsibility of Subcommittee DO4.31 on Calcium, Sodium Chlorides and Other Deicers.

[2]*Annual Book of ASTM Standards,* Vol 04.02.

[3]*Annual Book of ASTM Standards,* Vol 11.01.

[4]*Annual Book of ASTM Standards,* Vol 14.02.

[5]*Annual Book of ASTM Standards*, Vol. 14.04.

[6]*Annual Book of ASTM Standards,* Vol. 15.05.

[7]*Reagent Chemicals*, American Chemical Society, Washington, DC. For suggestions on testing of reagents not listed by the American Chemical Society, see *Analar Standards for Laboratory Chemicals,* BDH Ltd., Poole, Dorset, U.K., and the *United States Pharmacopeia* and the *National Formulary,* U.S. Pharmacopcial Convention, Inc., (USPC), Rockville, MD.

[8]Supporting data have been filed at ASTM Headquarters, Request RR: D04.1016.

[9]These numbers represent respectively, the (ls %) and (d2s %) limits, as described in Practice C670.

ANNEX

(Mandatory Information)

A1 RAPID METHOD OF ANALYSIS FOR SODIUM CHLORIDE

A1.1 Scope

A1.1.1 This annex covers a rapid method for chemical analysis of sodium chloride.

A1.2 Significance and Use

A1.2.1 The procedure for chemical analysis in this annex determines the total amount of chlorides present in the sample and expresses that value as sodium chloride.

A1.2.2 This rapid method of analysis does not distinguish between sodium chloride and other evaporite chloride compounds with ice-melting capabilities. Typical rock salt and solar salt sometimes contains small amounts of $CaCl_2$, $MgCl_2$, and KCl, depending on the source of the material. When this rapid method is used on continuing shipments from a known source, it will provide a fast, essentially accurate determination of the sodium chloride content of the material furnished. Thus the need for testing by the referee method, Test Method E 534 is reduced.

A1.3 Apparatus

A1.3.1 *Glassware*-Standard weighing bottles, volumetric flasks (conforming to Specification E 288, Class B- or better), and burets (conforming to Specification E 287, Class B- or better).

A1.3.2 *Balance*, having a capacity of at least 20 g, accurate and readable to 0.01 g.

A1.4 Reagents

A1.4.1 *Purity of Reagents*-Reagent grade chemicals shall be used in all tests. Unless otherwise indicated, it is intended that all reagents conform to the specifications of the Committee on Analytical Reagents of the American Chemical Society where such specifications are available.[7] Other grades may be used, provided it is first ascertained that the reagent is of sufficiently high purity to permit its use without lessening the accuracy of the determination.

A1.4.2 *Purity of Water*-Unless otherwise indicated, references to water shall be understood to mean reagent water as defined by Types I-IV of Specification D 1193.

A1.4.3 *Calcium Carbonate ($CaCO_3$)*-low chloride, powder.

A1.4.4 *Nitric Acid (HNO_3)*-dilute (HNO_3:H_2O, 1:4 by volume).

A1.4.5 *Potassium Chromate (K_2CrO_4) Solution*-(50 g K_2CrO_4/L).

A1.4.6 *Silver Nitrate Solution*-0.05 N $AgNO_3$.

A1.4.7 *Sodium Chloride (NaCl).*

A1.5 Procedure

A1.5.1 Thoroughly mix the composite sample obtained under 8.1, and reduce by quartering or by means of a sample splitter to approximately 500 g. Pulverize the reduced sample to pass a 300 µm (no. 50) sieve.

A1.5.2 *Standardization*-Standardize the silver nitrate ($AgNO_3$) solution daily, using 10 g of reagent grade sodium chloride (NaCl) following the applicable procedure in A1.5.3.

A1.5.3 From the pulverized sodium chloride, obtain a test sample with a mass of 10.00 ± 0.01 g and place in a beaker with 250-mL distilled water. Add 10 mL of the diluted nitric acid solution (HNO_3, 1 + 4 by volume) and stir for 20 min at room temperature to put the salt in solution. Transfer the solution, including any insoluble material, to a 2-L volumetric flask, dilute to the mark with distilled water, and mix. With a pipet, draw off 25 mL of the solution and place in a white porcelain casserole. Add 0.5 g of calcium carbonate ($CaCO_3$) to neutralize the excess HNO_3, and adjust the pH to approximately 7. Add 3 mL of the potassium chromate (K_2CrO_4) solution as an indicator and titrate dropwise with the silver nitrate ($AgNO_3$) solution until a faint but distinct change in color occurs—a persistent yellowish brown endpoint (see Note A1.1), comparable to standardization. Estimate the titer from the buret to the second decimal place.

Note: A1.1—The stirred sample solution, after addition of potassium chromate (K_2CrO_4) and calcium carbonate ($CaCO_3$) is a creamy lemon-yellow color. Addition of the silver nitrate ($AgNO_3$) solution produces silver chloride, which begins to agglomerate as the titration progresses, and the lemon-yellow color will begin to have whitish opaque swirls of silver chloride. As the titration proceeds, the red color formed by addition of each drop begins to disappear more slowly. Continue the addition dropwise until a faint but distinct change in color occurs and the yellow-brown to faint reddish-brown color persists. The first stable presence of red silver chromate is the end point. If the endpoint is overstepped, a deep reddish-brown color occurs.

A1.6 *Calculate*-Calculate the total chorides expressed as percent NaCl as follows:

$$P = [(A/B) \times (C/D)] \times 100 \quad (A1.1)$$

Where:

A = reagent grade NaCl used, g,

B = 0.05 N $AgNO_3$ solution required to titrate the reagent grade NaCl, mL,

C = 0.05 N $AgNO_3$ solution required to titrate the sample being tested, mL,

D = test sampling mass, g, and

P = total chlorides expressed as sodium chloride in the sample being tested, %.

A1.6.1 If moisture is apparent in the sample, dry a duplicate 10-g sample of the pulverized salt at 105° C and correct the mass of the sample accordingly.

A1.7 Precision and Bias

A1.7.1 *Precision*[8] –An interlaboratory study was conducted and an analysis was made that included three materials ranging from approximately 92 to 99 % NaCl. Ten laboratories were included in the study.

A1.7.2 *Single-Operator Precision* (NaCl composition 95.0 % and greater)—The single-operator standard deviation of a single test result for average NaCl composition 95.0 % and greater has been found to be 0.248.[9] Therefore, results of two properly conducted tests by the same operator on the same material with the same equipment and under the same conditions should not differ by more than 0.70 %.[9]

A1.7.3 *Multilaboratory Precision* (NaCl composition 95.0 % and greater)—The multilaboratory standard deviation of a single test result for average NaCl composition greater than 95.0 % has been found to be 0.633 %.[9] Therefore, results of two properly conducted tests in different laboratories on the same material should not differ by more than 1.79 %.[9]

A1.7.4 *Single Operator Precision* (NaCl composition 95.0 % and greater than 90.0 %)—The single-operator coefficient of variation of a single test result for average NaCl composition less than 95.0 % and greater than 90.0 % has been found to be 0.427 %.[9] Therefore, results of two properly conducted tests by the same operator on the same material with the same equipment and under the same conditions should not differ by more than 1.21 %.[9]

A1.7.5 *Multilaboratory Precision* (NaCl composition less than 95.0 % and greater than 90.0 %)—The multilaboratory standard deviation of a single test result for average NaCl composition less than 95.0 % and greater than 90.0 % has been found to be 0.711 %.[9] Therefore, results of two properly conducted tests in different laboratories on the same material should not differ by more than 2.00 %.[9]

A1.7.6 *Bias*—No justifiable statement can be made on the bias of this test method because the data are not available.

American Society for Testing and Materials takes no position respecting the validity of any patent rights asserted in connection with any item mentioned in this standard. Users of this standard are expressly advised that determination of the validity of any such patent rights, and the risk of infringement of such rights, are entirely their own responsibility.

This standard is subject to revision at any time by the responsible technical committee and must be reviewed every five years and if not revised, either reapproved or withdrawn. Your comments are invited either for revision of this standard or for additional standards and should be addressed to ASTM Headquarters. Your comments will receive careful consideration at a meeting of the responsible technical committee, which you may attend. If you feel that your comments have not received a fair hearing you should make your views known to the ASTM Committee on Standards.

English/Metric Conversion Chart

METRIC TO ENGLISH

Multiply When You Know	English by	to Find	Symbol
millimeters	0.0394	inches	in
centimeters	0.394	inches	in
meters	3.281	feet	ft
meters	1.0936	yards	yds
kilometers	0.6214	miles	mi
square centimeters	0.1550	square inches	sq in
square meters	10.7639	square feet	sq ft
square meters	1.1959	square yards	sq yds
hectare	2.4711	acres	
square kilometers	0.3861	square miles	sq mi
cubic centimeters	0.0611	cubic inches	cu in
cubic meters	35.3147	cubic feet	cu ft
cubic meters	1.3078	cubic yards	cu yds
milliliters	0.0338	ounces (fluid)	oz
liters	2.1135	pints (fluid)	pts
liters	1.0567	quarts (fluid)	qts
liters	0.2641	gallons	gals
liters	1.8162	pints (dry)	pts
liters	0.9081	quarts (dry)	qts
cubic meters	28.3776	bushels	bu
grams	0.0352	avoirdupois ounces	avdp oz
kilograms	2.2046	avoirdupois pounds	avdp lbs
metric tons (2204.6 lbs)	1.1023	short tons (2000 lbs)	tn
metric tons	0.9842	long tons (2240 lbs)	t

(Celsius temperature x 1.8) + 32 = Fahrenheit temperature

ENGLISH TO METRIC

Multiply When You Know	Metric by	to Find	Symbol
inches	25.4	millimeters	nun
inches	2.54	centimeters	cm
feet	0.3048	meters	M
yards	0.9144	meters	m
miles	1.609	kilometers	km,
fathoms	1.8	Meters	m
square inches	6.4516	square centimeters	cm^2
square feet	0.0929	square meters	m^2
square yards	0.8361	square meters	M^2
acres	0.4047	hectares	ha
square miles	2.5899	square kilometers	kM2
cubic inches	16.3871	cubic centimeters	cu^3
cubic feet	0.0283	cubic meters	M^3
cubic yards	00.7645	cubic meters	m^3
ounces (fluid)	29.5737	milliliters	mL
pints (fluid)	0.4732	liters	L
quarts (fluid)	0.9463	liters	L
gallons	3.7853	liters	L
pints (dry)	0.5506	liters	L
quarts (dry)	1.1012	liters	L
bushels	0.0352	cubic meters	m^3
bushels	35.2381	liters	L
avoirdupois ounces	28.3495	grams	g
avoirdupois pounds	0.4536	kilograms	kg
short tons (2000 lbs)	0.9072	metric tons (2204.6 lbs)	t
long tons (2240 lbs)	1.0160	metric tons	t

(Farenheit temperature -32) x 0.5555 = Celsius temperature

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ATTACHMENT F

AIR EMISSIONS AND AIR DISPERSION MODELING STUDY

AIR DISPERSION MODELING
CLASS V RECYCLING FACILITY AND REPROCESSABLE CONSTRUCTION/DEMOLITION MATERIAL FACILITY

CHICAGO RAIL AND PORT, LLC

Prepared For:

CITY OF CHICAGO
DEPARTMENT OF PLANNING AND DEVELOPMENT

Prepared By:

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CHARLOTTE, NC

CEC PROJECT 180-215

OCTOBER 2018

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ATTACHMENTS

1.0 INTRODUCTION

Under a proposed amendment to City of Chicago Department of Health Article II Air Pollution Control Rules and Regulations for the Control of Emissions from the Handling and Storage of Bulk Material Piles, facilities meeting applicability criteria set forth in the rule will be required to install permanent, continuous Federal Equivalent Method (FEM) real-time PM10 monitors around the perimeter of the facility. The rule generally requires:

- Year 1: Place at least four monitors at or near the boundaries of the facility to monitor fugitive dust in the ambient air around the facility.
- Year 2 and subsequent years: Place monitors in accordance with an approved dust plan and based on data observed during the first year, with a minimum of two monitors located upwind and two monitors located downwind. Additional monitors may need to be installed, as appropriate, depending on factors such as the size of the facility, variability of wind direction, and proximity to neighborhoods.
- Installation of a weather station or other permanent device to monitor and log wind speed and wind direction.

This dispersion modeling analysis was performed for Chicago Rail and Port, LLC Class V Recycling Facility located at 3236-3258 East 106th Street, Chicago, Illinois to predict particulate concentrations near the facility's perimeter. A site vicinity map is presented as Attachment 1-A. Dispersion modeling was conducted for the particulate emission sources discussed in Section 2.0. Facility operating hours are expected to be between 6:00 am and 4:00 pm; therefore meteorological data used in the modeling analysis was restricted to the hours of 6:00 am to 6:00 pm, with concentration results averaged over eight hours. While wind erosion from storage piles can occur at any time, storage piles are not anticipated to contribute significantly to ambient particulate concentrations, as the proposed rule contains requirements for the use of a water and/or chemical dust suppressant system to be used on all bulk storage material piles that are not covered.

2.0 AERMOD SOURCE SETUP AND EMISSION RATE CALCULATION METHODOLOGY

Particulate concentration results are presented by source group. Sources of emissions were grouped by equipment or activity type. For reference, model input / calculation IDs are shown in parenthesis. Source locations, as well as a site vicinity map, are shown in Attachment 1.

- Crushers (CRSH1-2). Fugitive particulates from the crusher jaw area of two crushers.
- Screeners (SCRN1-2). Fugitive particulates from the screen box area of two screeners.
- Conveyors (CNVY1-2). Fugitive particulates from two conveyor transfer points.
- Material Handling (MTH1-9). Fugitive particulates from material handling at each of nine storage piles.
- Storage Piles (PILE1-9). Wind erosion from nine storage piles.
- Vehicle Traffic (SLINE2-5). Fugitive dust emissions from loaded trucks traveling unpaved roads. Includes engine particulate emissions from onsite equipment mobile sources.
- Point Sources. Particulate emissions from two crusher engines (DSLE1A and 1B), two screener engines (DSLE2A and 2B), and a tracked hopper feeder engine (DSLE4).

2.1 CRUSHERS

- Emission rates as calculated in the spreadsheet provided.
- Online specifications from the equipment manufacturer for similar models indicate the crusher height is 3.7 meters; however piles were calculated to be 9 meters. The crusher height was assumed to be the pile height (9 meters).
- Modeled as elevated volume source not on or adjacent to a building.
- Release Height: In accordance with regulatory guidance on air dispersion modeling from various state or local agencies, release height is the center of the area where emissions can be observed puffing out. The release height was assumed to be the distance from the center of the volume source to the ground.
- Volume Source Dimensions: Dimensions are based on the solid portion of equipment only. For the crushers, the vertical dimension was assumed to be the pile height, and the lateral

dimension was assumed to be the Jaw Gape x Width measurement of about 30" x 62" taken from a Lippmann datasheet. AERMOD requires the base of a volume source to be a square. For the crushers, the lateral dimension was calculated as the side of a square of equivalent area.

- The lateral parameter σ_y = lateral dimension divided by 4.3.
- The vertical parameter σ_z = vertical dimension divided by 4.3 (for elevated volume sources not on or adjacent to a building).

2.2 SCREENERS

- Emission rates as calculated in the spreadsheet provided.
- Online specifications from the equipment manufacturer for similar models indicate the screener height is about 5 meters; however piles were calculated to be 9 meters. The screener height was assumed to be the pile height (9 meters).
- Modeled as elevated volume source not on or adjacent to a building.
- Release Height: In accordance with regulatory guidance on air dispersion modeling from various state or local agencies, release height is the center of the area where emissions can be observed puffing out. The release height was assumed to the distance from the center of the volume source to the ground.
- Volume Source Dimensions: Dimensions are based on the solid portion of equipment only. For the screeners, the vertical dimension was assumed to be the pile height, and the lateral dimension was assumed to be the screenbox measurement of about 5' x 5', taken from a McCloskey International datasheet.
- The lateral parameter σ_y = lateral dimension divided by 4.3.
- The vertical parameter σ_z = vertical dimension divided by 4.3 (for elevated volume sources not on or adjacent to a building).

2.3 CONVEYORS

- Emission rates as calculated in the spreadsheet provided.
- The conveyor height was assumed to be the pile height (9 meters).

- Modeled as elevated volume source not on or adjacent to a building.
- Release Height: In accordance with regulatory guidance on air dispersion modeling from various state or local agencies, release height is the center of the area where emissions can be observed puffing out. This was assumed to be the distance from the center of the volume source to the ground.
- Volume Source Dimensions: Conveyors are only modeled at the dump point (material drop point). Lateral dimensions are based on the width of the conveyor belt. The width of the belt was estimated to be 42". The vertical dimension is the drop distance from the belt to the pile. This distance was assumed to be one half of the pile height (4.5 meters).
- The lateral parameter σ_y = lateral dimension divided by 4.3.
- The vertical parameter σ_z = vertical dimension divided by 4.3 (for elevated volume sources not on or adjacent to a building).

2.4 MATERIAL HANDLING

- Emission rates were calculated by dividing the calculated emission rate in the provided spreadsheet by the number of material handling locations. One material handling activity was assumed to occur at each of the nine storage piles. Emission rates include drop operations and bulldozing / grading.
- Material handling sources were co-located with storage pile sources.
- The material handling height was assumed to be one half the pile height (4.5 meters).
- Modeled as elevated volume source not on or adjacent to a building.
- Release Height: In accordance with regulatory guidance on air dispersion modeling from various state or local agencies, release height is the center of the area where emissions can be observed puffing out. The release height was assumed to be the distance from the center of the volume source to the ground.
- Volume Source Dimensions: For material handling at stock or surge piles, the footprint of the pile can be used for the lateral dimension. This assumes various areas of the pile are disturbed over relatively short periods of time. The lateral dimension was calculated to be the side of a square with area equivalent to the area of the pile. The vertical dimension was assumed to be one half the pile height.

- The lateral parameter σ_y = lateral dimension divided by 4.3.
- The vertical parameter σ_z = vertical dimension divided by 4.3 (for elevated volume sources not on or adjacent to a building).

2.5 STORAGE PILES

- Emission rates and dimensions were used as calculated in the spreadsheet provided.
- Storage piles were modeled as area sources.
- Storage piles were calculated as identical sources in the provided spreadsheet. The site map shows storage piles varying in size. Because of the conservative nature of area source modeled concentrations and the effect size has on concentrations, the storage piles were modeled as depicted on the site map; however the emission rate per unit area was retained as identical for all storage piles. The larger storage piles shown on the site map (PILE3, PILE6, PILE7) were assumed to be the diameter used in the calculations (38.1 m), the smaller storage piles were assumed to be half the diameter (PILE1, PILE2, PILE4, PILE5, PILE8). The elongated storage pile (PILE9) was drawn approximately to scale using the site map.

2.6 VEHICLE TRAFFIC

- Roads were modeled using the methodology recommended in EPA's Haul Road Workgroup Final Report Submission to EPA-OAQPS, dated March 2, 2012.
- Roads were modeled as adjacent volume sources, where the vehicle height and width were both assumed to be 3 meters (typical), and the vehicle length assumed to be 10 meters (typical).
- The emission rate provided in the spreadsheet for loaded trucks travelling unpaved roads was used as a "worst-case" emission rate. The total calculated emission rate was divided equally among the total number of volume sources.
- The emission rate used to model the unpaved roads included the emissions calculated in the provided spreadsheet in addition to engine exhaust particulates from the material mover, bulldozer, wheel loader, excavator and water truck. Particulates from exhaust

of stationary engines (crusher, screener and tracked hopper feeder) were modeled as point sources.

2.7 POINT SOURCE ENGINE EXHAUST

- The crusher, screener and tracked hopper feeder engines were modeled as point sources.
- Typical modeling parameters (exhaust temperature, exit velocity and stack diameter) were obtained from Donaldson's Engine Guide for engines of the same make as the equipment, with similar RPM and similar horsepower. All stack heights were assumed to be 1.5 meters.

3.0 METEOROLOGY

3.1 REPRESENTATIVE DATA

Two wind roses were provided by the CEC Chicago office that represent areas near the site location. These wind roses were used to assist in identifying a meteorological data set representative of the site. One wind rose was generated using site-specific data collected from the SH Bell Chicago Terminal (2014-2016), located approximately one-half mile north-northwest of the site. The other is a general wind rose plot generated from the Chicago area for unspecified dates. These two wind roses are shown below.

Figure B-2: Historical Wind Rose Data (October 2014 thru October 2016) for S.H. Bell Chicago Facility

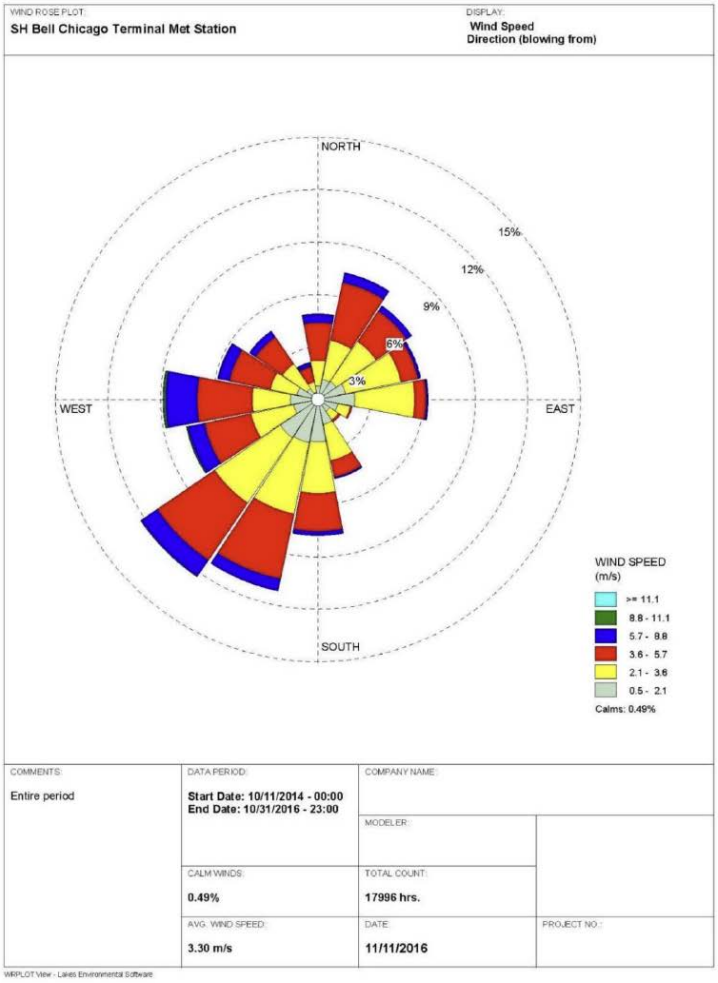
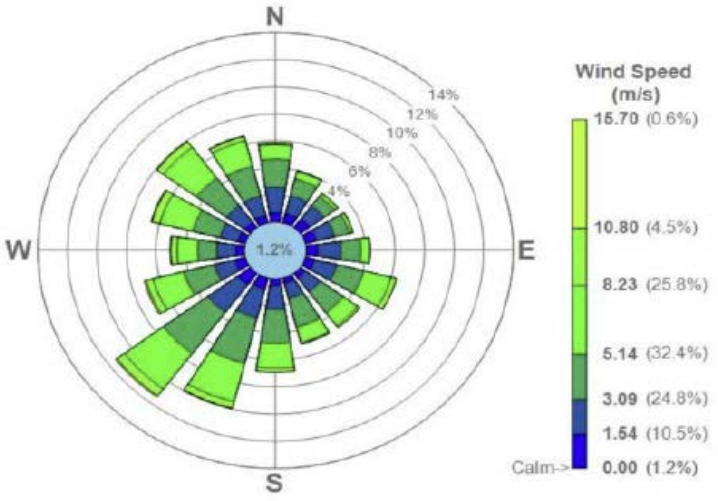


Figure B-3. Wind Rose Plot for Chicago Area



The reference wind roses were compared to available and potentially representative meteorological data sets. While none of the airport wind roses were an identical match to the SH Bell wind rose, four were identified as most closely representative: General Mitchell International Airport (MKE), Chicago Midway Airport (MDW), Chicago O'Hare Airport (ORD) and Kenosha Regional Airport (ENW, #04845). The airport wind roses are provided in Attachment 2. The surface parameters albedo, bowen ratio and surface roughness were obtained for the site and compared to airport surface parameters. None of the airports were found to definitively represent site surface characteristics with the exception of the Kenosha airport bowen ratio. The site surface roughness, which has been shown in literature to be the most impactful parameter of the three surface parameters on concentration, was a magnitude higher in most sectors of the site compared to any of the airport data. Higher surface roughness has been associated with lower ambient concentrations from surface sources of emissions, which may be the case for the site when wind directions are blowing from any direction other than west. The river located adjacent to the west side of the site may contribute to higher concentrations when wind is blowing from the west, due to the low surface roughness of the water. A comparison of surface parameters is provided as an attachment. Based on this information, the wind roses were relied upon to determine which meteorological data set was most representative of the site. The two wind roses most closely matching the SH Bell wind rose were Chicago Midway and Kenosha. Five-year meteorological

data sets were obtained for both airports. A comparison of wind roses and surface parameters for airport data is provided in Attachment 2.

The modeling was first completed with a Chicago Midway data set for the years 2013-2017. The Chicago Midway five-year meteorological data set was purchased from Lakes Environmental. For comparison, select model runs were completed using a Kenosha meteorological data set for the years 2011-2015. The Kenosha data set was downloaded from the Wisconsin Department of Natural Resources website.

4.0 MODEL RUNS

Due to the nature of seasonal wind directions in the area, model runs were conducted by month, utilizing meteorological data for all five years. For example, the January modeling using Chicago Midway airport data incorporates meteorological data from each January for the years 2013-2017. The expected facility operating hours are 6:00 am to 4:00 pm; therefore, the meteorological data in this modeling analysis was limited to the hours of 6:00 am to 6:00 pm, seven days per week. The meteorological data was restricted to day time operating hours to avoid skewing or masking prominent daytime weather patterns. For example, the top 10% of maximum estimated ambient particulate concentrations occurred at the northeast and northwest site perimeter during the day in January; however the top 10% of maximum estimated ambient particulate concentrations at night were located only at the northeast site perimeter. Particulate concentrations were averaged over eight hours. AERMOD v.18081 was used with default settings. Particle deposition was not included in the modeling analysis, nor was an urban dispersion coefficient used. AERMOD makes no distinction between urban and rural boundary layers during the day.

4.1 RECEPTOR LOCATIONS

Receptors were placed just inside the property boundary. Receptor elevations were determined using the most recent USGS National Elevation Dataset available.

4.2 ASSUMPTIONS AND LIMITATIONS

This dispersion modeling analysis was performed with limited site-specific data. Therefore, several assumptions regarding inputs were made, resulting in some limitations to the accuracy of model output concentrations. Significant assumptions and limitations are listed below. Source specific and facility total perimeter concentration plots, in addition to monthly wind roses, are included as Attachment 3.

- The exit velocity (or flow rate) and temperature for point sources (diesel engines associated with the screeners, crushers, and tracked hopper feeder) were estimated based

on average data from engines of the same manufacturer (CAT and Cummins) with similar RPM and horsepower. The stack height was estimated to be 1.5 meters. Point sources contribute to about 17% of the total facility perimeter concentration. Model results should be revisited if there are significant differences between modeled stack parameters and as-built stack parameters. However, the point source plume appears to follow the same trend as the overall facility plume trend; therefore, while difference in as-built stack parameters may increase (or decrease) the magnitude of concentrations, the locations of maximum concentrations may not be significantly affected by differing stack parameters.

- The stockpile wind erosion emission rates were calculated assuming all piles were identical uncrusted coal piles with a base diameter of 125 feet. The site map indicates stock piles of various sizes. The stockpiles were modeled as depicted on the site map, and as noted in Section 2.6, however the emission rate in grams/second/unit area was held constant. Based on the uncertainty in factors used for emission calculations and actual pile size, actual perimeter concentrations could differ significantly from those modeled. However, the City of Chicago Department of Public Health rule requires the use of a water and/or chemical based dust suppressant system for stick piles that are not covered. In addition, the storage piles, as modeled, contribute only 3% to total perimeter concentrations. Therefore, differences in actual emissions as compared to modeled emissions are not expected to change the location of the maximum total facility perimeter concentrations. If as-built storage piles are located in different places than where they were modeled, specifically if located in closer proximity to the property line, model results should be revisited.
- Equipment specifications for similar screener and crusher models indicated maximum stockpile heights of about fifteen feet. The calculations are all based on pile heights of 30 feet. Fugitive particulates from the screeners and crushers were modeled as elevated volume sources, as well as the conveyors. The volume source dimensions for the crushers, screeners, and conveyors, consistent with various regulatory modeling guidance, were based on equipment dimensions, with 30 feet used as the release height above ground. Volume sources operating closer to ground level will generally have a greater contribution to perimeter concentrations. The screeners, crushers and conveyors collectively contribute about 53% to total perimeter concentrations. The plume trends of

these sources generally follow the same trend as overall perimeter concentrations; therefore, changes in the height of emissions are not expected to significantly impact the location of maximum perimeter concentrations. If the location of the as-built sources change significantly from the modeled locations, model results should be revisited.

- The emission rates for unpaved roads traveled by loaded vehicles were used in the modeling analysis. Typical haul truck height, width, and length were used, based on EPA's Haul Road Workgroup Final Report Submission to EPA-OAQPS, dated March 2, 2012. Road width was assumed to be 6.1 meters, consistent with the Haul Road report. Road emissions, as modeled, contribute about 30% to total perimeter concentrations. Plume trends for roads do not follow the same trends as the total facility plume; indicating road proximity to the property line may be a significant factor in perimeter concentrations. Therefore, modeling results should be revisited if the location of as-built roads differs significantly from modeled locations, as a change in the location of roads may alter the location of the total facility maximum perimeter concentrations.

5.0 RESULTS

5.1 METHODOLOGY

Particulate matter concentration data were generated for each month of the year for all emission source groups, and for total facility emissions:

- Crushers (CRSH1-2);
- Screeners (SCRN1-2);
- Conveyors (CNVY1-2);
- Material Handling (MTH1-9) ;
- Storage Piles (PILE1-9); and
- Vehicle Traffic (SLINE2-5).

Particulate concentrations were tabulated for each ten degree sector, with 0° at north. The ten degree sectors are the same sectors used in generating wind roses. The intent in using this presentation method was to try to distinguish between concentrations from sources most subject to wind conditions, and concentrations where proximity to the property line was most influential.

Table 1 shows maximum modeled concentrations for each sector, for each month the year, and highlights the sectors containing the top 10% of this data for each month.

Concentration plots are also presented in Attachment 3. The concentration plots were generated by plotting the highest concentration in each sector, for each month of the year. The plots represent concentration data in $\mu g/m^3$.

5.2 MODEL RESULTS

Figure 1 shows receptor locations labeled by direction from north. Maximum concentrations by wind rose sector (10 degree increments) are presented by month in Table 1. For reference, wind rose plots for each month are provided in Attachment 3.

Based on the results tabulated in Table 1, and the concentration plots in Attachment 3, maximum total facility concentrations occur primarily along the north half of the east perimeter of the site and along a more confined area in the northern half of the west perimeter of the site. There also appears to be some seasonal variability within these two locations.

The individual source plots and wind roses in Attachment 3 seem to indicate there is a proximity effect on perimeter concentration from the screeners and material handling, in conjunction with effects from the wind direction.

Based on Table 1, the highest fenceline concentrations are expected to occur between 205° and 275° and between 115° and 155°.

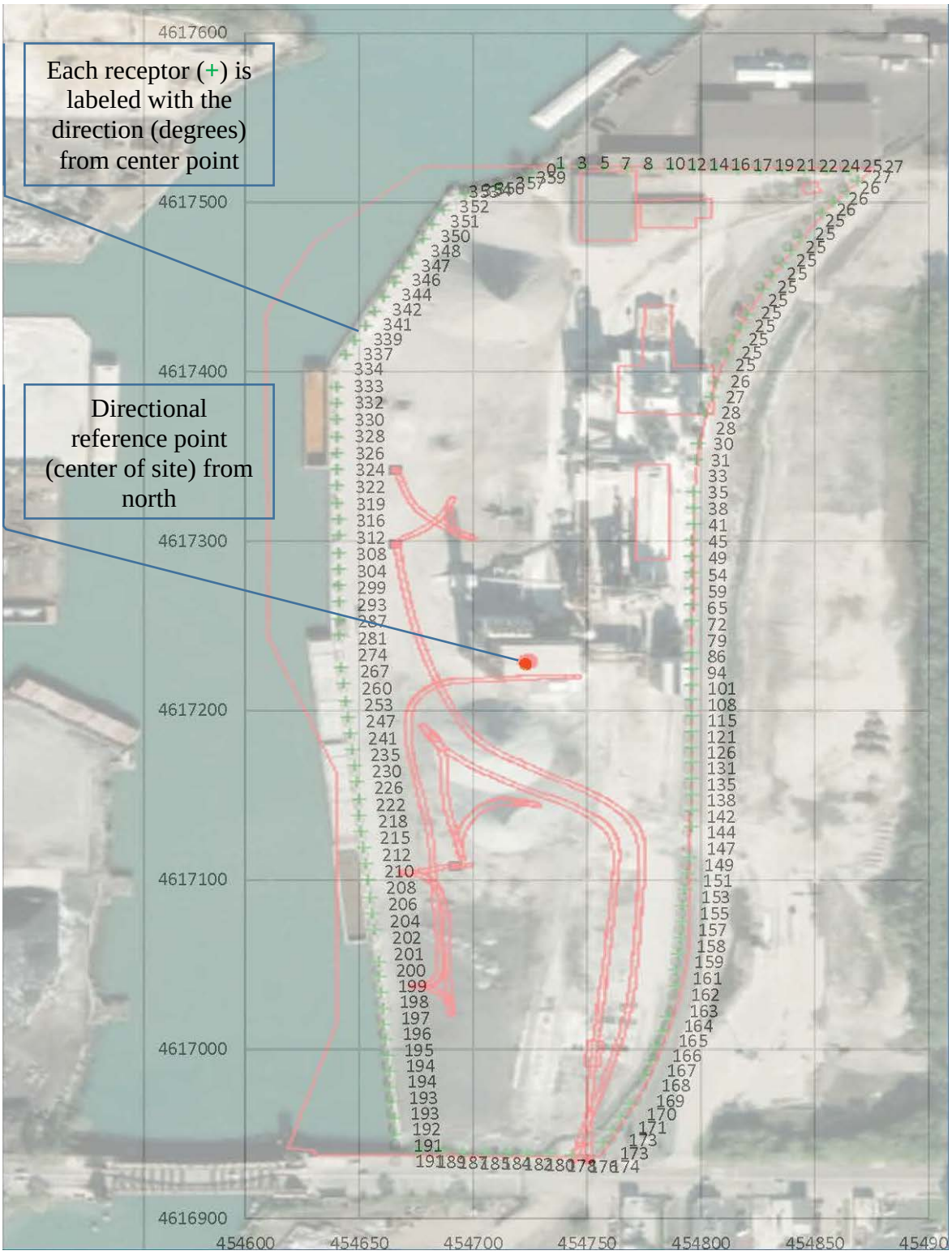


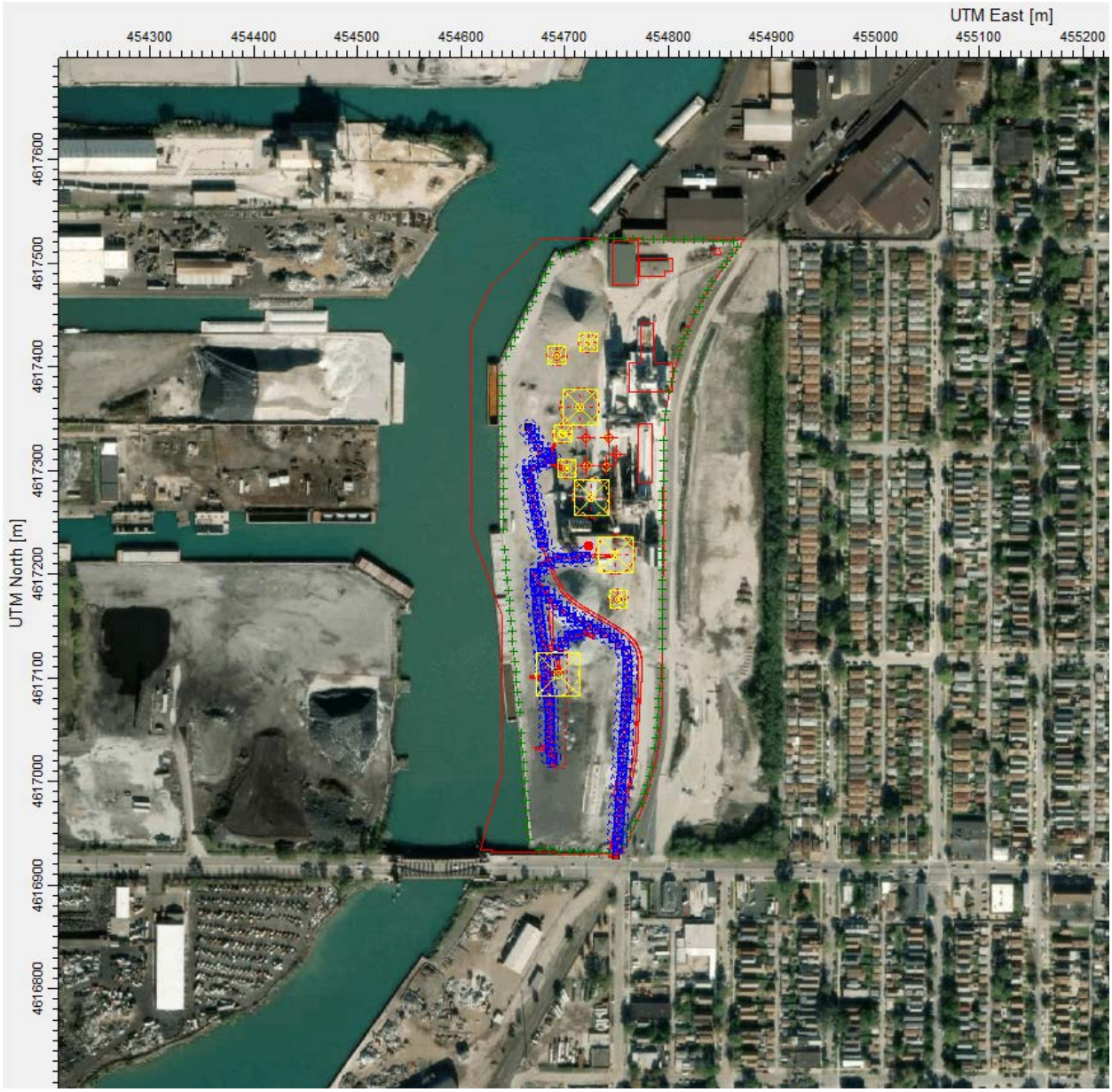
Figure 1 – Perimeter receptor location and reference directions (degrees)

Table 1: Maximum Concentrations by Direction from North

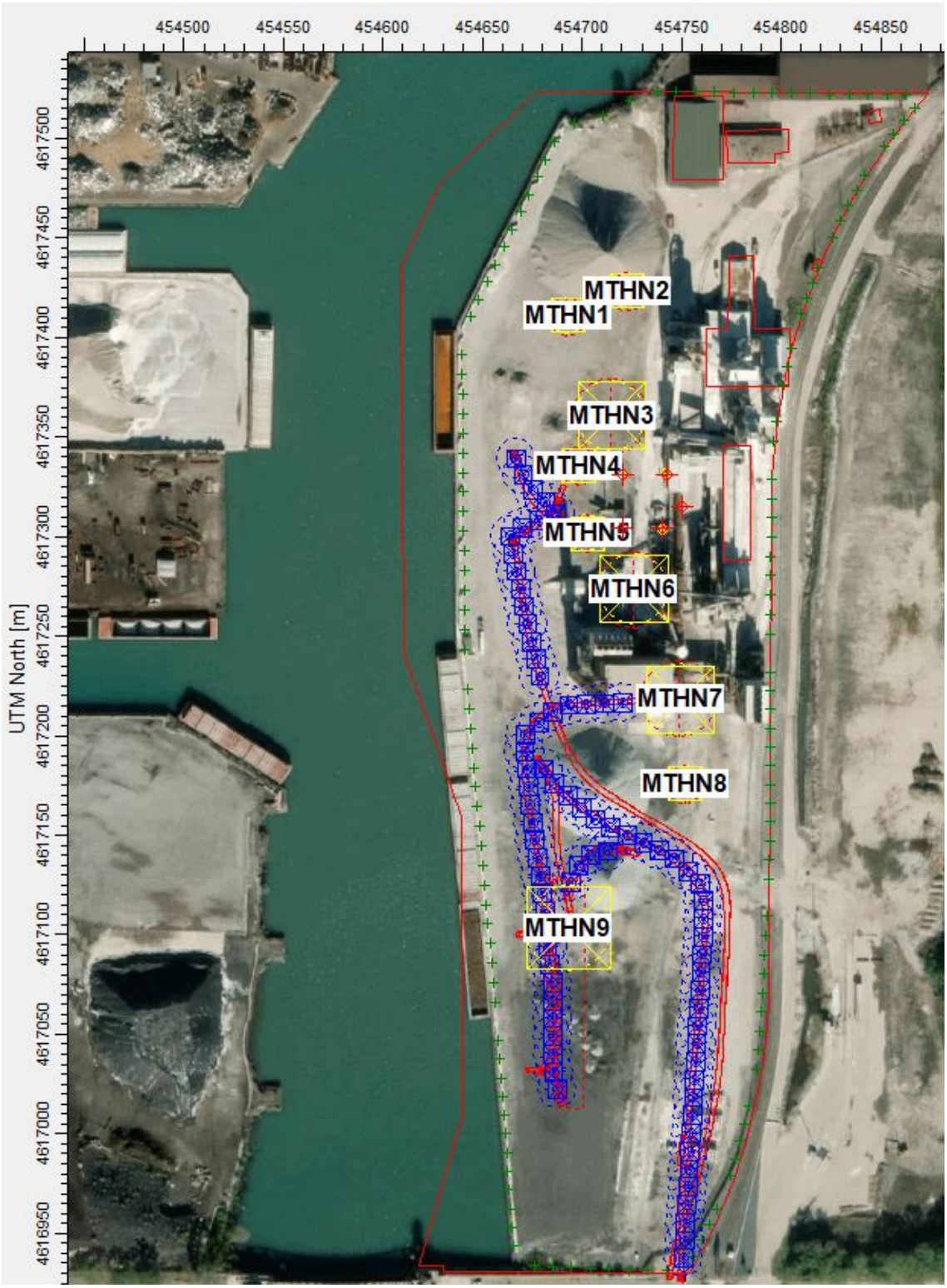
MET DATA:	Top 10% Maximum Concentrations												
MDW (2013-2017)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	MAX
Direction from north (see Figure)	ug/m3												
355 - 5	40.07	41.04	19.31	12.60	10.11	7.32	8.82	12.68	19.74	28.51	23.65	26.07	41.04
5 - 15	24.03	34.17	18.53	14.48	8.28	8.19	7.65	10.17	16.68	31.19	24.72	19.28	34.17
15 - 25	29.02	32.89	20.47	17.44	10.57	10.80	16.59	11.04	22.71	28.06	26.05	31.01	32.89
25 - 35	56.91	35.72	39.63	26.36	26.35	24.32	23.95	***33.08***	***43.04***	***44.34***	39.00	53.74	56.91
35 - 45	52.95	48.92	40.21	31.54	***35.38***	25.24	26.23	***35.28***	37.52	***44.23***	***50.68***	55.19	55.19
45 - 55	***65.47***	56.05	***53.60***	34.51	30.45	25.02	26.61	***34.49***	28.96	***46.88***	***63.14***	***58.06***	***65.47***
55 - 65	***63.49***	53.65	***55.85***	29.31	23.60	23.17	25.59	32.90	39.22	39.26	***60.91***	57.87	***63.49***
65 - 75	43.17	***58.06***	***47.50***	23.79	18.57	18.53	25.23	28.84	41.66	33.89	43.33	47.56	58.06
75 - 85	38.32	***59.75***	40.46	21.20	15.68	16.63	23.92	25.13	42.29	33.24	36.38	45.09	59.75
85 - 95	36.69	***59.21***	35.16	18.35	13.11	15.42	22.13	24.23	41.70	36.43	30.59	42.86	59.21
95 - 105	36.86	53.70	26.29	16.61	12.65	15.31	19.00	20.78	38.27	36.14	28.59	37.10	53.70
105 - 115	37.68	50.84	24.28	18.87	11.21	15.24	18.16	18.83	36.75	35.12	28.73	35.38	50.84
115 - 125	38.56	47.00	22.41	19.77	10.44	14.02	16.25	18.22	35.26	33.07	28.30	30.30	47.00
125 - 135	38.58	43.87	22.66	21.63	13.45	14.62	15.16	18.81	33.78	31.98	29.41	27.71	43.87
135 - 145	37.45	37.17	22.80	22.04	11.14	13.30	14.01	18.60	31.80	26.34	30.07	28.01	37.45
145 - 155	34.92	29.88	22.26	22.05	10.90	12.79	12.31	17.40	25.92	23.12	27.78	28.73	34.92
155 - 165	30.57	28.90	20.08	20.76	9.33	12.44	12.27	14.65	24.85	19.19	25.34	30.34	30.57
165 - 175	46.73	25.05	23.86	17.33	14.41	12.50	12.61	13.69	20.71	19.00	20.62	29.88	46.73
175 - 185	33.56	17.98	22.56	16.66	12.78	11.06	10.57	12.61	14.53	11.91	21.05	22.22	33.56
185 - 195	32.52	22.57	14.30	16.83	12.25	10.23	7.54	15.20	23.43	11.04	23.22	28.13	32.52
195 - 205	35.14	30.11	23.37	19.15	15.90	16.31	12.21	21.30	24.22	18.92	24.96	29.27	35.14
205 - 215	32.91	39.04	25.30	20.09	20.14	16.42	14.58	20.96	22.79	19.12	25.49	28.06	39.04
215 - 225	38.28	41.45	29.19	24.05	20.65	17.33	14.65	19.03	20.36	21.44	24.12	29.28	41.45
225 - 235	39.09	41.41	30.58	25.34	19.82	17.35	15.54	18.09	17.53	22.22	22.25	29.02	41.41
235 - 245	38.22	40.87	30.94	25.74	19.44	16.77	15.64	17.12	18.89	21.98	22.64	30.91	40.87
245 - 255	38.26	36.96	32.45	27.70	19.25	16.19	16.40	18.06	18.63	21.41	24.32	33.28	38.26
255 - 265	33.99	36.43	32.55	28.10	19.99	16.29	16.27	18.88	16.73	22.09	24.78	31.49	36.43
265 - 275	30.85	33.70	31.83	27.48	23.14	19.63	18.55	19.33	19.12	23.79	25.20	31.81	33.70
275 - 285	26.62	32.26	29.54	27.58	25.05	22.23	20.46	19.23	22.17	24.92	26.53	31.85	32.26
285 - 295	35.17	45.54	31.70	33.95	25.95	27.07	24.63	23.06	26.29	25.76	28.54	31.83	45.54
295 - 305	43.63	46.22	41.13	***35.88***	28.35	***28.59***	***31.64***	26.31	29.35	28.63	29.13	39.99	46.22
305 - 315	47.65	46.09	40.89	***35.18***	***39.34***	***28.59***	***40.08***	28.41	30.93	29.76	39.34	39.93	47.65
315 - 325	59.69	39.00	40.28	***34.71***	***39.38***	***27.46***	***37.70***	28.75	***49.99***	33.37	36.57	***62.92***	62.92
325 - 335	***64.11***	37.44	29.76	20.58	34.06	17.97	23.84	30.62	***43.40***	35.41	33.55	***66.17***	***66.17***
335 - 345	36.00	34.06	25.93	19.13	18.96	11.97	14.17	19.27	22.85	28.51	29.54	45.00	45.00
345 - 355	37.38	35.69	27.55	15.97	19.89	11.71	14.62	13.03	22.12	33.00	35.92	45.59	45.59

ATTACHMENT 1
EMISSION SOURCE LOCATIONS

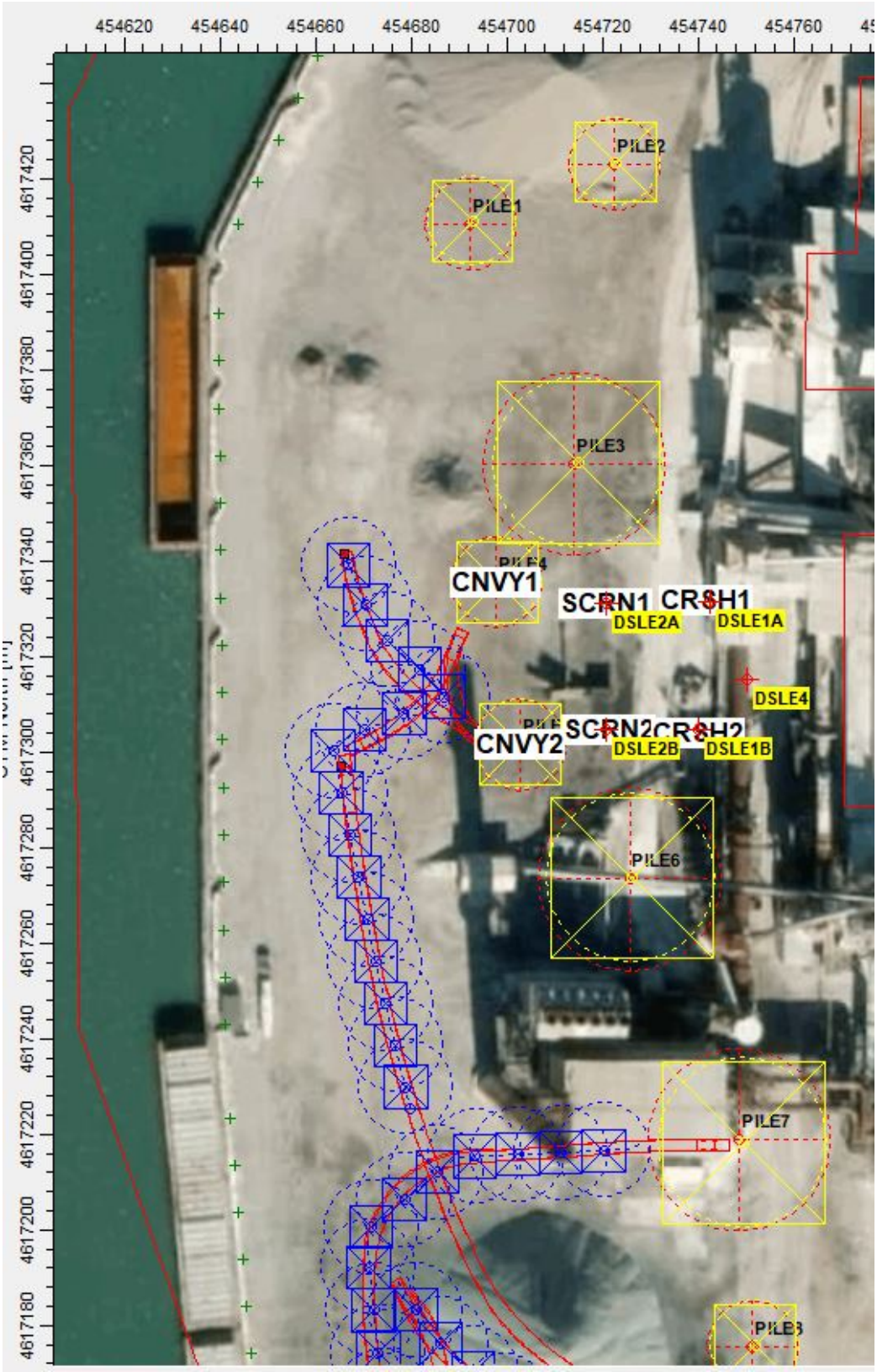
Attachment 1-A: Site vicinity map showing residences southeast and east of the facility.



Attachment 1-B: Material handling locations (MTHN1-9) are co-located with each of the nine storage piles. Roads are depcited as blue consecutive volume sources.



Attachment 1-C: Locations of fugitive dust from crushers, screeners, and conveyors labeled as CRSH1-2, SCRN1-2 and CNVY1-2. Point source emissions labeled with DSLE designation.



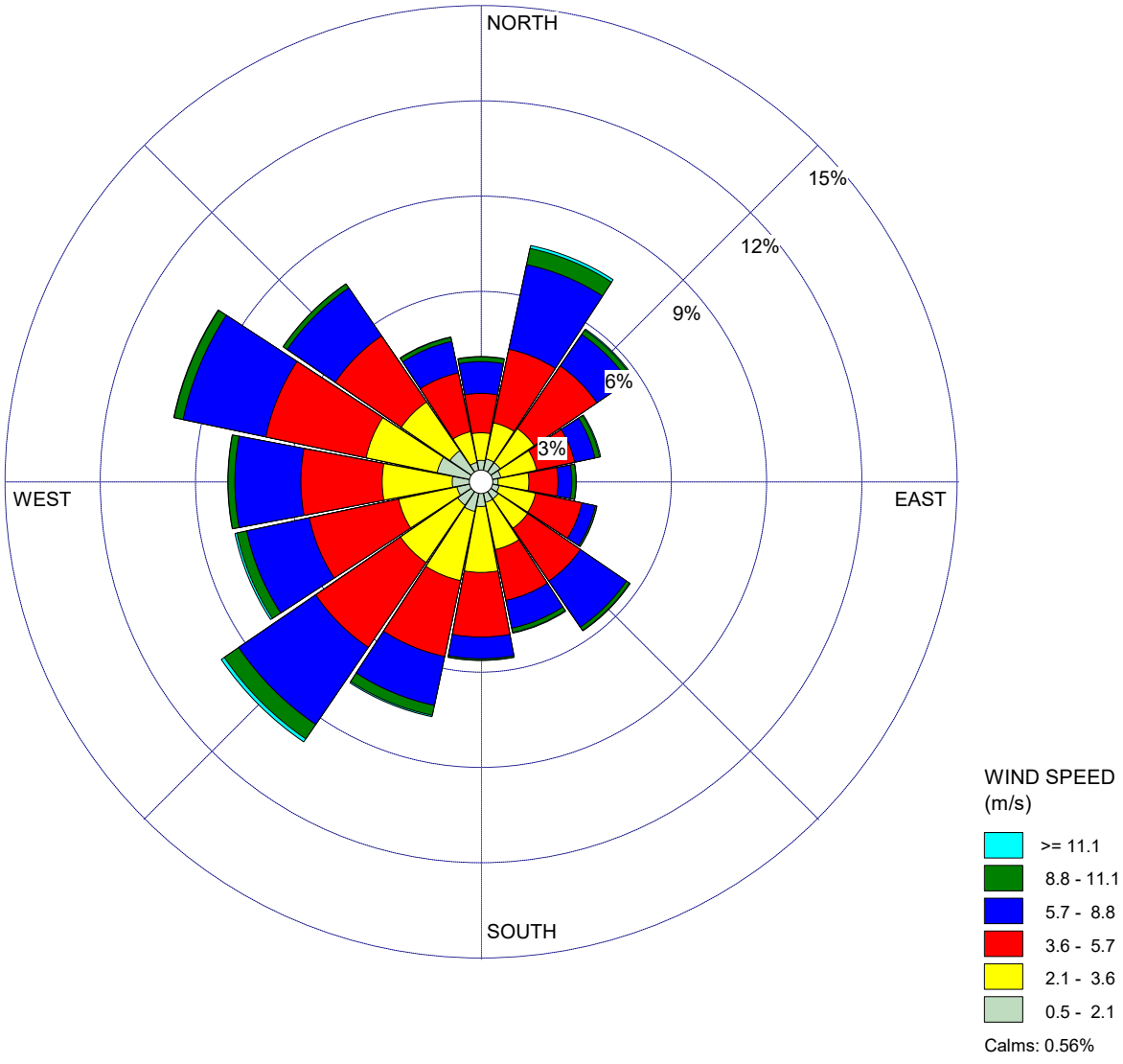
ATTACHMENT 2
COMPARISON OF AIRPORT WIND ROSES AND SURFACE PARAMETERS

WIND ROSE PLOT:

Station #14839 - MILWAUKEE/GENERAL MITCHELL FI, WI

DISPLAY:

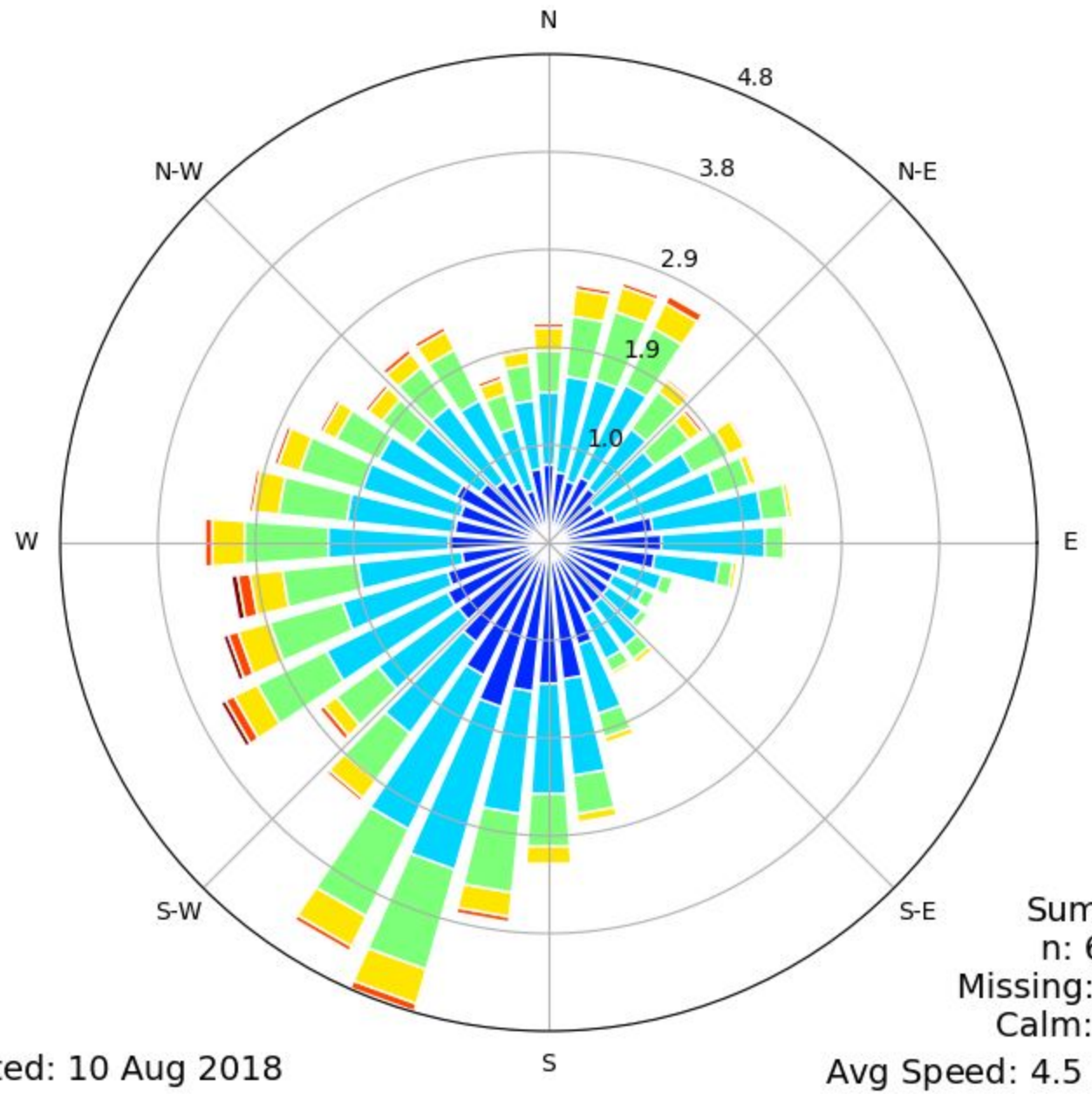
Wind Speed
Direction (blowing from)



COMMENTS:	DATA PERIOD: **Start Date: 1/1/2011 - 00:00** **End Date: 12/31/2015 - 23:00**	COMPANY NAME:	
		MODELER:	
	CALM WINDS: **0.56%**	TOTAL COUNT: **43817 hrs.**	
	AVG. WIND SPEED: **4.50 m/s**	DATE: **7/31/2018**	PROJECT NO.:

View raw data for chart

[MDW] CHICAGO
Windrose Plot [All Year]
Period of Record: 01 Aug 2012 - 01 Aug 2018



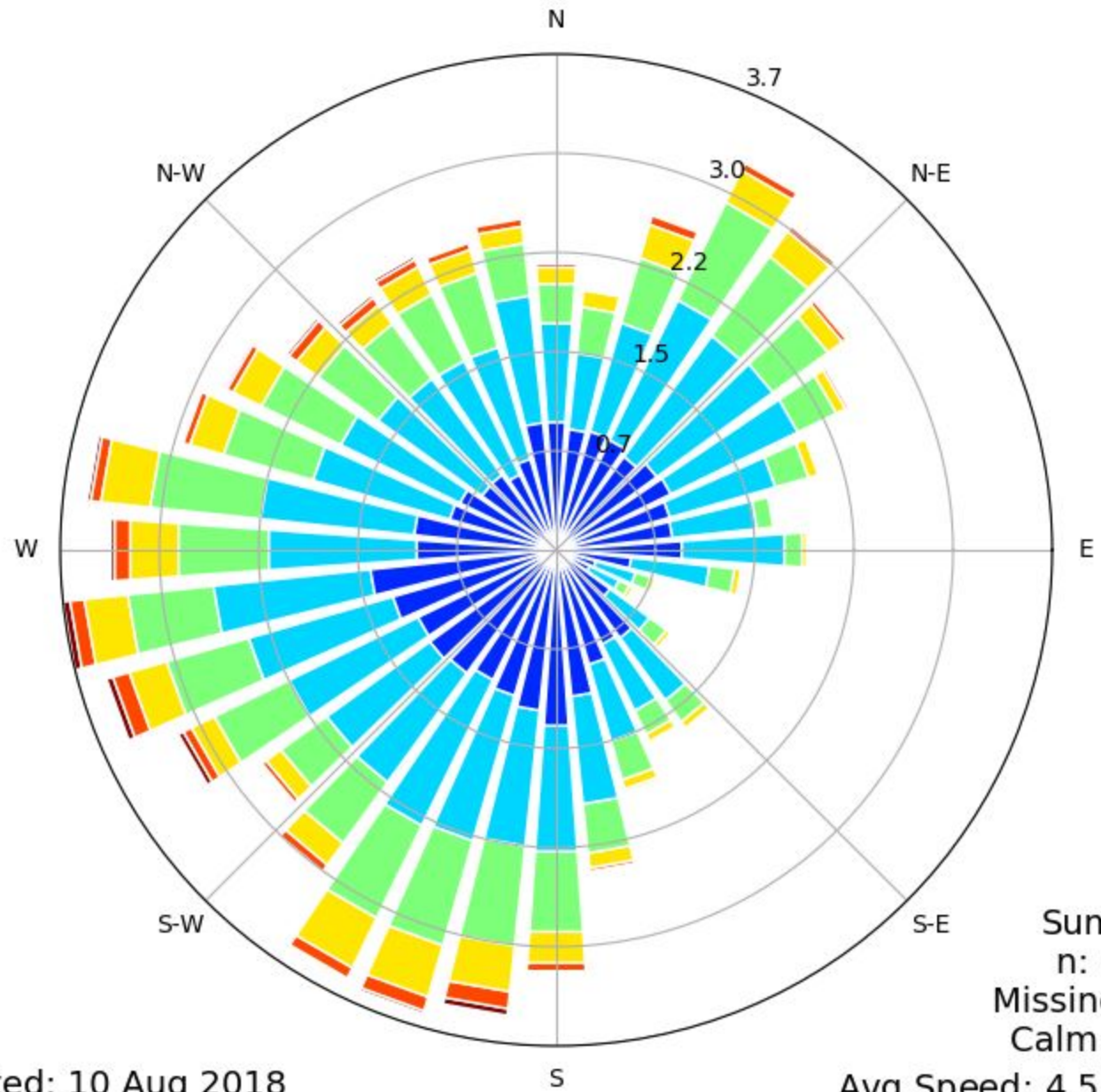
Summary
n: 63201
Missing: 1015
Calm: 5.1%
Avg Speed: 4.5 m s^{-1}

Generated: 10 Aug 2018

Wind Speed [m s^{-1}]
2-4 4-6 6-8 8-10 10-12 12+

View raw data for chart

[ORD] CHICAGO O HARE
Windrose Plot [All Year]
Period of Record: 01 Aug 2012 - 01 Aug 2018



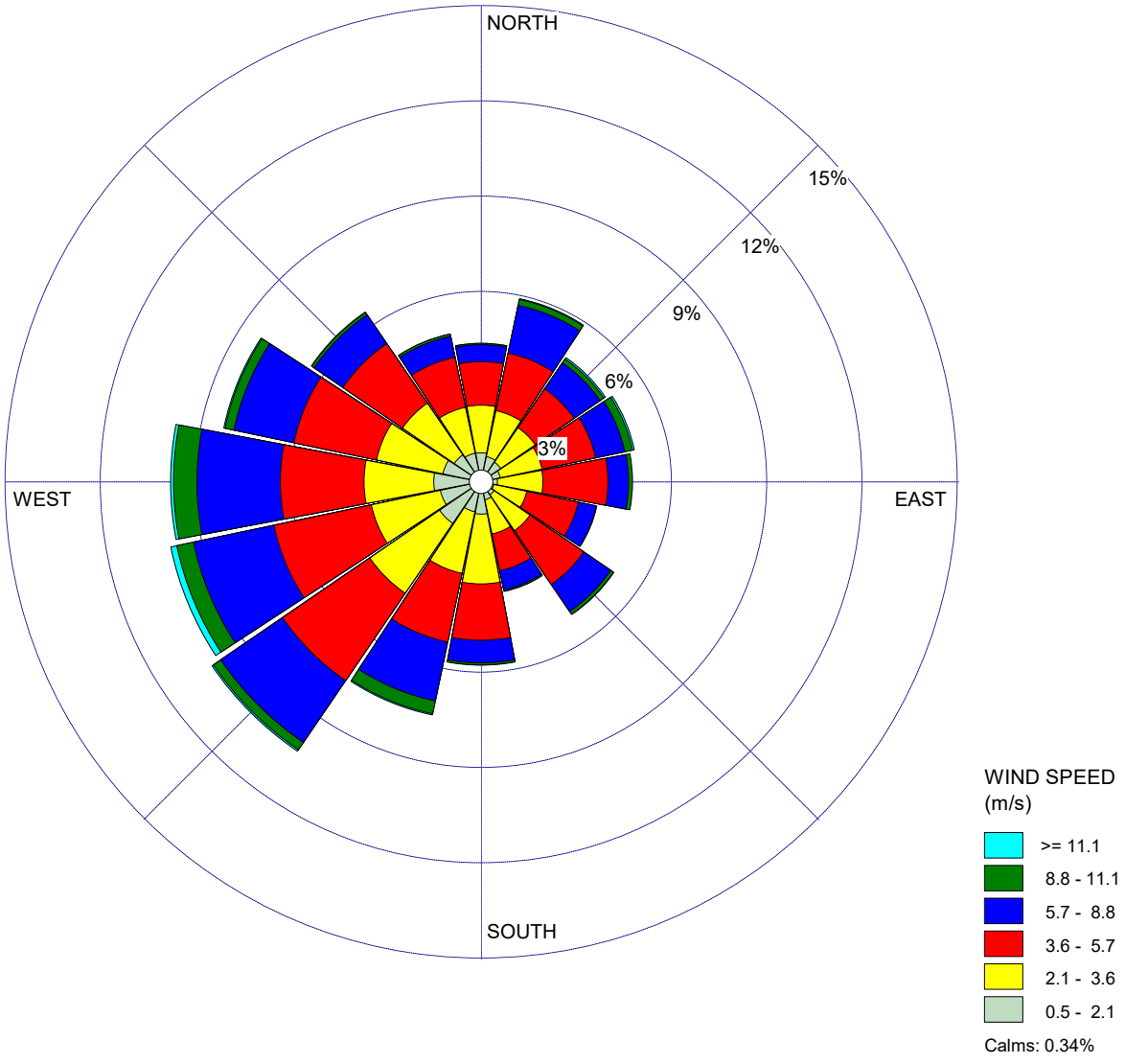
Summary
n: 66401
Missing: 792
Calm: 5.7%
Avg Speed: 4.5 m s^{-1}

Generated: 10 Aug 2018

Wind Speed [m s^{-1}]
2-4 4-6 6-8 8-10 10-12 12+

WIND ROSE PLOT:
Station #04845

DISPLAY:
Wind Speed
Direction (blowing from)



COMMENTS:	DATA PERIOD:	COMPANY NAME:	
	Start Date: 1/1/2011 - 00:00 **End Date: 12/31/2015 - 23:00**	MODELER:	
	CALM WINDS: **0.34%**	TOTAL COUNT: **43769 hrs.**	
	AVG. WIND SPEED: **4.34 m/s**	DATE: **7/31/2018**	PROJECT NO.:

Comparsion of Site Surface Characteristics to Airport Data

ORD
** Generated by AERSURFACE, dated 13016
** Generated from "U:\zforce met data\SE Lake MichLC9263788073\LC926378807
** Center Latitude (decimal degrees): 41.974154
** Center Longitude (decimal degrees): -87.907314
** Datum: NAD83
** Study radius (km) for surface roughness: 1.0
** Airport? Y, Continuous snow cover? N
** Surface moisture? Average, Arid region? N
** Month/Season assignments? Default
** Late autumn after frost and harvest, or winter with no snow: 12 1 2
** Winter with continuous snow on the ground: 0
** Transitional spring (partial green coverage, short annuals): 3 4 5
** Midsummer with lush vegetation: 6 7 8
** Autumn with unharvested cropland: 9 10 11

FREQ_SECT ANNUAL 12
SECTOR 1 0 30
SECTOR 2 30 60
SECTOR 3 60 90
SECTOR 4 90 120
SECTOR 5 120 150
SECTOR 6 150 180
SECTOR 7 180 210
SECTOR 8 210 240
SECTOR 9 240 270
SECTOR 10 270 300
SECTOR 11 300 330
SECTOR 12 330 360

ORD

**	Sect	Alb	Bo	Zo
SITE_CHAR	1	1	0.17	0.92	0.037
SITE_CHAR	1	2	0.17	0.92	0.024
SITE_CHAR	1	3	0.17	0.92	0.028
SITE_CHAR	1	4	0.17	0.92	0.024
SITE_CHAR	1	5	0.17	0.92	0.022
SITE_CHAR	1	6	0.17	0.92	0.022
SITE_CHAR	1	7	0.17	0.92	0.025
SITE_CHAR	1	8	0.17	0.92	0.026
SITE_CHAR	1	9	0.17	0.92	0.029
SITE_CHAR	1	10	0.17	0.92	0.025
SITE_CHAR	1	11	0.17	0.92	0.032
SITE_CHAR	1	12	0.17	0.92	0.028

MKE

**	Sect	Alb	Bo	Zo
SITE_CHAR	1	1	0.17	0.81	0.056
SITE_CHAR	1	2	0.17	0.81	0.031
SITE_CHAR	1	3	0.17	0.81	0.038
SITE_CHAR	1	4	0.17	0.81	0.047
SITE_CHAR	1	5	0.17	0.81	0.041
SITE_CHAR	1	6	0.17	0.81	0.043
SITE_CHAR	1	7	0.17	0.81	0.039
SITE_CHAR	1	8	0.17	0.81	0.045
SITE_CHAR	1	9	0.17	0.81	0.054
SITE_CHAR	1	10	0.17	0.81	0.058
SITE_CHAR	1	11	0.17	0.81	0.055
SITE_CHAR	1	12	0.17	0.81	0.035

MDW

**	Sect	Alb	Bo	Zo
SITE_CHAR	1	1	0.18	1.27	0.038
SITE_CHAR	1	2	0.18	1.27	0.034
SITE_CHAR	1	3	0.18	1.27	0.050
SITE_CHAR	1	4	0.18	1.27	0.043
SITE_CHAR	1	5	0.18	1.27	0.046
SITE_CHAR	1	6	0.18	1.27	0.036
SITE_CHAR	1	7	0.18	1.27	0.039
SITE_CHAR	1	8	0.18	1.27	0.040
SITE_CHAR	1	9	0.18	1.27	0.039
SITE_CHAR	1	10	0.18	1.27	0.044
SITE_CHAR	1	11	0.18	1.27	0.037
SITE_CHAR	1	12	0.18	1.27	0.078

ENW

**	Sect	Alb	Bo	Zo
SITE_CHAR	1	1	0.18	0.59	0.040
SITE_CHAR	1	2	0.18	0.59	0.055
SITE_CHAR	1	3	0.18	0.59	0.052
SITE_CHAR	1	4	0.18	0.59	0.064
SITE_CHAR	1	5	0.18	0.59	0.095
SITE_CHAR	1	6	0.18	0.59	0.107
SITE_CHAR	1	7	0.18	0.59	0.094
SITE_CHAR	1	8	0.18	0.59	0.078
SITE_CHAR	1	9	0.18	0.59	0.060
SITE_CHAR	1	10	0.18	0.59	0.033
SITE_CHAR	1	11	0.18	0.59	0.045
SITE_CHAR	1	12	0.18	0.59	0.040

SITE

**	Sect	Alb	Bo	Zo
SITE_CHAR	1	1	0.15	0.49	0.022
SITE_CHAR	1	2	0.15	0.49	0.335
SITE_CHAR	1	3	0.15	0.49	0.750
SITE_CHAR	1	4	0.15	0.49	0.759
SITE_CHAR	1	5	0.15	0.49	0.676
SITE_CHAR	1	6	0.15	0.49	0.411
SITE_CHAR	1	7	0.15	0.49	0.053
SITE_CHAR	1	8	0.15	0.49	0.010
SITE_CHAR	1	9	0.15	0.49	0.022
SITE_CHAR	1	10	0.15	0.49	0.025
SITE_CHAR	1	11	0.15	0.49	0.047
SITE_CHAR	1	12	0.15	0.49	0.005

Albedo

Section	1	2	3	4	5	6	7	8	9	10	11	12	Avg
SITE	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
ORD	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17
MKE	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17
MDW	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18
ENW	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18

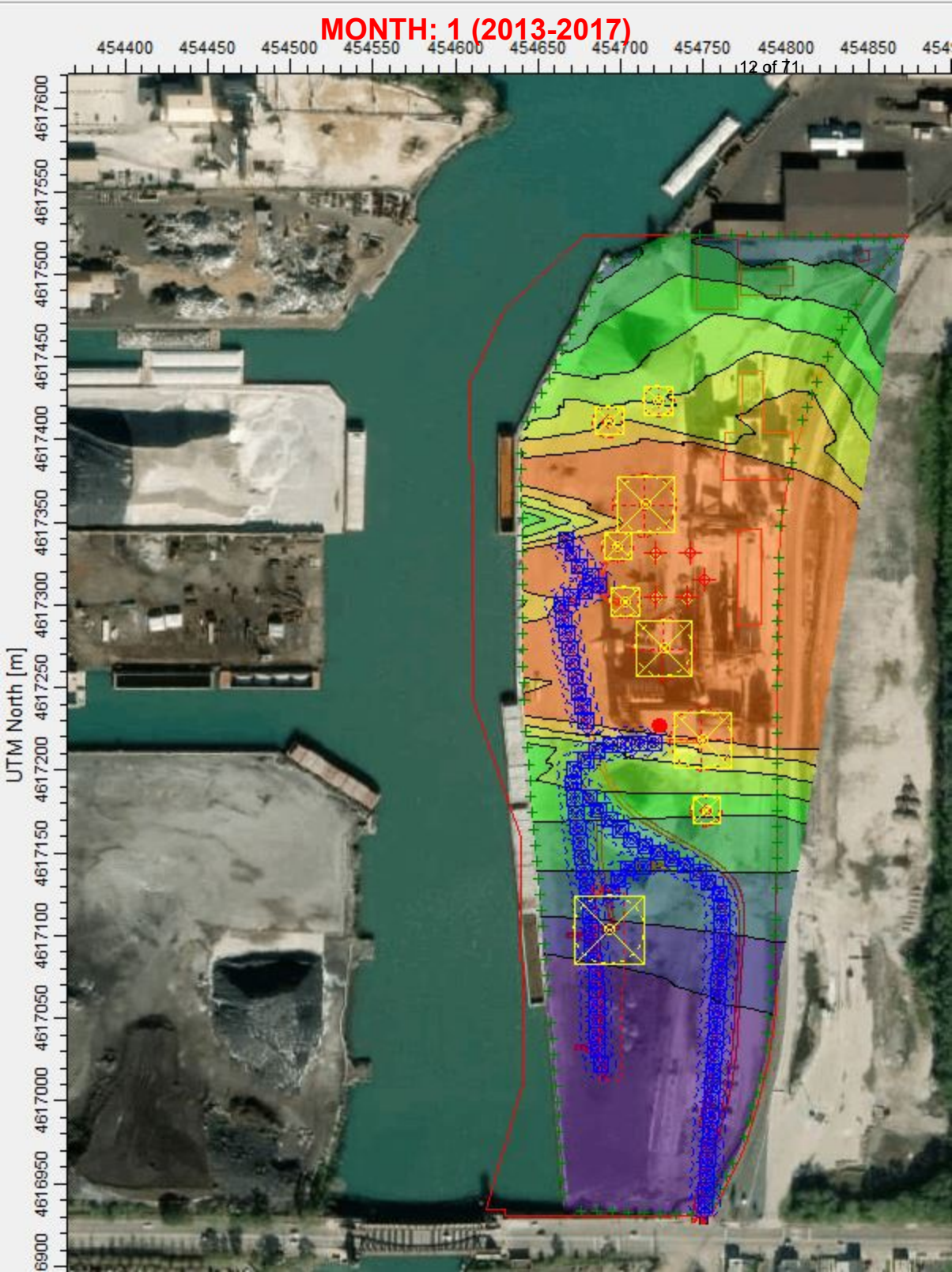
Bowen

Section	1	2	3	4	5	6	7	8	9	10	11	12	
SITE	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49
ORD	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
MKE	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
MDW	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27
ENW	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59

Surface Roughness

Section	1	2	3	4	5	6	7	8	9	10	11	12	
SITE	0.022	0.335	0.75	0.759	0.676	0.411	0.053	0.01	0.022	0.025	0.047	0.005	0.259583
ORD	0.037	0.024	0.028	0.024	0.022	0.022	0.025	0.026	0.029	0.025	0.032	0.028	0.026833
MKE	0.056	0.031	0.038	0.047	0.041	0.043	0.039	0.045	0.054	0.058	0.055	0.035	0.045167
MDW	0.038	0.034	0.05	0.043	0.046	0.036	0.039	0.04	0.039	0.044	0.037	0.078	0.043667
ENW	0.04	0.055	0.052	0.064	0.095	0.107	0.094	0.078	0.06	0.033	0.045	0.04	0.063583

ATTACHMENT 3
CONCENTRATION PLOTS AND WIND ROSES BY MONTH


MONTH: 1 (2013-2017)
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454450
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454550
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4617550
4617500
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4617300
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4617050
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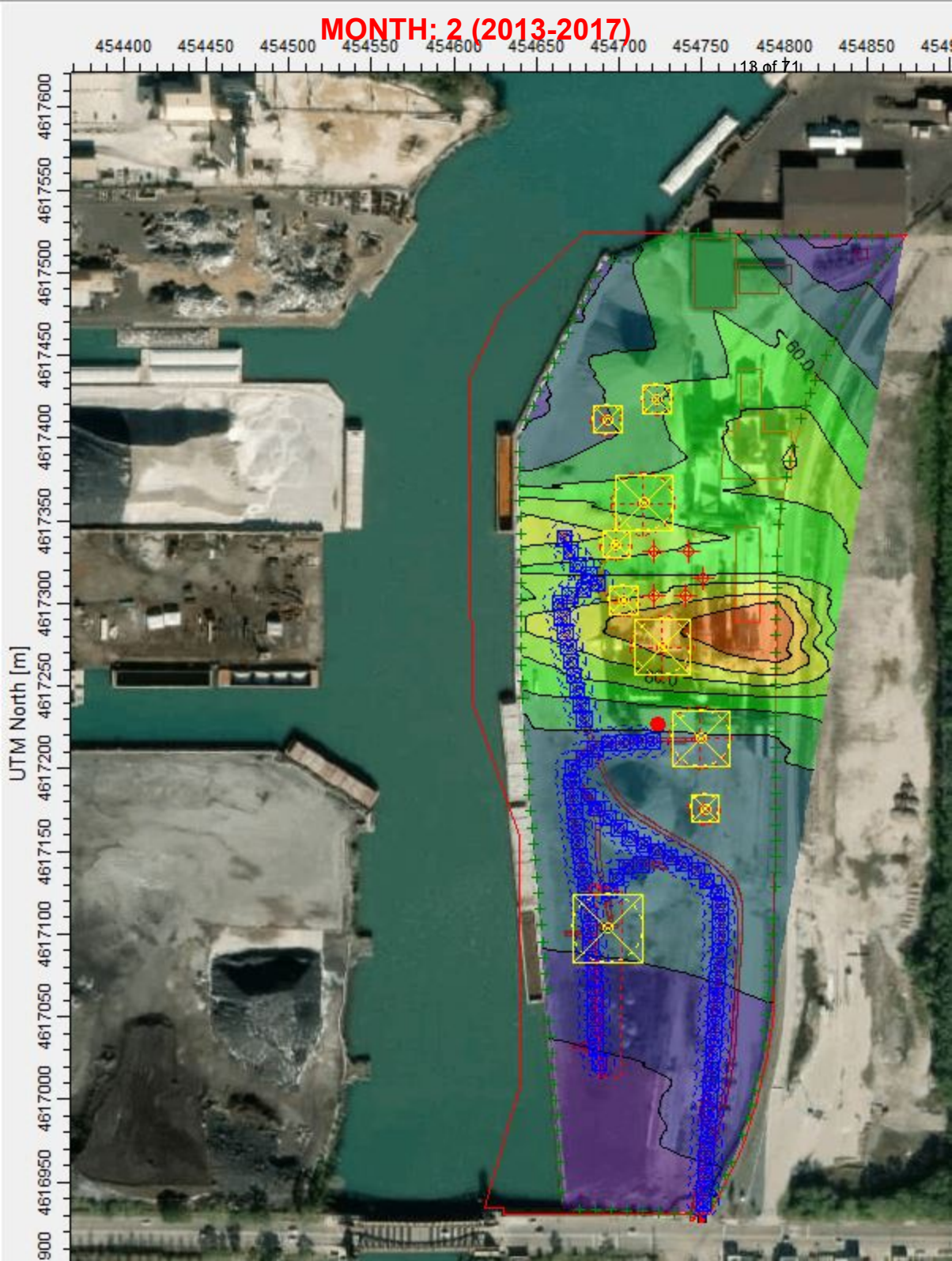
4616950
UTM North [m]


MONTH: 2 (2013-2017)
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454550
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454650
454700
454750
454800
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4617600
4617550
4617500
4617450
4617400
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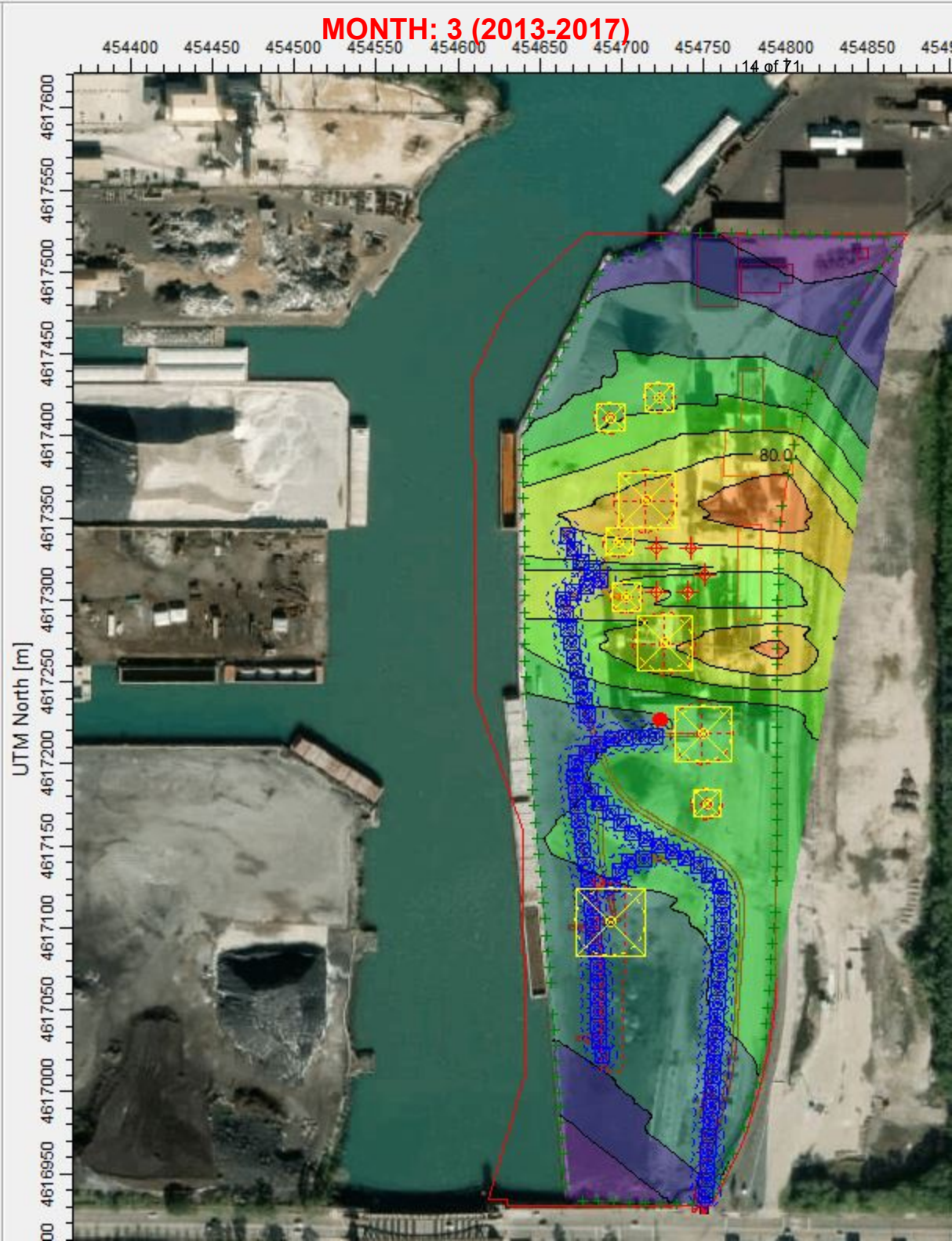
4617050
4617000
4616950
UTM North [m]
60.0


MONTH: 3 (2013-2017)
454400
454450
454500
454550
454600
454650
454700
454750
454800
454850
UTM North [m]
4617600
4617550
4617500
4617450
4617400
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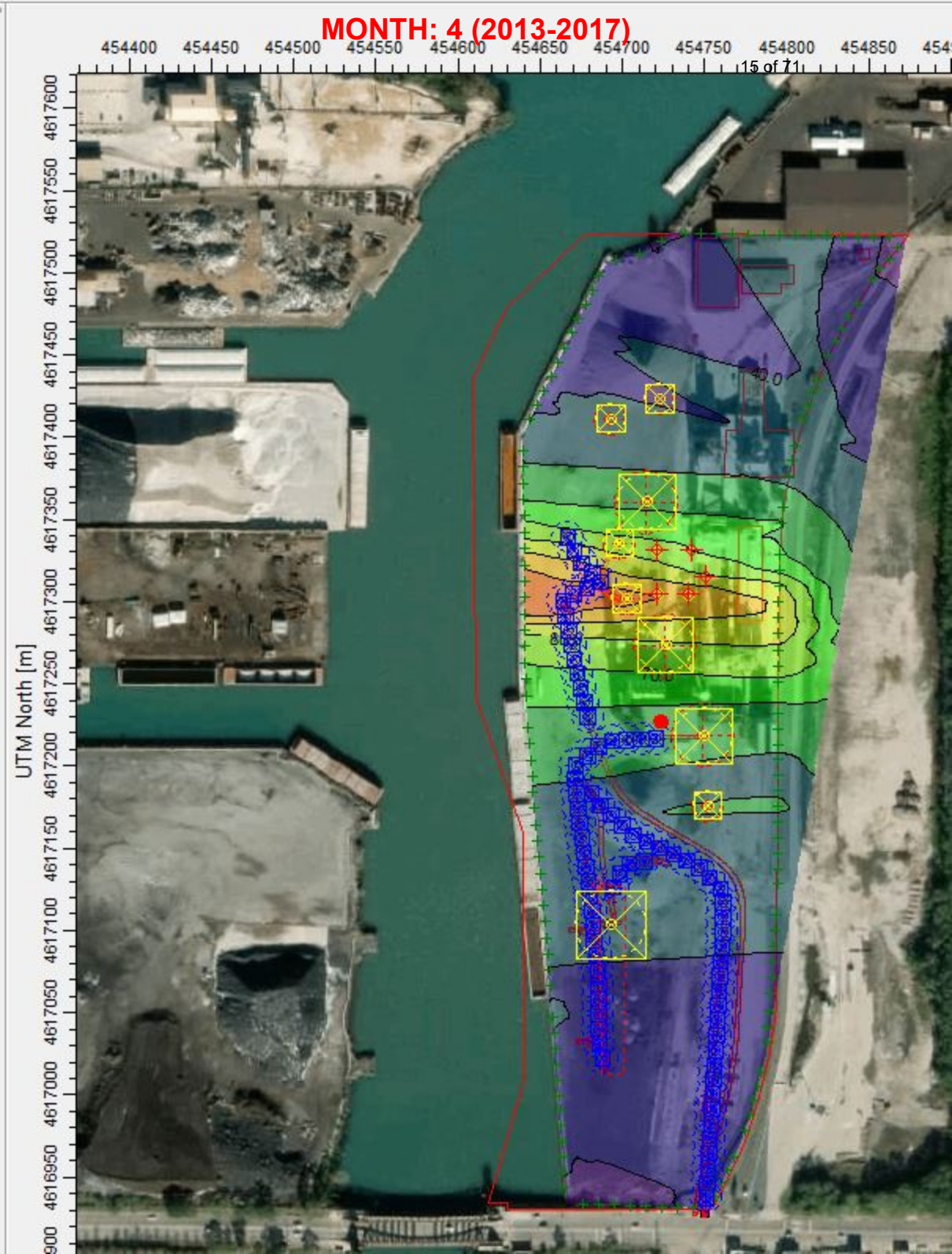
4617250
4617200
4617150
4617100
4617050
4617000
4616950
80.0


MONTH: 4 (2013-2017)
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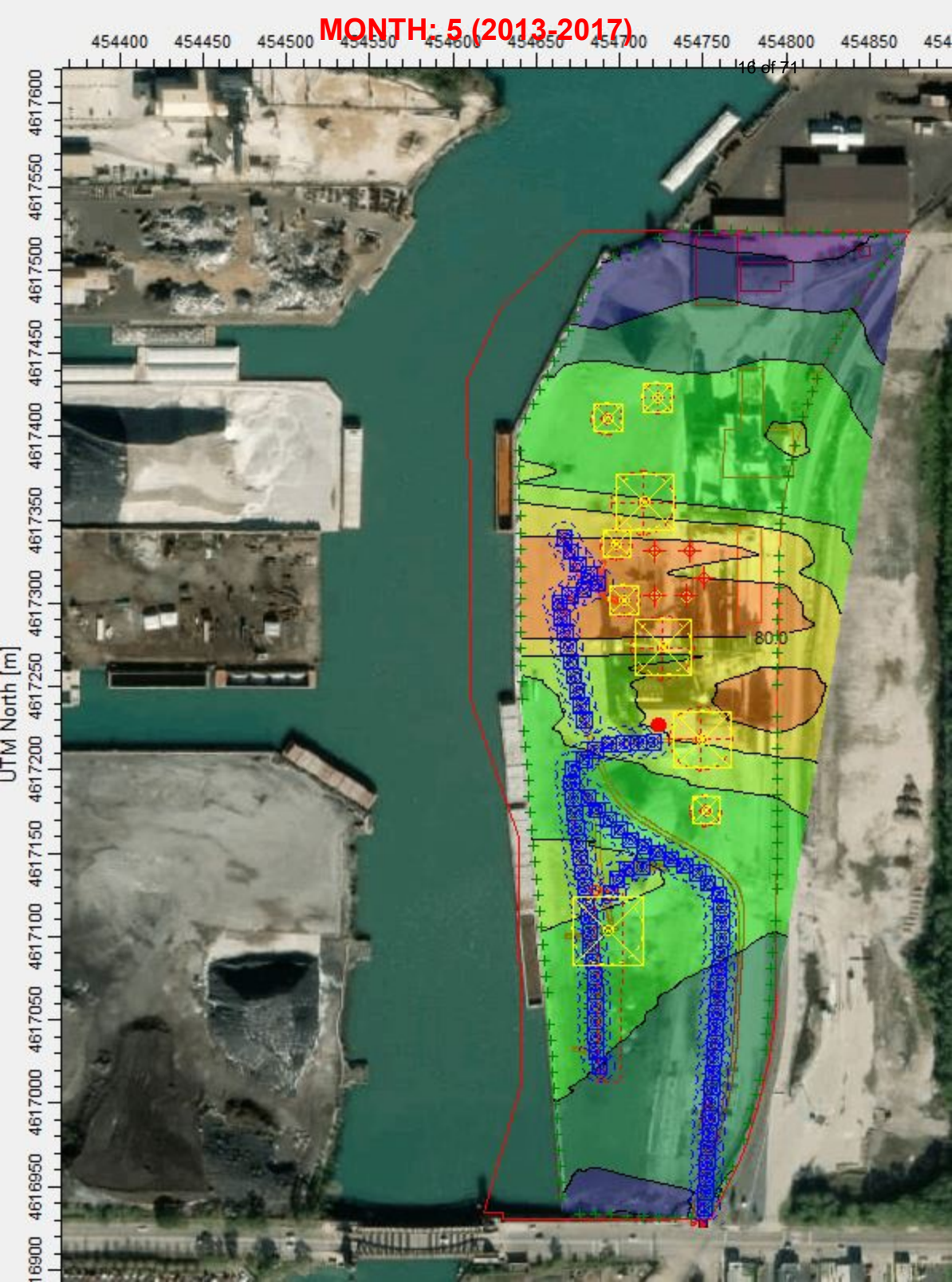
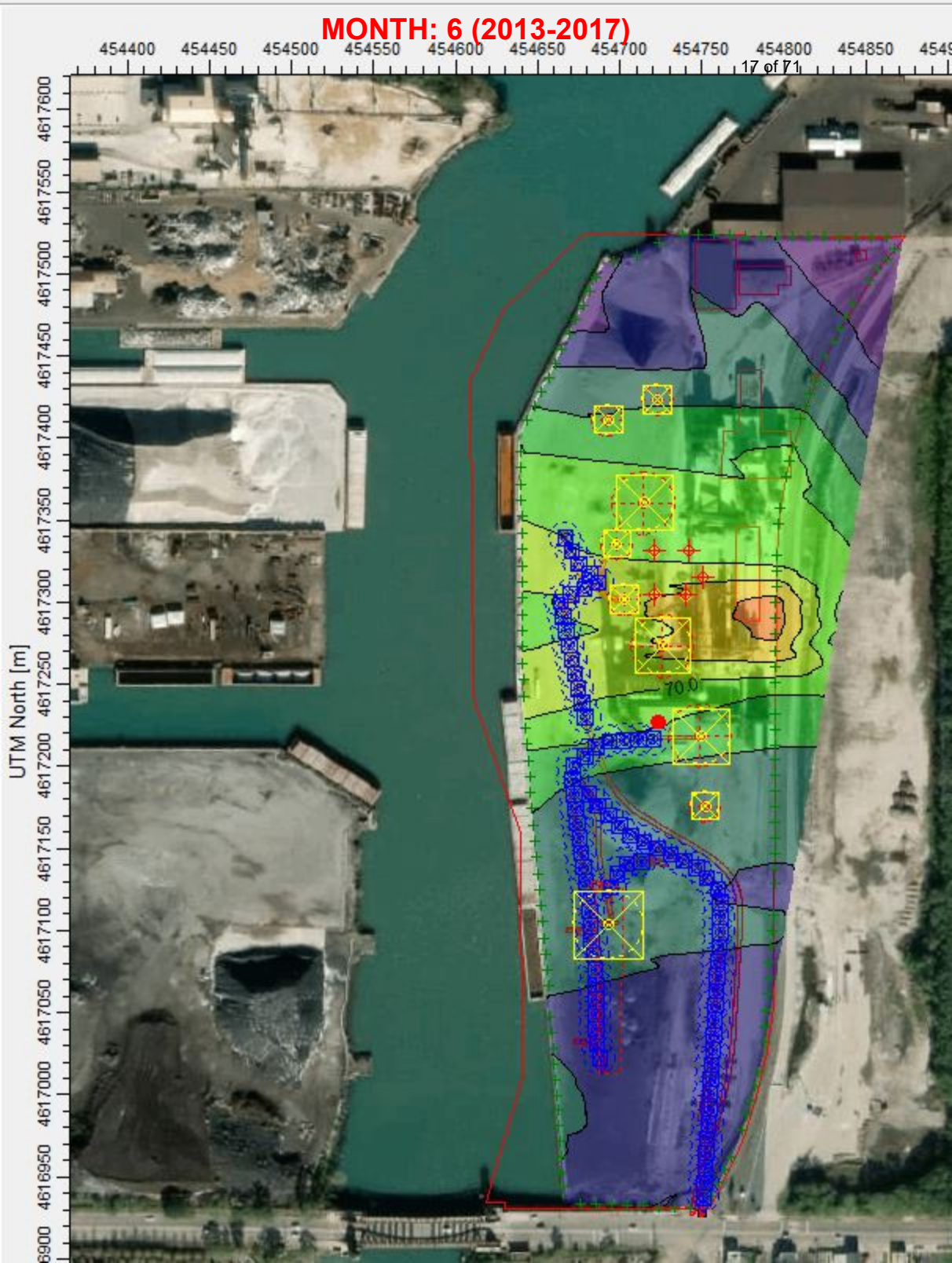
454450
454500
454550
454600
454650
454700
454750
454800
454850
UTM North [m]
4617600
4617550
4617500
4617450
4617400
4617350
4617300
4617250
4617200
4617150
4617100
4617050
4617000
4616950

MONTH: 5 (2013-2017)




MONTH: 6 (2013-2017)
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454650
454700
454750
454800
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4617600
4617550
4617500
4617450
4617400
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6900
UTM North [m]
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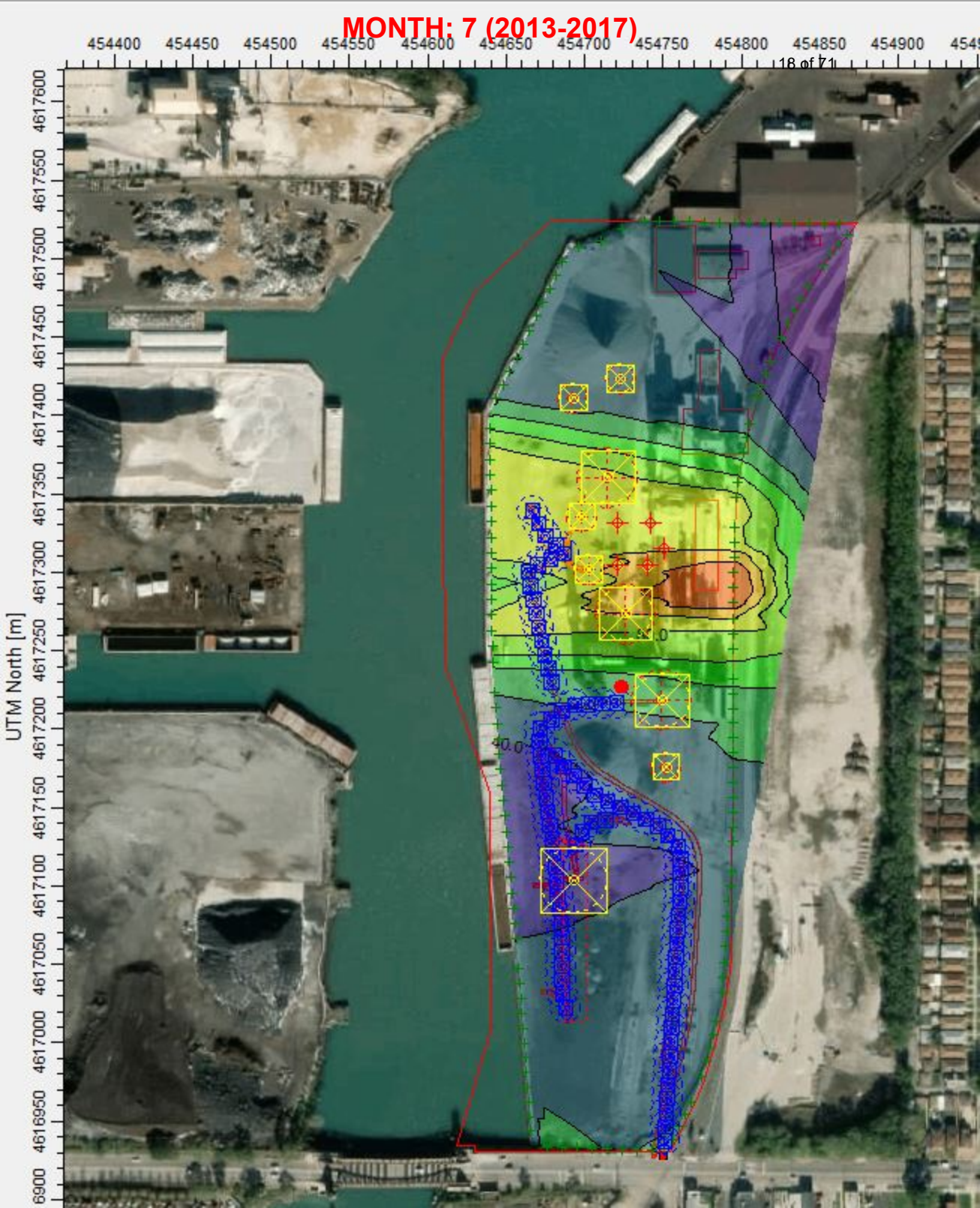
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454900
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4617550
4617500
4617450
4617400
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4617150
4617100
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4617000
4616950
6900
UTM North [m]
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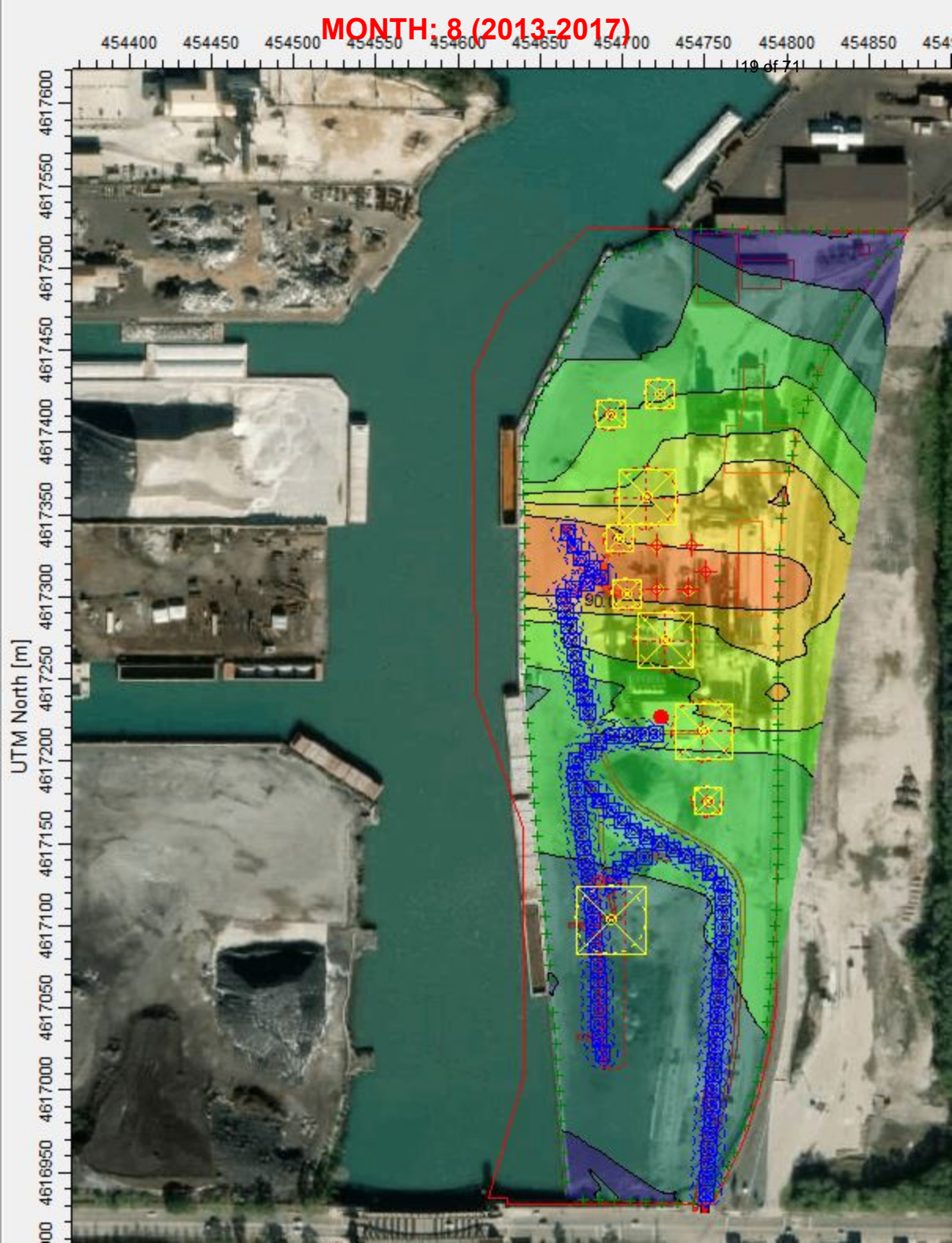
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4617500
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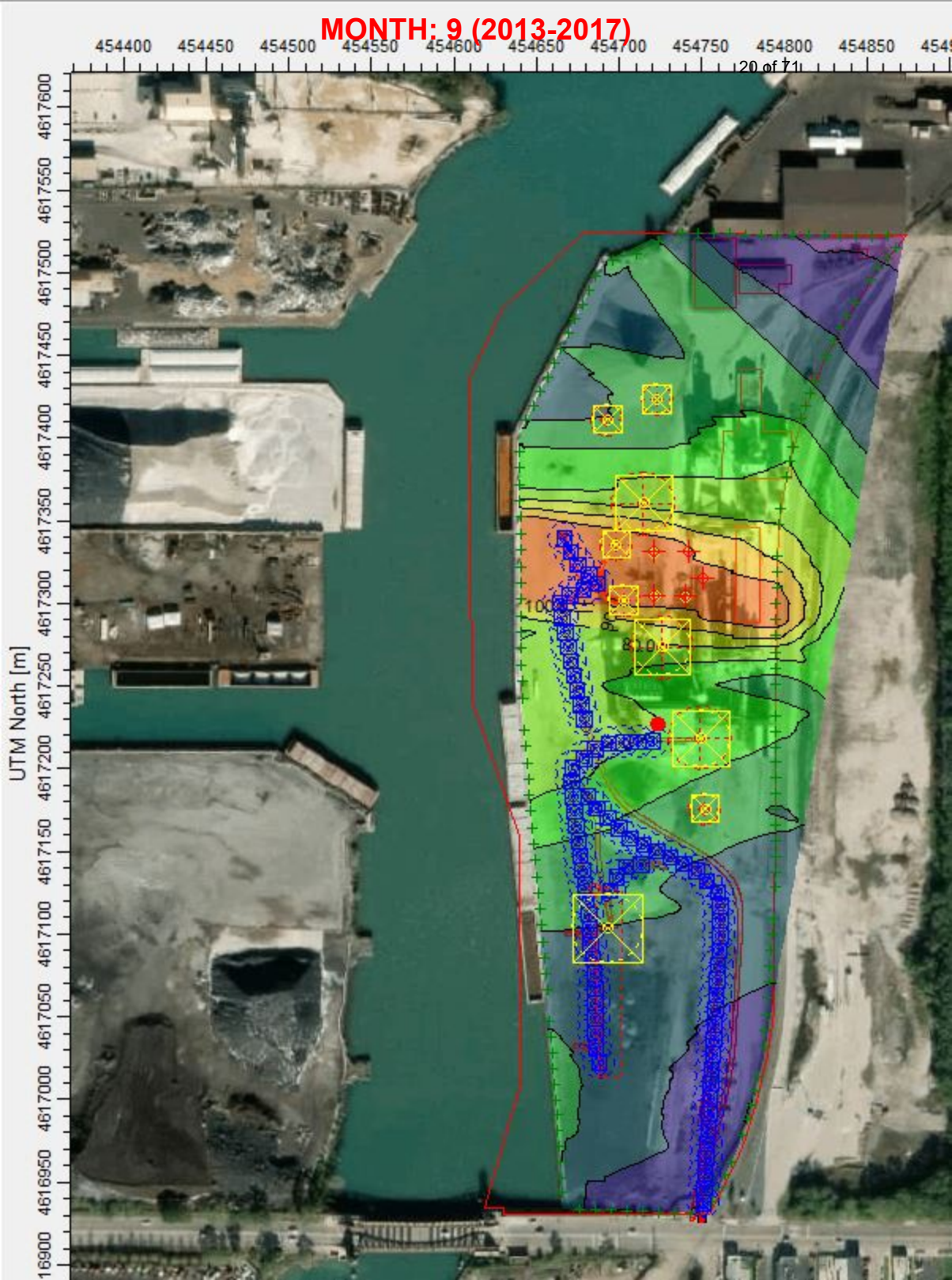
4617000
4616950
UTM North [m]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454650
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454750
454800
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4617500
4617450
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4617250
4617200
4617150
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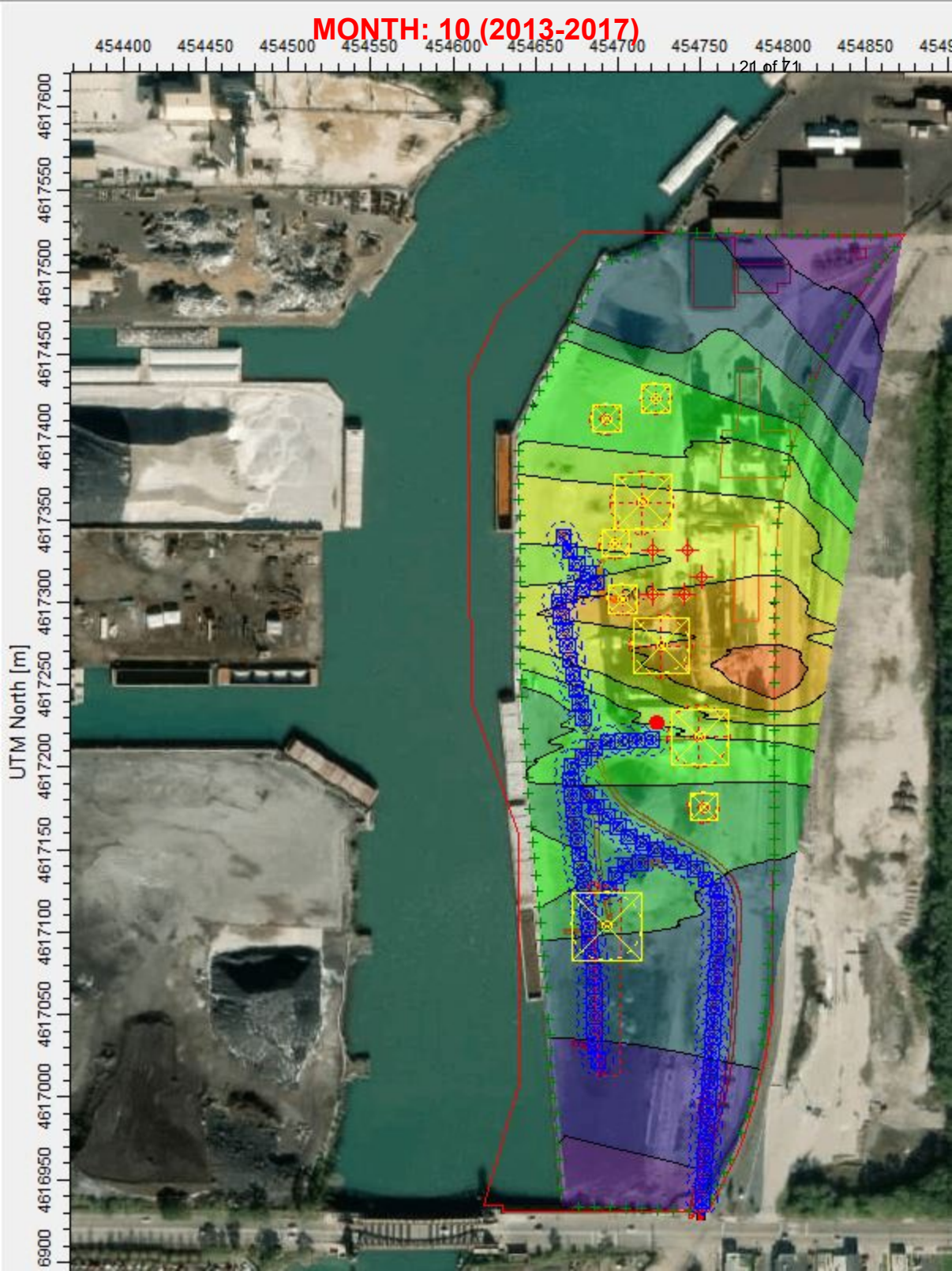
4617000
4616950
16900
UTM North [m]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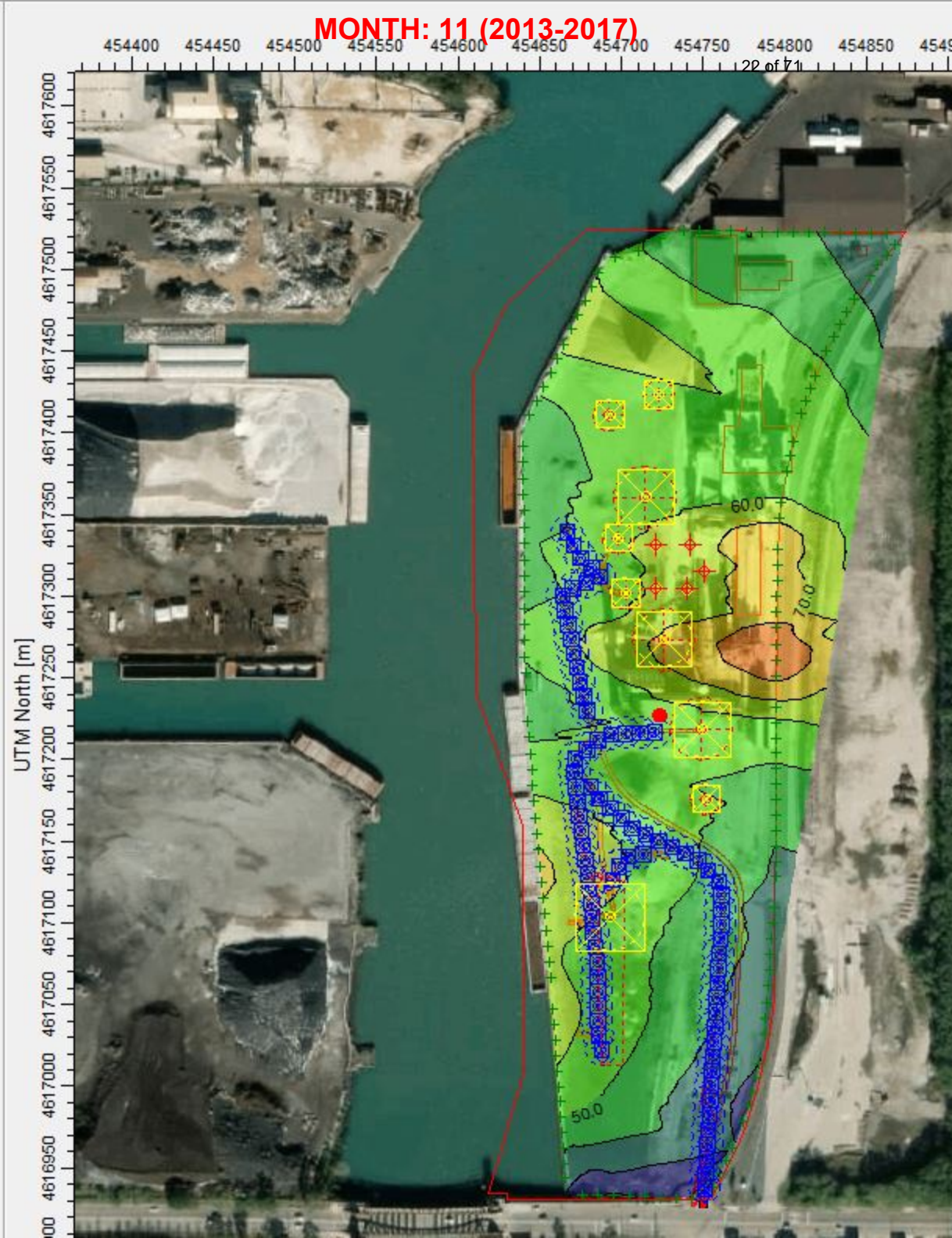
6900
UTM North [m]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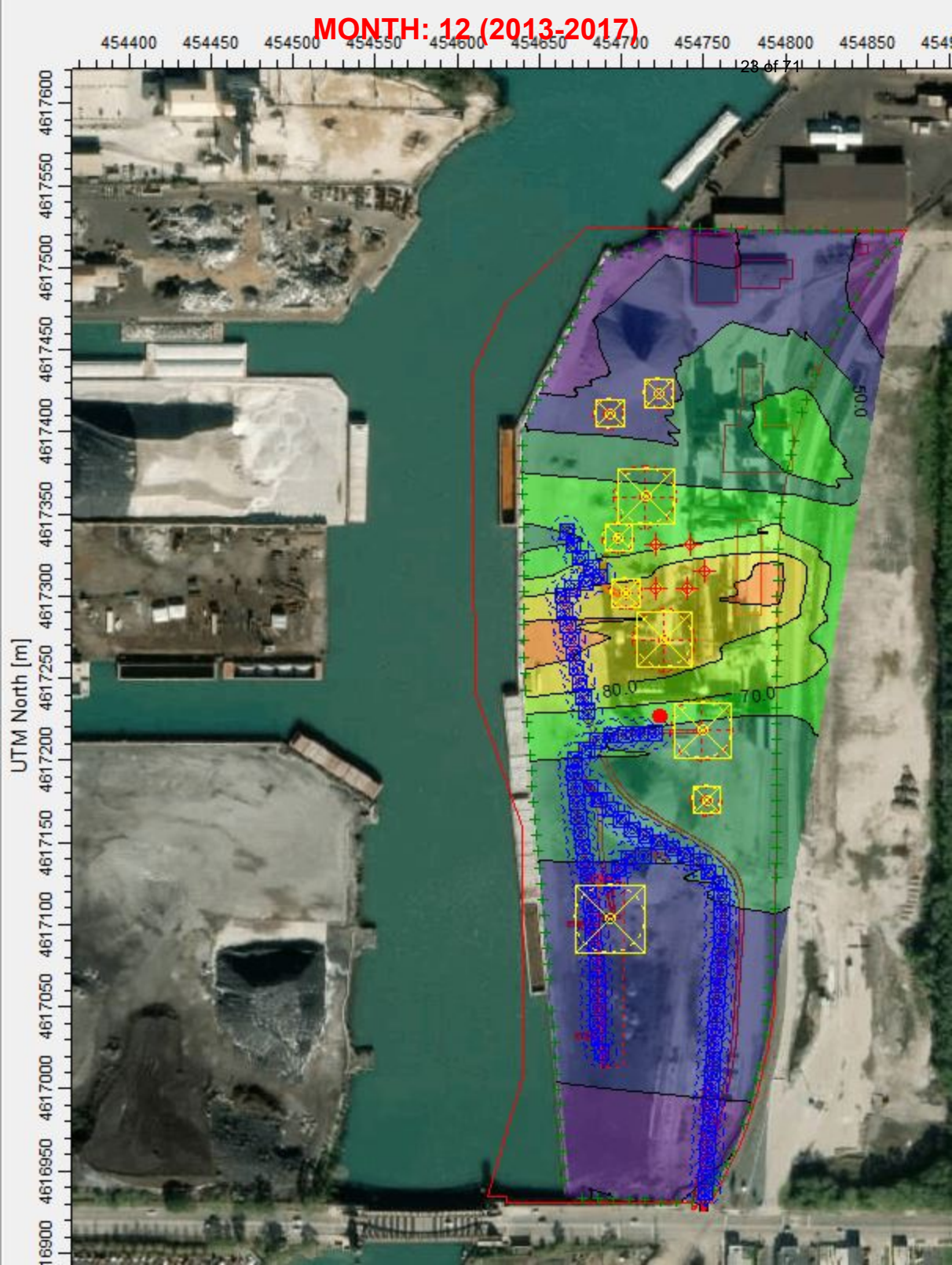
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4617300
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4617050
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UTM North [m]
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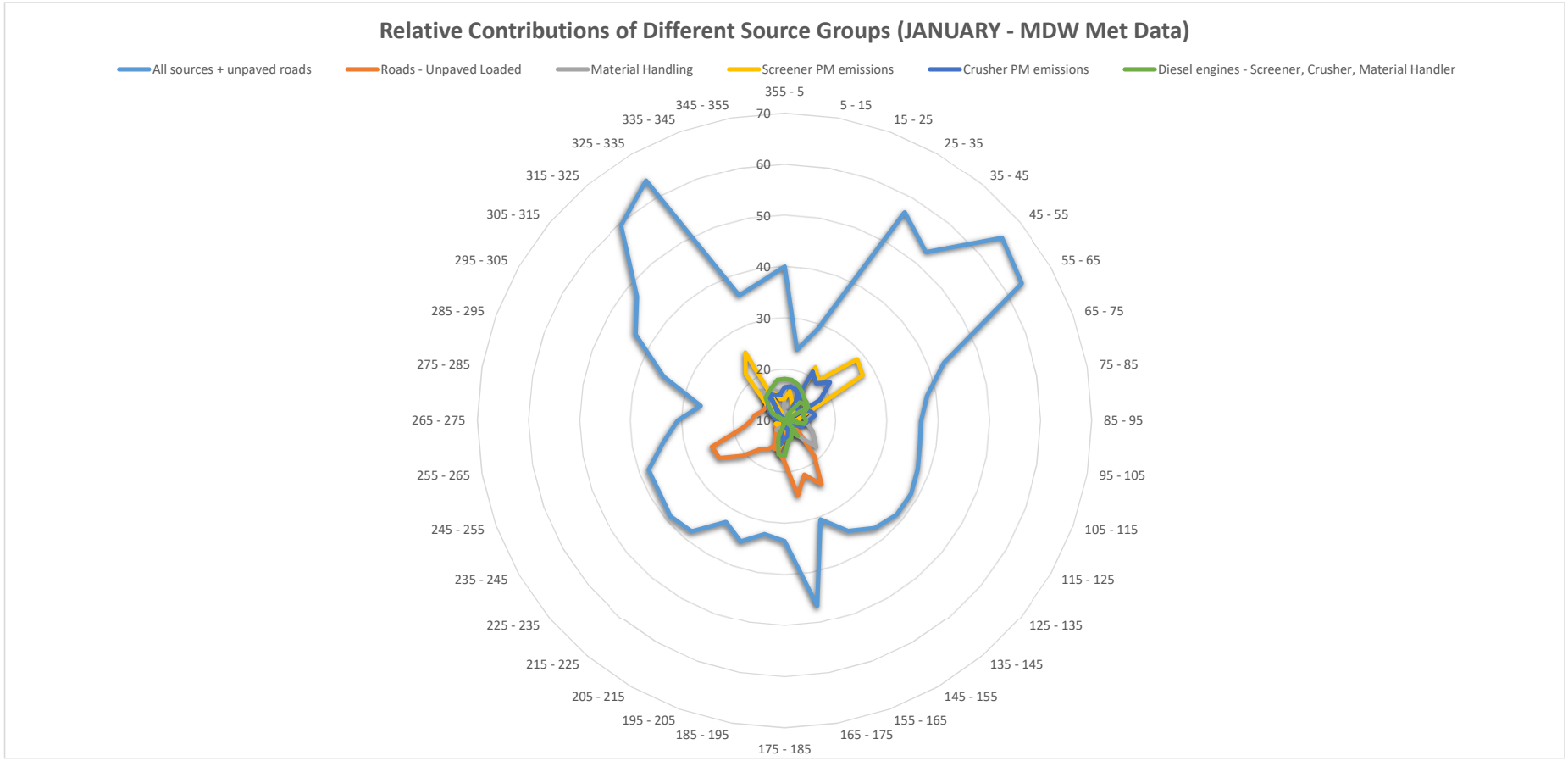
70.0
80.0


Relative Contributions of Different Source Groups (JANUARY - MDW Met Data)
All sources + unpaved roads
Roads - Unpaved Loaded
Material Handling
Screener PM emissions
Crusher PM emissions
Diesel engines - Screener, Crusher, Material Handler
355 - 5
5 - 15
15 - 25
25 - 35
35 - 45
45 - 55
55 - 65
65 - 75
75 - 85
85 - 95
95 - 105
105 - 115
115 - 125
125 - 135
135 - 145
145 - 155
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265 - 275
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40
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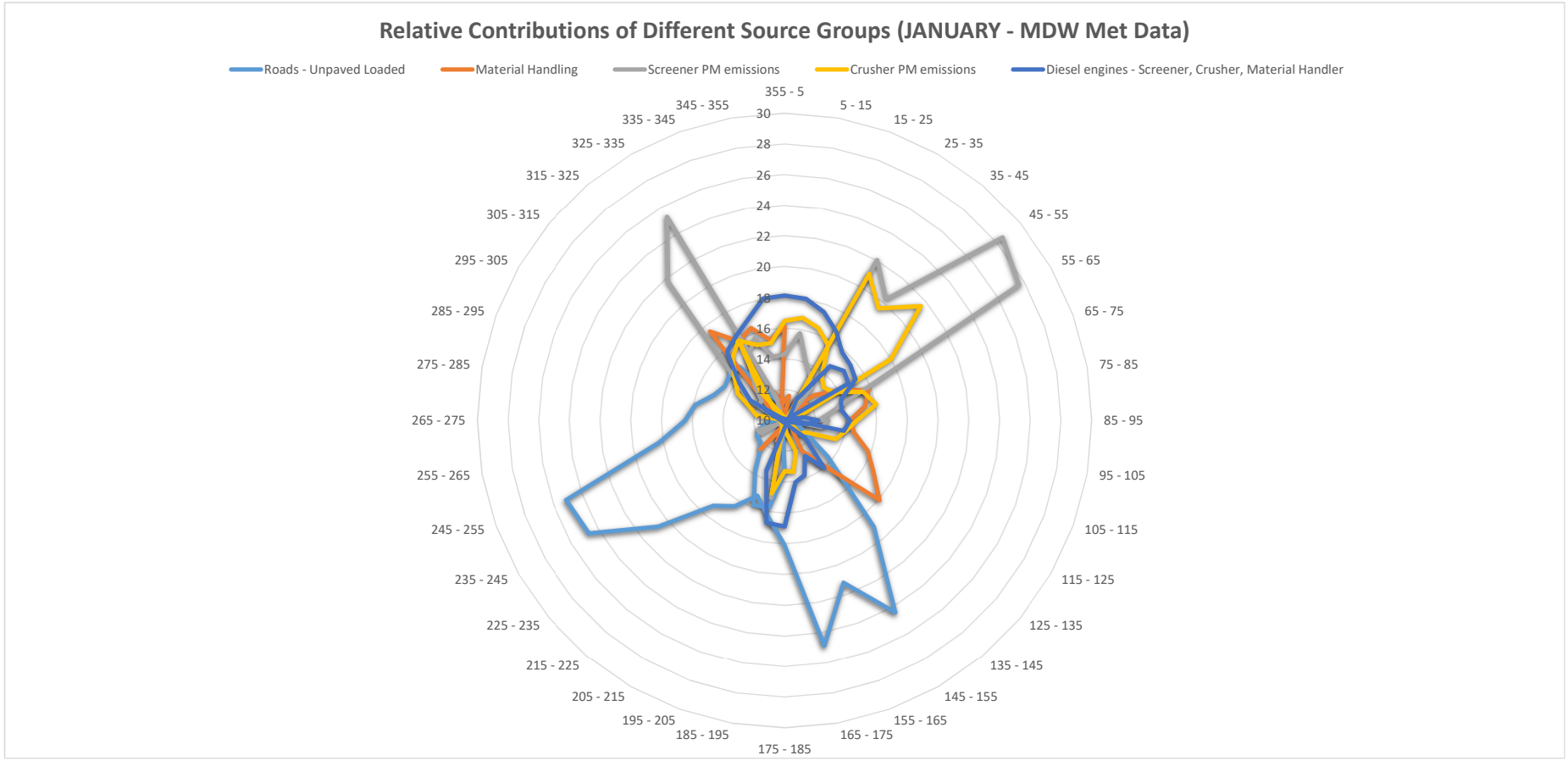
20
10


Relative Contributions of Different Source Groups (JANUARY - MDW Met Data)
Roads - Unpaved Loaded
Material Handling
Screener PM emissions
Crusher PM emissions
Diesel engines - Screener, Crusher, Material Handler
355 - 5
5 - 15
15 - 25
25 - 35
35 - 45
45 - 55
55 - 65
65 - 75
75 - 85
85 - 95
95 - 105
105 - 115
115 - 125
125 - 135
135 - 145
145 - 155
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165 - 175
175 - 185
185 - 195
195 - 205
205 - 215
215 - 225
225 - 235
235 - 245
245 - 255
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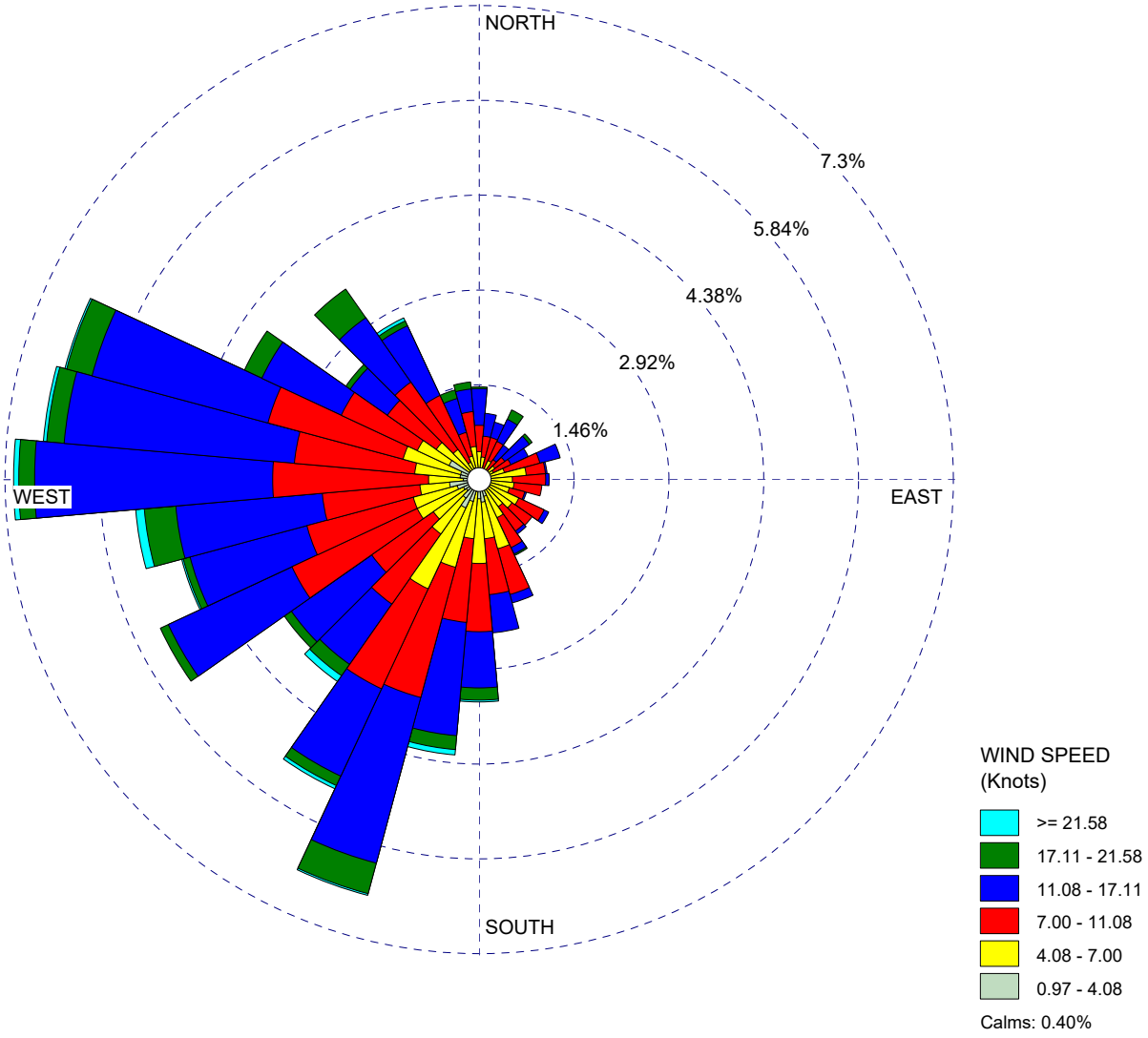
265 - 275
275 - 285
285 - 295
295 - 305
305 - 315
315 - 325
325 - 335
335 - 345
345 - 355
30
28
26
24
22
20
18
16
14
12
10

WIND ROSE PLOT:

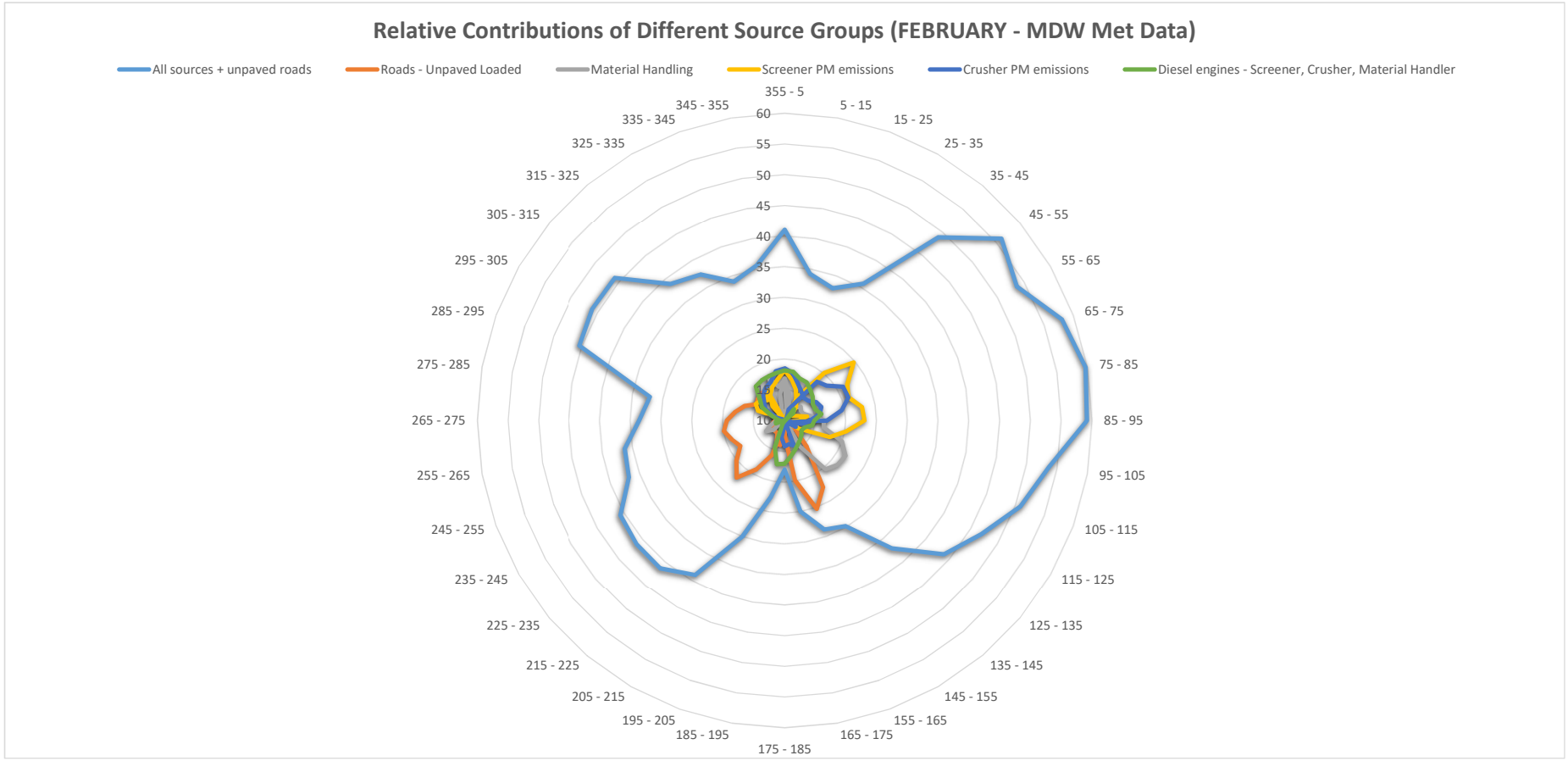
MDW JANUARY

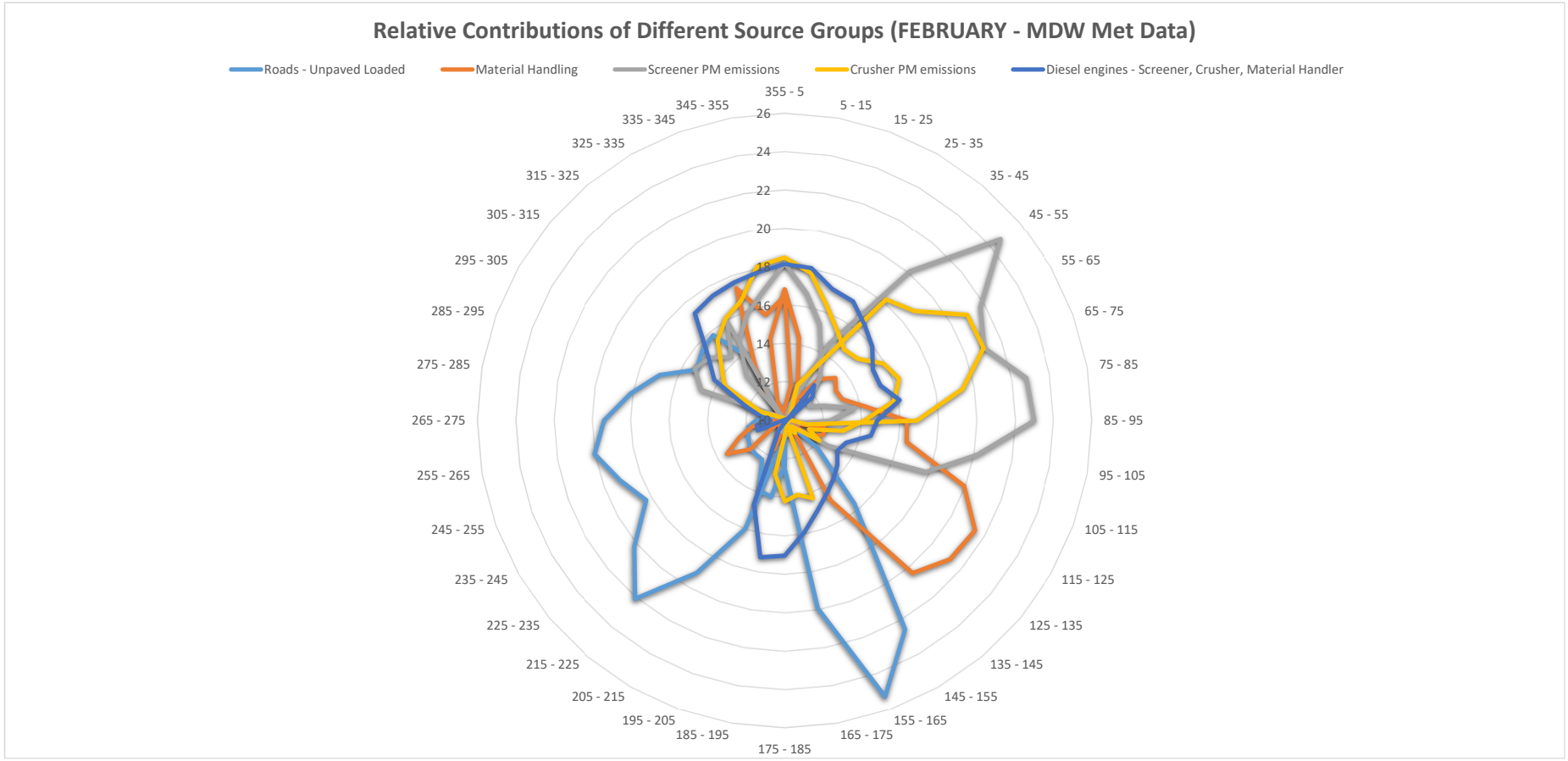
DISPLAY:

Wind Speed
Direction (blowing from)



COMMENTS:	DATA PERIOD:	COMPANY NAME:	
	Start Date: 1/1/2013 - 00:00 **End Date: 1/31/2017 - 23:59**	MODELER:	
	CALM WINDS: **0.40%**	TOTAL COUNT: **3718 hrs.**	
	AVG. WIND SPEED: **10.00 Knots**	DATE: **8/24/2018**	PROJECT NO.:


Relative Contributions of Different Source Groups (FEBRUARY - MDW Met Data)
All sources + unpaved roads
Roads - Unpaved Loaded
Material Handling
Screener PM emissions
Crusher PM emissions
Diesel engines - Screener, Crusher, Material Handler
355 - 5
5 - 15
15 - 25
25 - 35
35 - 45
45 - 55
55 - 65
65 - 75
75 - 85
85 - 95
95 - 105
105 - 115
115 - 125
125 - 135
135 - 145
145 - 155
155 - 165
165 - 175
175 - 185
185 - 195
195 - 205
205 - 215
215 - 225
225 - 235
235 - 245
245 - 255
255 - 265
265 - 275
275 - 285
285 - 295
295 - 305
305 - 315
315 - 325
325 - 335
335 - 345
345 - 355
60
55
50
45
40
35
30
25
20

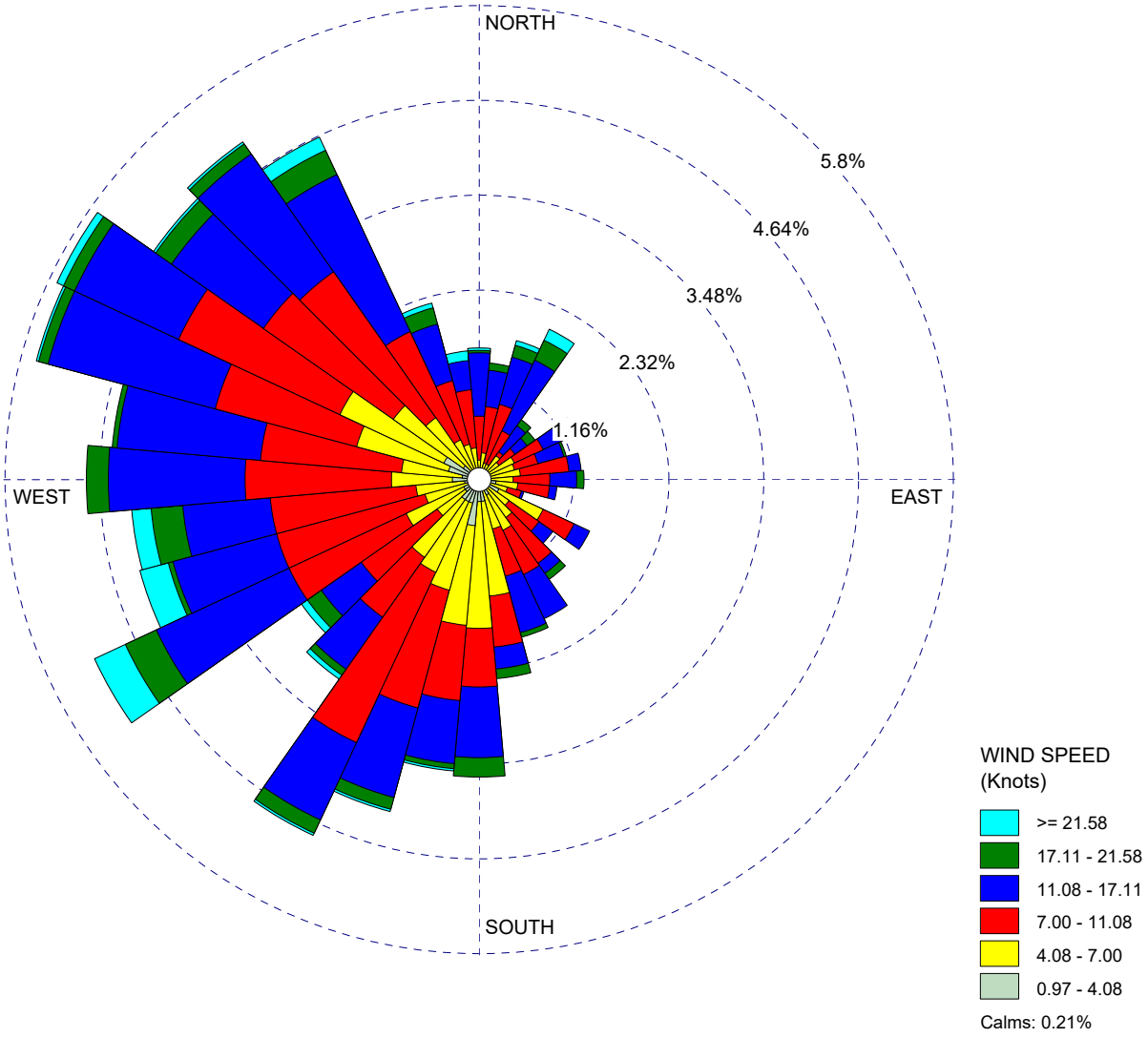

Relative Contributions of Different Source Groups (FEBRUARY - MDW Met Data)
Roads - Unpaved Loaded
Material Handling
Screener PM emissions
Crusher PM emissions
Diesel engines - Screener, Crusher, Material Handler
355 - 5
5 - 15
15 - 25
25 - 35
35 - 45
45 - 55
55 - 65
65 - 75
75 - 85
85 - 95
95 - 105
105 - 115
115 - 125
125 - 135
135 - 145
145 - 155
155 - 165
165 - 175
175 - 185
185 - 195
195 - 205
205 - 215
215 - 225
225 - 235
235 - 245
245 - 255
255 - 265
265 - 275
275 - 285
285 - 295
295 - 305
305 - 315
315 - 325
325 - 335
335 - 345
345 - 355
26
24
22
20
18
16
14
12

WIND ROSE PLOT:

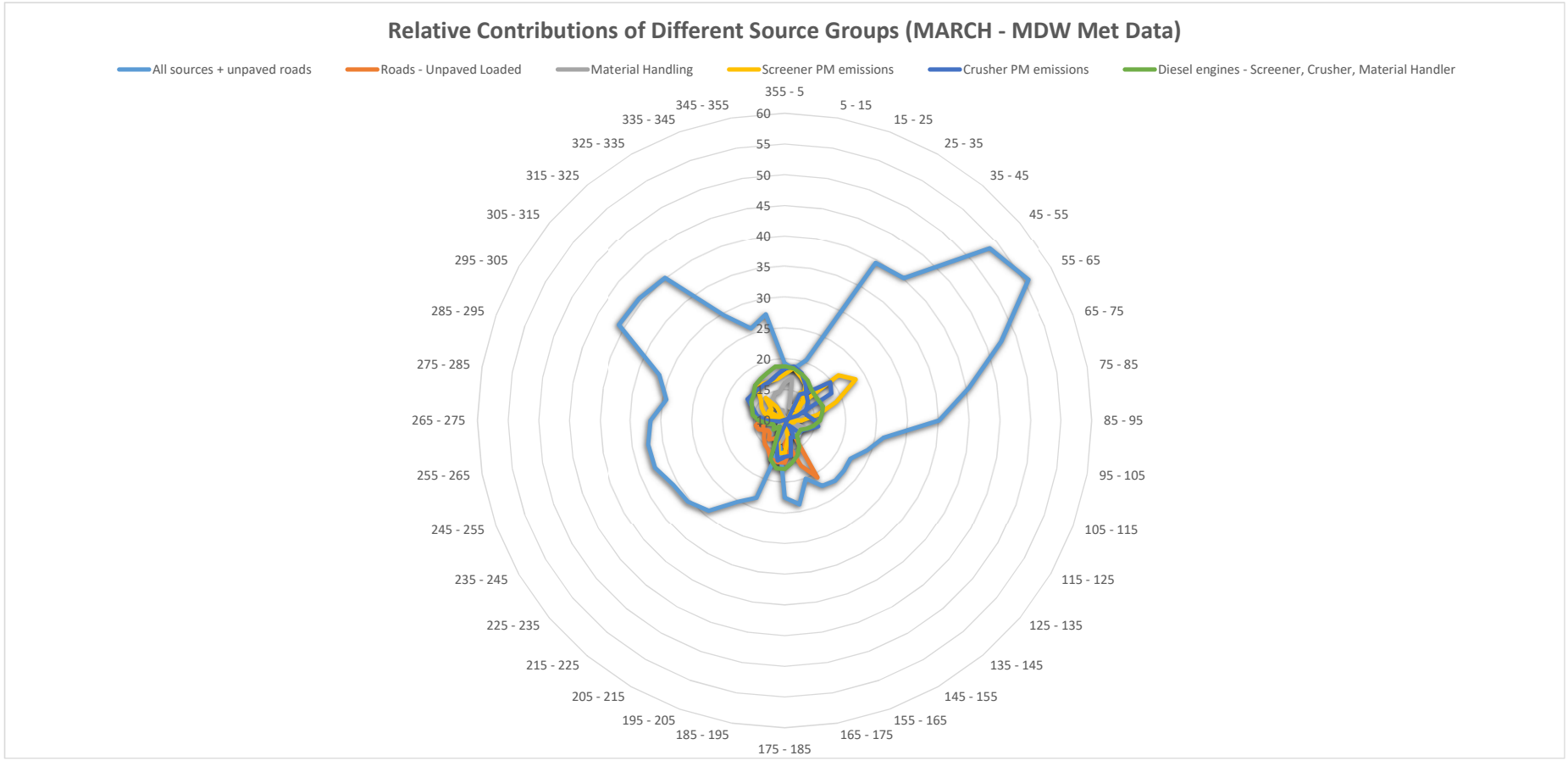
MDW FEBRUARY

DISPLAY:

Wind Speed
Direction (blowing from)



COMMENTS:	DATA PERIOD:	COMPANY NAME:	
	Start Date: 2/1/2013 - 00:00 **End Date: 2/28/2017 - 23:59**	MODELER:	
	CALM WINDS: **0.21%**	TOTAL COUNT: **3360 hrs.**	
	AVG. WIND SPEED: **9.88 Knots**	DATE: **8/24/2018**	PROJECT NO.:


Relative Contributions of Different Source Groups (MARCH - MDW Met Data)
All sources + unpaved roads
Roads - Unpaved Loaded
Material Handling
Screener PM emissions
Crusher PM emissions
Diesel engines - Screener, Crusher, Material Handler
355 - 5
5 - 15
15 - 25
25 - 35
35 - 45
45 - 55
55 - 65
65 - 75
75 - 85
85 - 95
95 - 105
105 - 115
115 - 125
125 - 135
135 - 145
145 - 155
155 - 165
165 - 175
175 - 185
185 - 195
195 - 205
205 - 215
215 - 225
225 - 235
235 - 245
245 - 255
255 - 265
265 - 275
275 - 285
285 - 295
295 - 305
305 - 315
315 - 325
325 - 335
335 - 345
345 - 355
60
55
50
45
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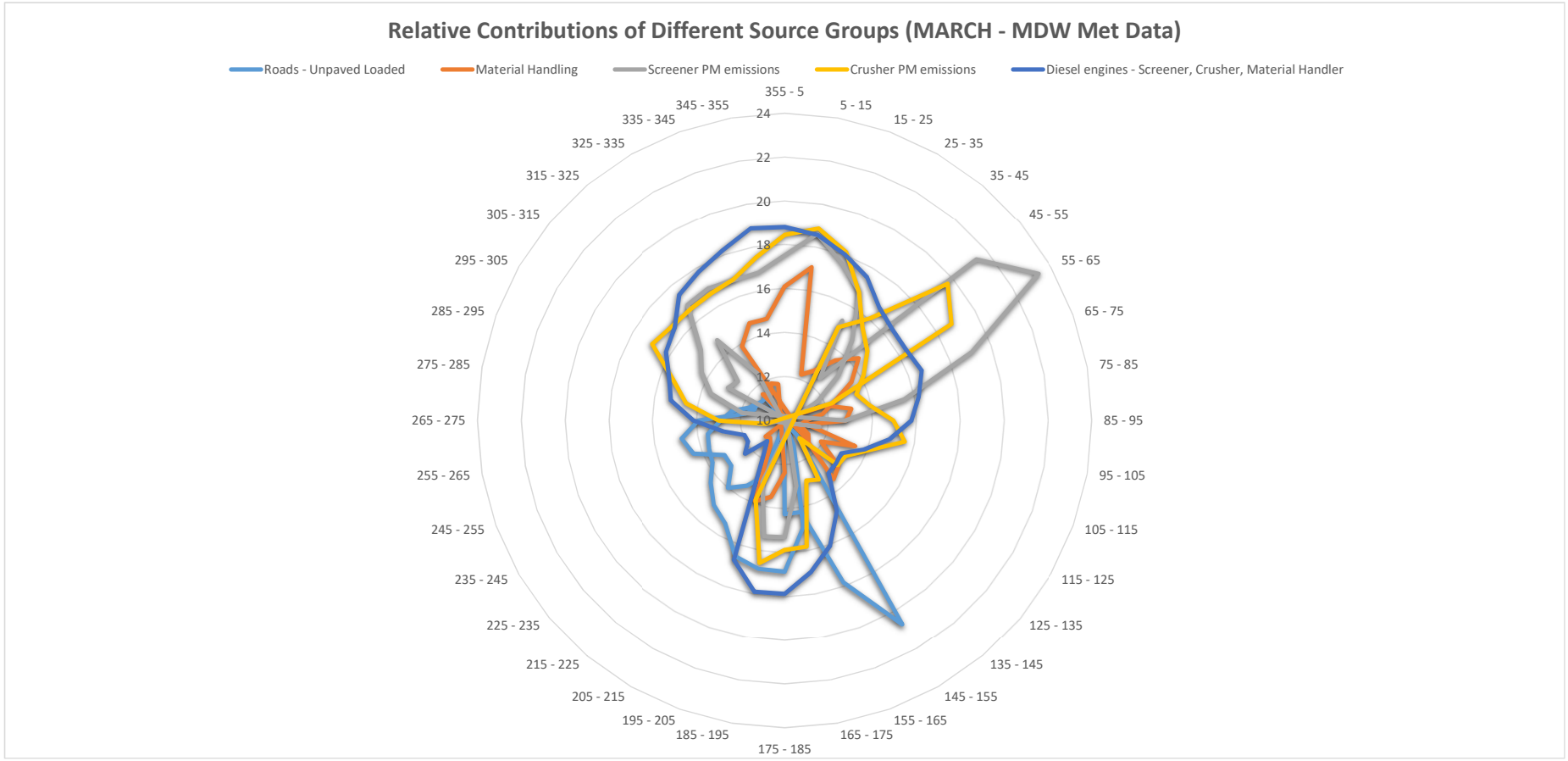
35
30
25
20


Relative Contributions of Different Source Groups (MARCH - MDW Met Data)
Roads - Unpaved Loaded
Material Handling
Screener PM emissions
Crusher PM emissions
Diesel engines - Screener, Crusher, Material Handler
355 - 5
5 - 15
15 - 25
25 - 35
35 - 45
45 - 55
55 - 65
65 - 75
75 - 85
85 - 95
95 - 105
105 - 115
115 - 125
125 - 135
135 - 145
145 - 155
155 - 165
165 - 175
175 - 185
185 - 195
195 - 205
205 - 215
215 - 225
225 - 235
235 - 245
245 - 255
255 - 265
265 - 275
275 - 285
285 - 295
295 - 305
305 - 315
315 - 325
325 - 335
335 - 345
345 - 355
24
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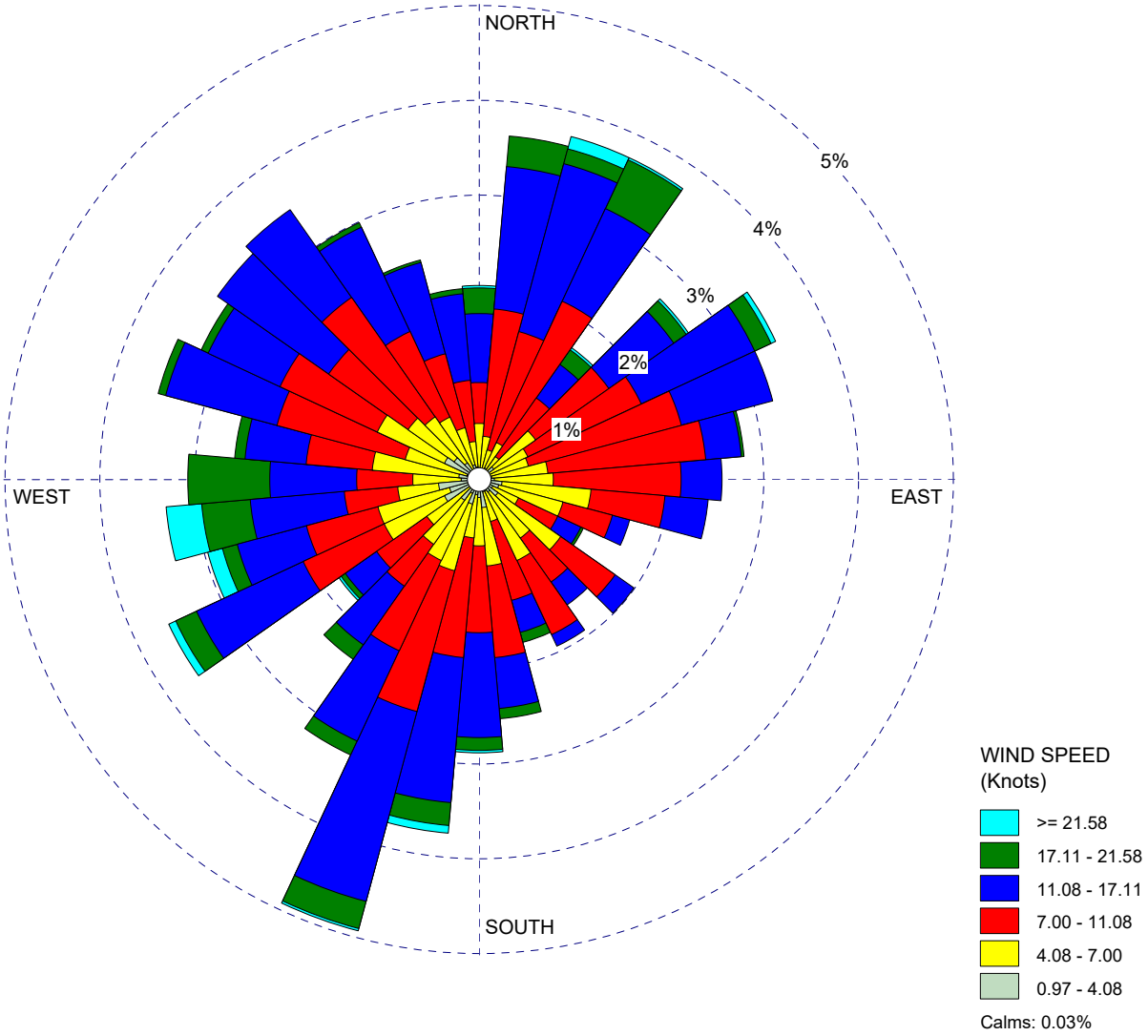
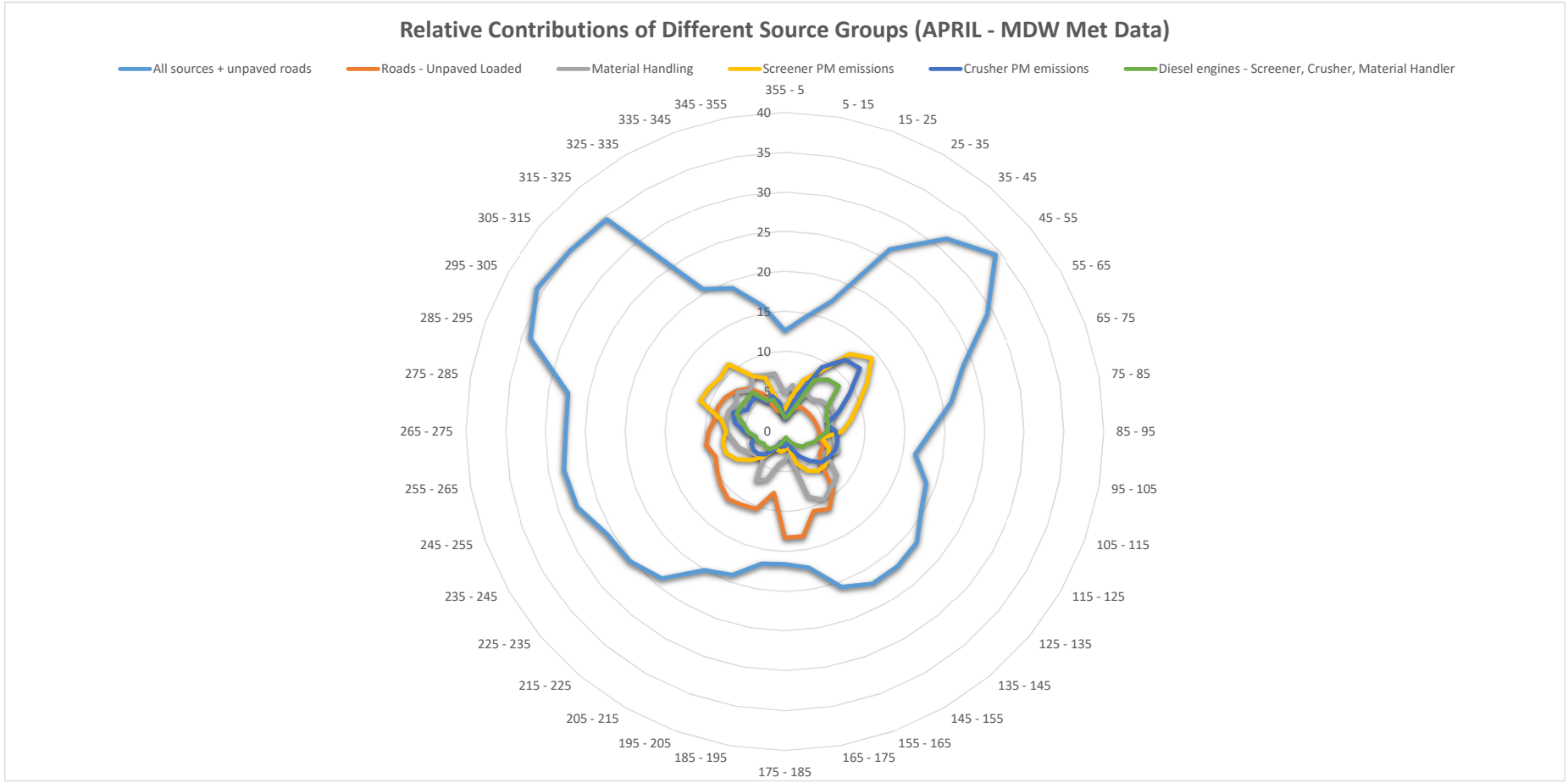
WIND ROSE PLOT:
MDW MARCH

DISPLAY:
Wind Speed
Direction (blowing from)



COMMENTS:	DATA PERIOD:	COMPANY NAME:	
	Start Date: 3/1/2013 - 00:00 **End Date: 3/31/2017 - 23:59**	MODELER:	
	CALM WINDS: **0.03%**	TOTAL COUNT: **3718 hrs.**	
	AVG. WIND SPEED: **10.02 Knots**	DATE: **8/24/2018**	PROJECT NO.:


Relative Contributions of Different Source Groups (APRIL - MDW Met Data)
All sources + unpaved roads
Roads - Unpaved Loaded
Material Handling
Screener PM emissions
Crusher PM emissions
Diesel engines - Screener, Crusher, Material Handler
355 - 5
5 - 15
15 - 25
25 - 35
35 - 45
45 - 55
55 - 65
65 - 75
75 - 85
85 - 95
95 - 105
105 - 115
115 - 125
125 - 135
135 - 145
145 - 155
155 - 165
165 - 175
175 - 185
185 - 195
195 - 205
205 - 215
215 - 225
225 - 235
235 - 245
245 - 255
255 - 265
265 - 275
275 - 285
285 - 295
295 - 305
305 - 315
315 - 325
325 - 335
335 - 345
345 - 355
40
35
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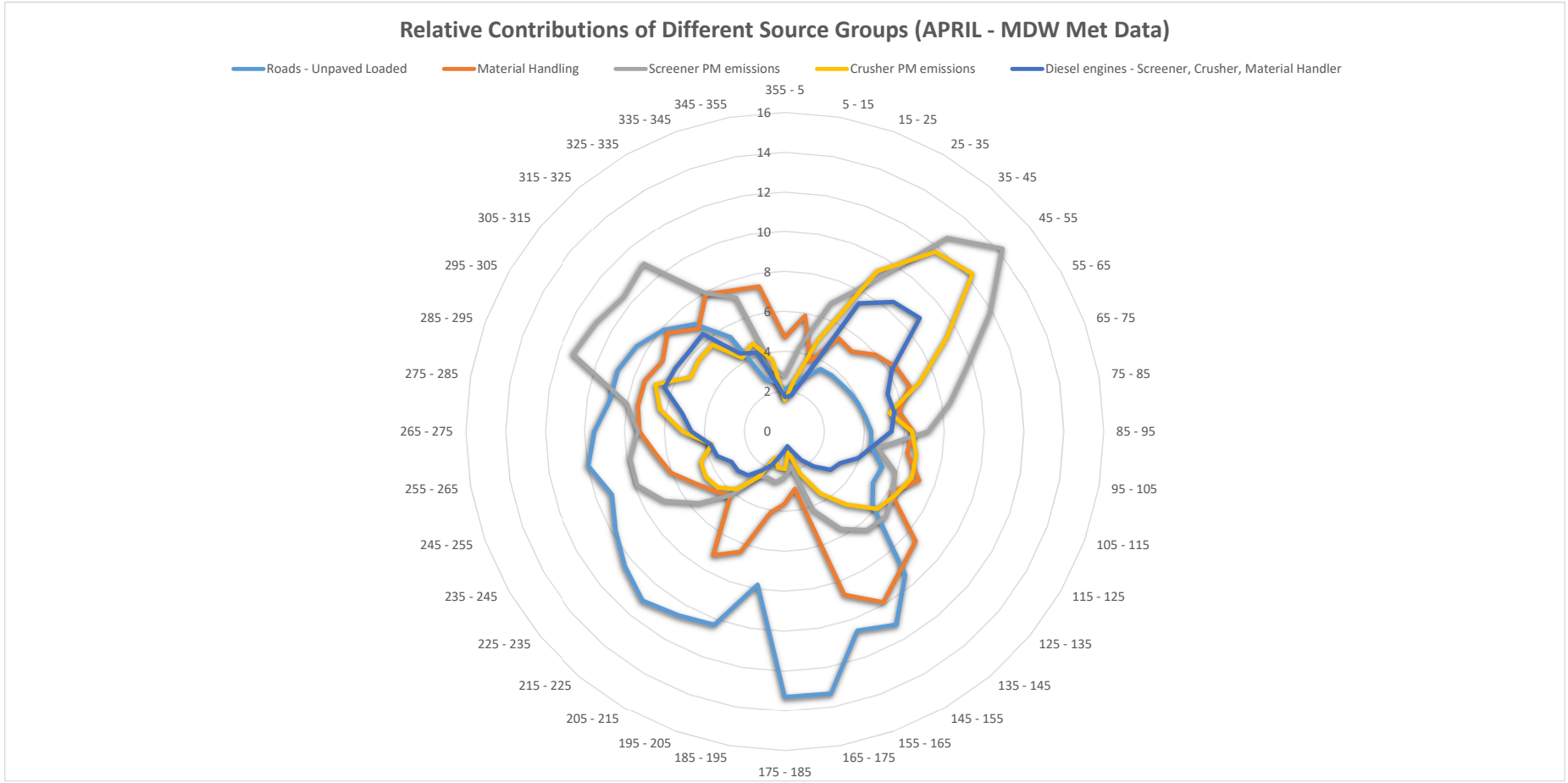
25
20
15
10
5
0


Relative Contributions of Different Source Groups (APRIL - MDW Met Data)
Roads - Unpaved Loaded
Material Handling
Screener PM emissions
Crusher PM emissions
Diesel engines - Screener, Crusher, Material Handler
355 - 5
5 - 15
15 - 25
25 - 35
35 - 45
45 - 55
55 - 65
65 - 75
75 - 85
85 - 95
95 - 105
105 - 115
115 - 125
125 - 135
135 - 145
145 - 155
155 - 165
165 - 175
175 - 185
185 - 195
195 - 205
205 - 215
215 - 225
225 - 235
235 - 245
245 - 255
255 - 265
265 - 275
275 - 285
285 - 295
295 - 305
305 - 315
315 - 325
325 - 335
335 - 345
345 - 355
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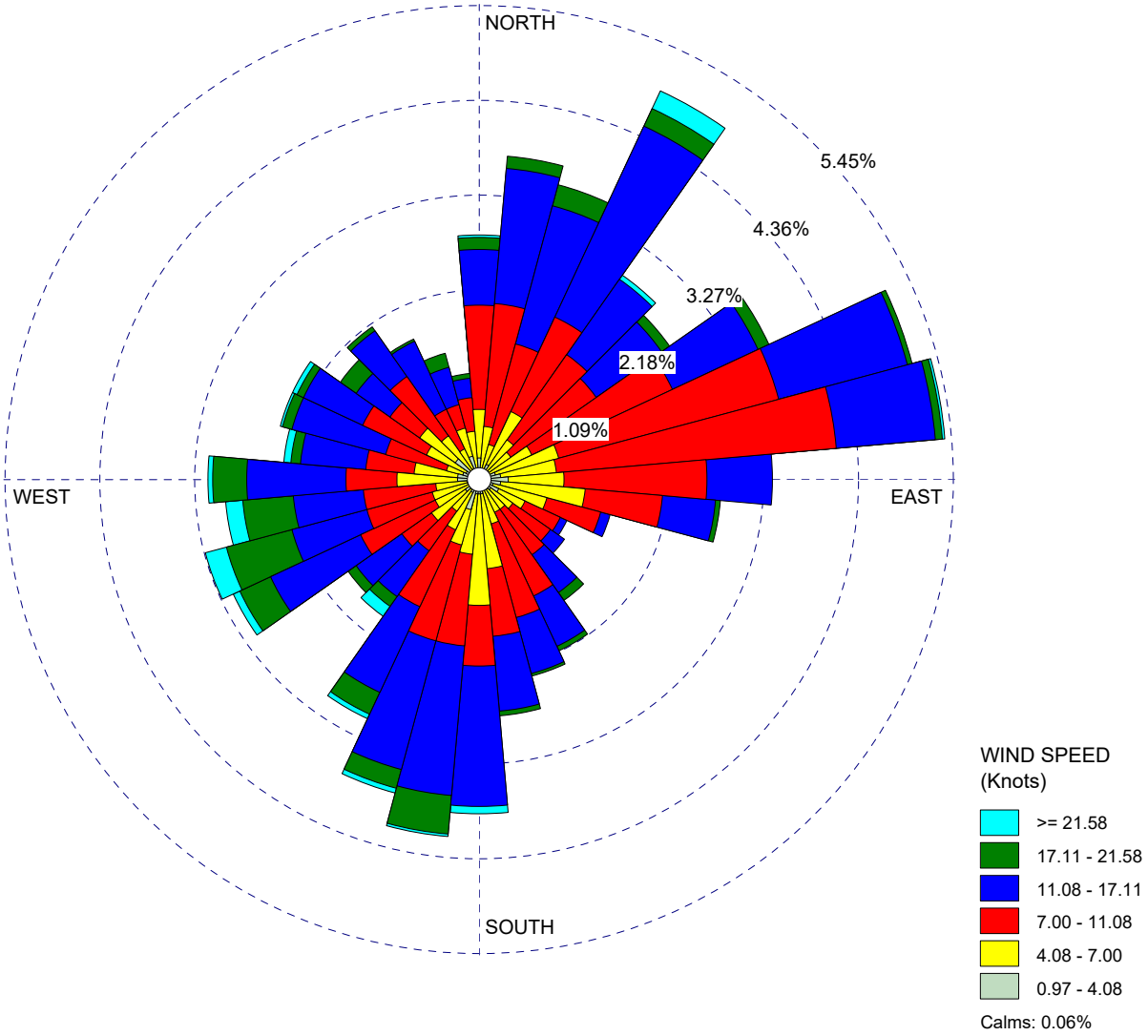
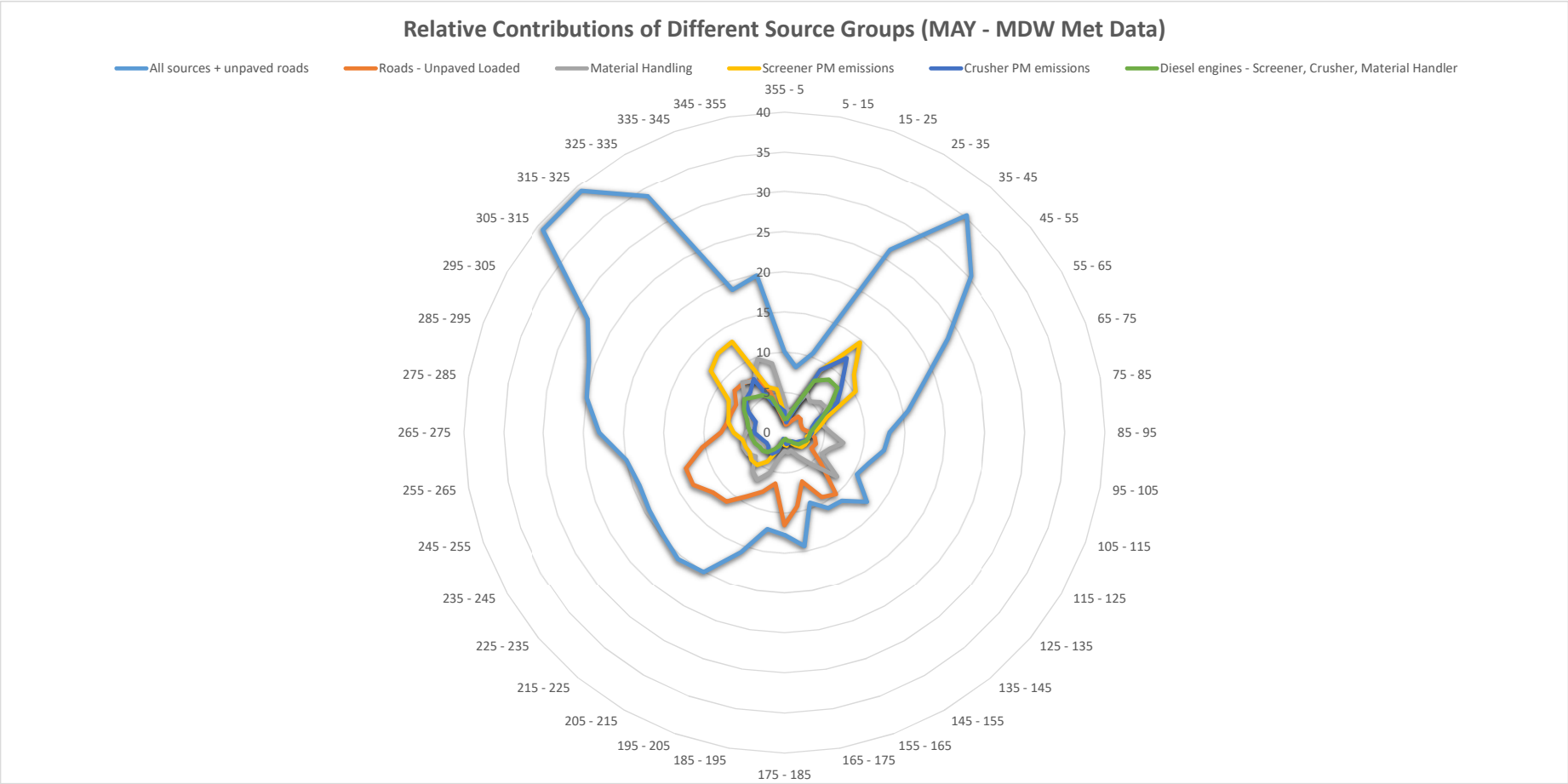
WIND ROSE PLOT:
MDW APRIL

DISPLAY:
Wind Speed
Direction (blowing from)



COMMENTS:	DATA PERIOD: **Start Date: 4/1/2013 - 00:00** **End Date: 4/30/2017 - 23:59**	COMPANY NAME:	
		MODELER:	
	CALM WINDS: **0.06%**	TOTAL COUNT: **3600 hrs.**	
	AVG. WIND SPEED: **10.27 Knots**	DATE: **8/24/2018**	PROJECT NO.:


Relative Contributions of Different Source Groups (MAY - MDW Met Data)
All sources + unpaved roads
Roads - Unpaved Loaded
Material Handling
Screener PM emissions
Crusher PM emissions
Diesel engines - Screener, Crusher, Material Handler
355 - 5
5 - 15
15 - 25
25 - 35
35 - 45
45 - 55
55 - 65
65 - 75
75 - 85
85 - 95
95 - 105
105 - 115
115 - 125
125 - 135
135 - 145
145 - 155
155 - 165
165 - 175
175 - 185
185 - 195
195 - 205
205 - 215
215 - 225
225 - 235
235 - 245
245 - 255
255 - 265
265 - 275
275 - 285
285 - 295
295 - 305
305 - 315
315 - 325
325 - 335
335 - 345
345 - 355
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35
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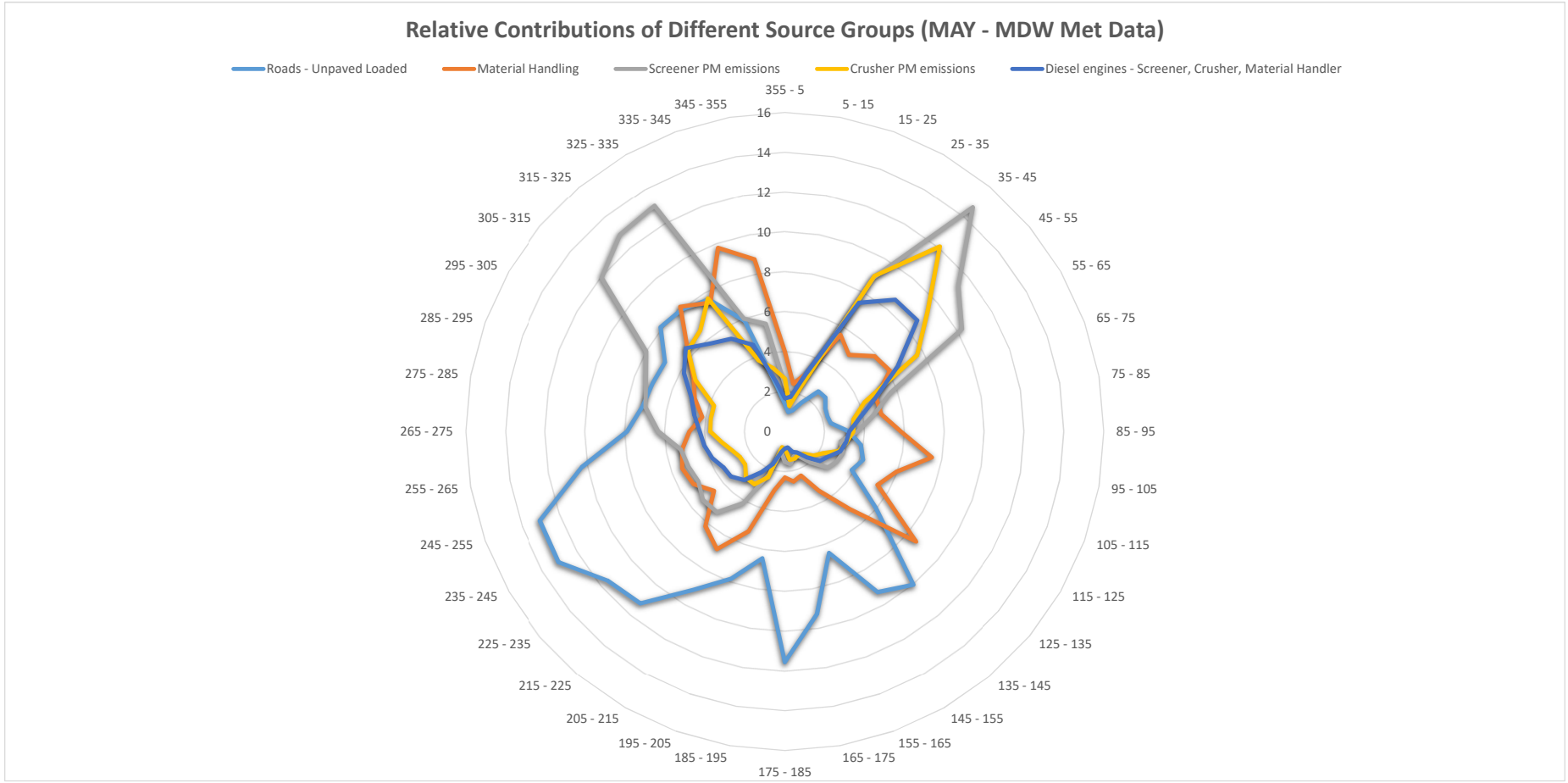
25
20
15
10
5
0


Relative Contributions of Different Source Groups (MAY - MDW Met Data)
Roads - Unpaved Loaded
Material Handling
Screener PM emissions
Crusher PM emissions
Diesel engines - Screener, Crusher, Material Handler
355 - 5
5 - 15
15 - 25
25 - 35
35 - 45
45 - 55
55 - 65
65 - 75
75 - 85
85 - 95
95 - 105
105 - 115
115 - 125
125 - 135
135 - 145
145 - 155
155 - 165
165 - 175
175 - 185
185 - 195
195 - 205
205 - 215
215 - 225
225 - 235
235 - 245
245 - 255
255 - 265
265 - 275
275 - 285
285 - 295
295 - 305
305 - 315
315 - 325
325 - 335
335 - 345
345 - 355
0
2
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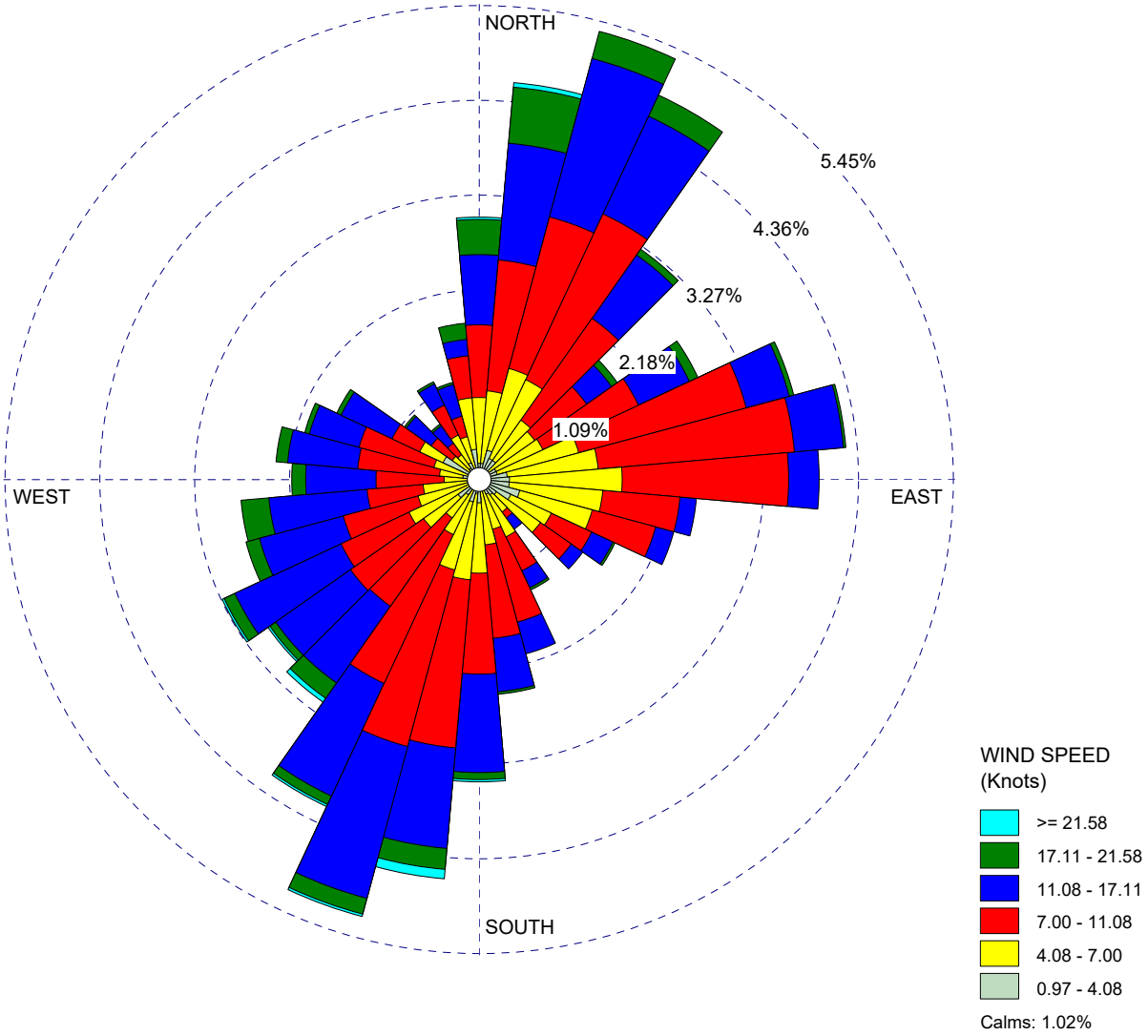
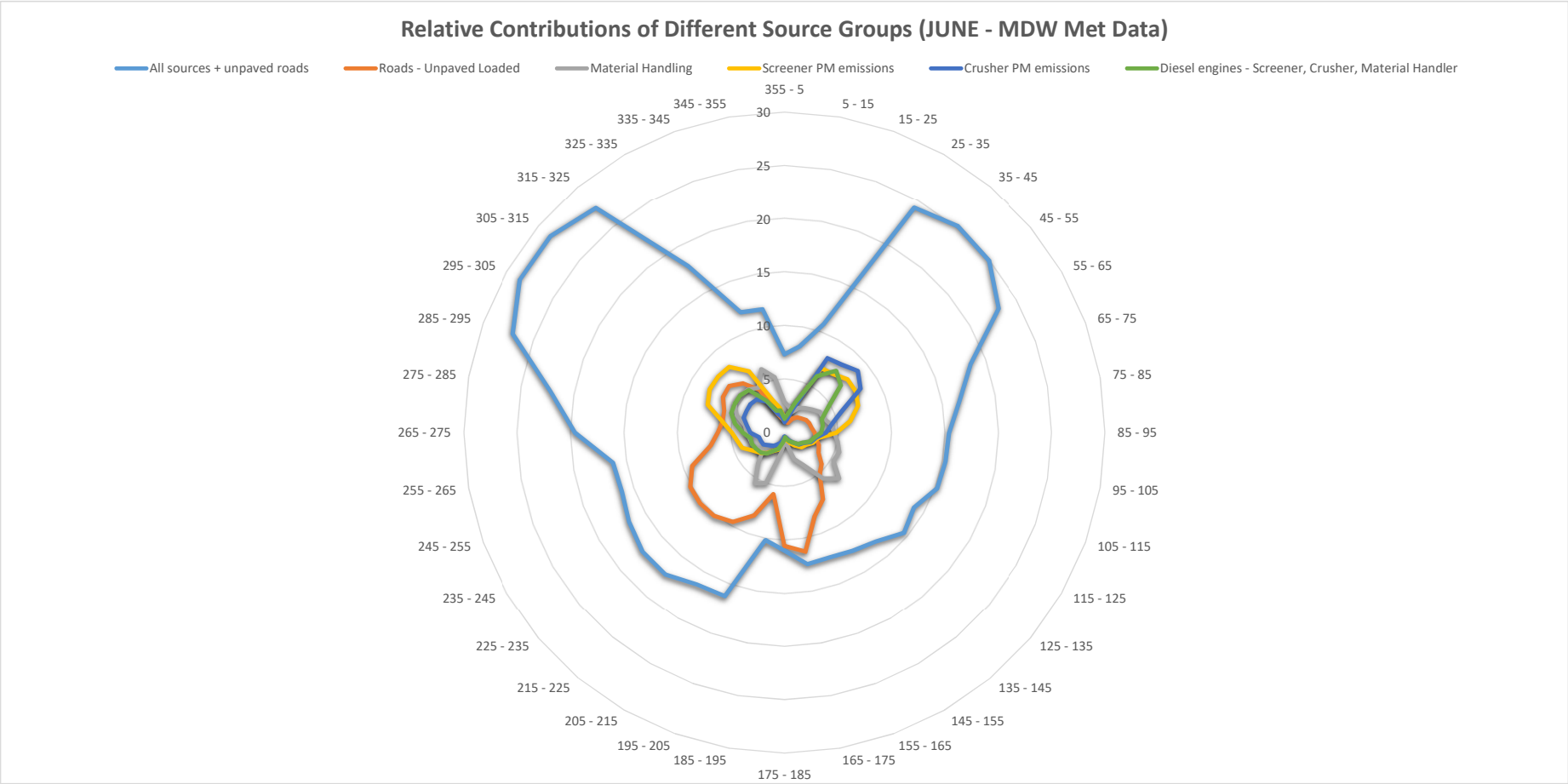
14
16

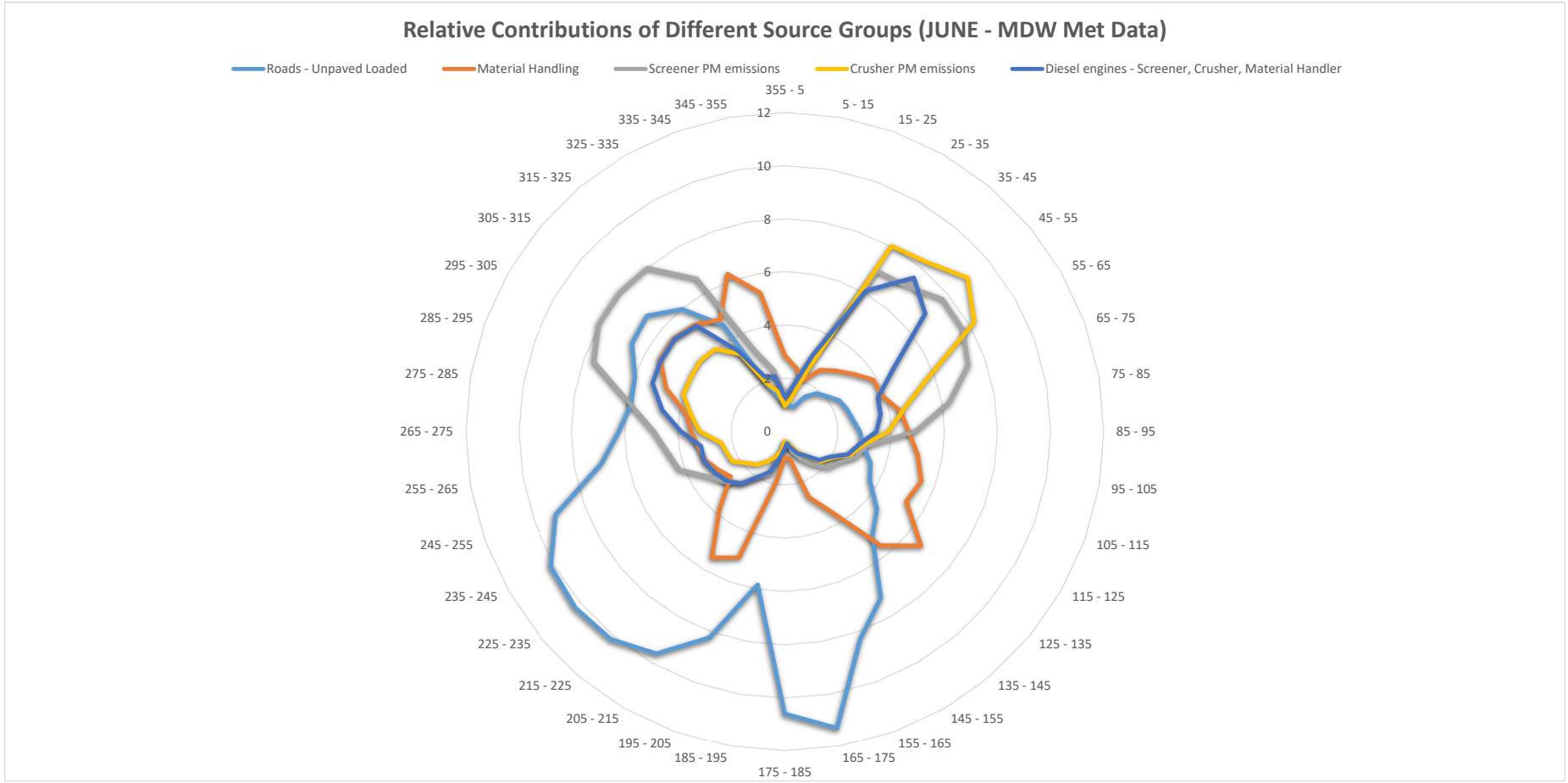
WIND ROSE PLOT:
MDW MAY

DISPLAY:
Wind Speed
Direction (blowing from)



COMMENTS:	DATA PERIOD: **Start Date: 5/1/2013 - 00:00** **End Date: 5/31/2017 - 23:59**	COMPANY NAME:	
		MODELER:	
	CALM WINDS: **1.02%**	TOTAL COUNT: **3713 hrs.**	
	AVG. WIND SPEED: **9.31 Knots**	DATE: **8/24/2018**	PROJECT NO.:


Relative Contributions of Different Source Groups (JUNE - MDW Met Data)
All sources + unpaved roads
Roads - Unpaved Loaded
Material Handling
Screener PM emissions
Crusher PM emissions
Diesel engines - Screener, Crusher, Material Handler
355 - 5
5 - 15
15 - 25
25 - 35
35 - 45
45 - 55
55 - 65
65 - 75
75 - 85
85 - 95
95 - 105
105 - 115
115 - 125
125 - 135
135 - 145
145 - 155
155 - 165
165 - 175
175 - 185
185 - 195
195 - 205
205 - 215
215 - 225
225 - 235
235 - 245
245 - 255
255 - 265
265 - 275
275 - 285
285 - 295
295 - 305
305 - 315
315 - 325
325 - 335
335 - 345
345 - 355
30
25
20
15
10
5
0


Relative Contributions of Different Source Groups (JUNE - MDW Met Data)
Roads - Unpaved Loaded
Material Handling
Screener PM emissions
Crusher PM emissions
Diesel engines - Screener, Crusher, Material Handler
355 - 5
5 - 15
15 - 25
25 - 35
35 - 45
45 - 55
55 - 65
65 - 75
75 - 85
85 - 95
95 - 105
105 - 115
115 - 125
125 - 135
135 - 145
145 - 155
155 - 165
165 - 175
175 - 185
185 - 195
195 - 205
205 - 215
215 - 225
225 - 235
235 - 245
245 - 255
255 - 265
265 - 275
275 - 285
285 - 295
295 - 305
305 - 315
315 - 325
325 - 335
335 - 345
345 - 355
12
10
8
6
4
2
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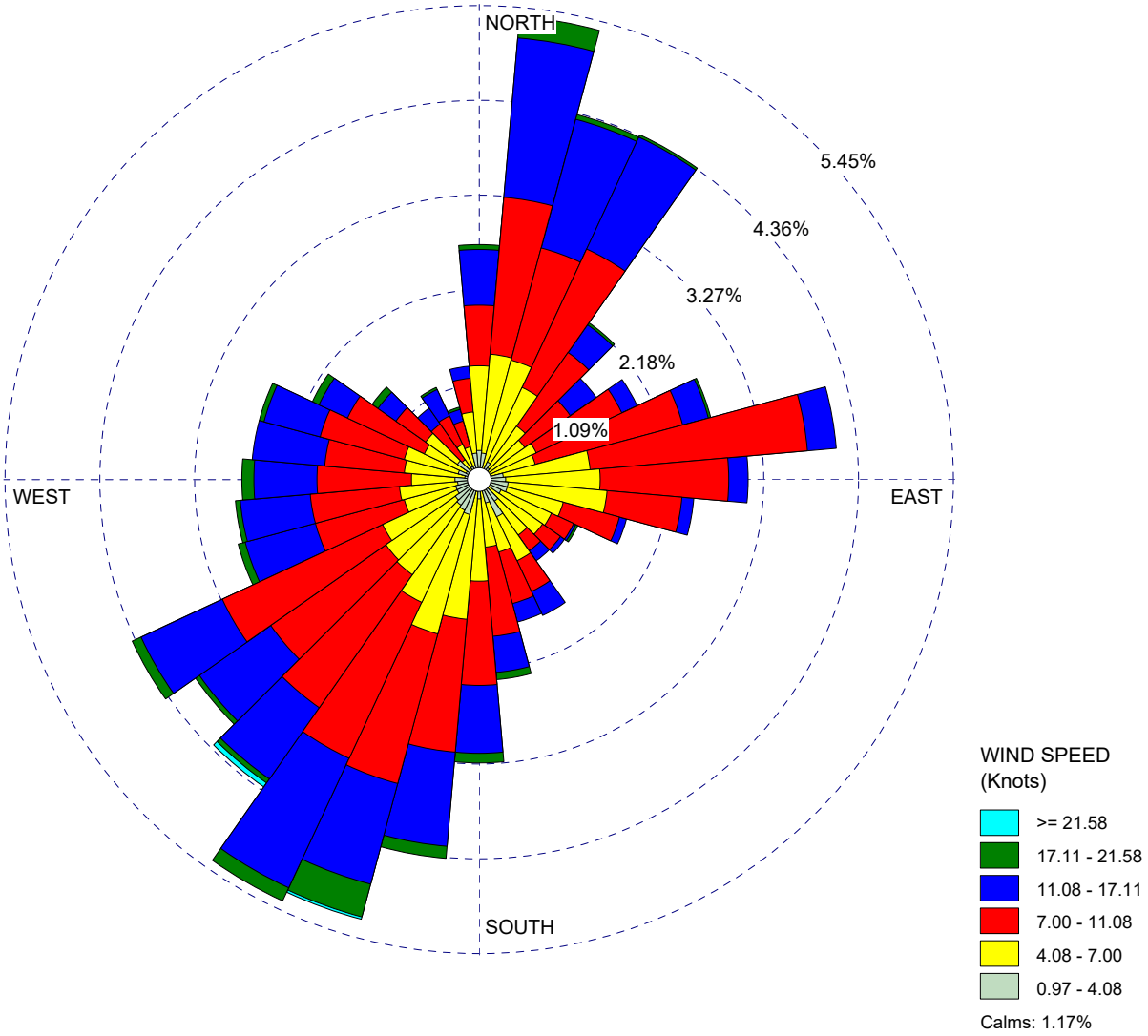
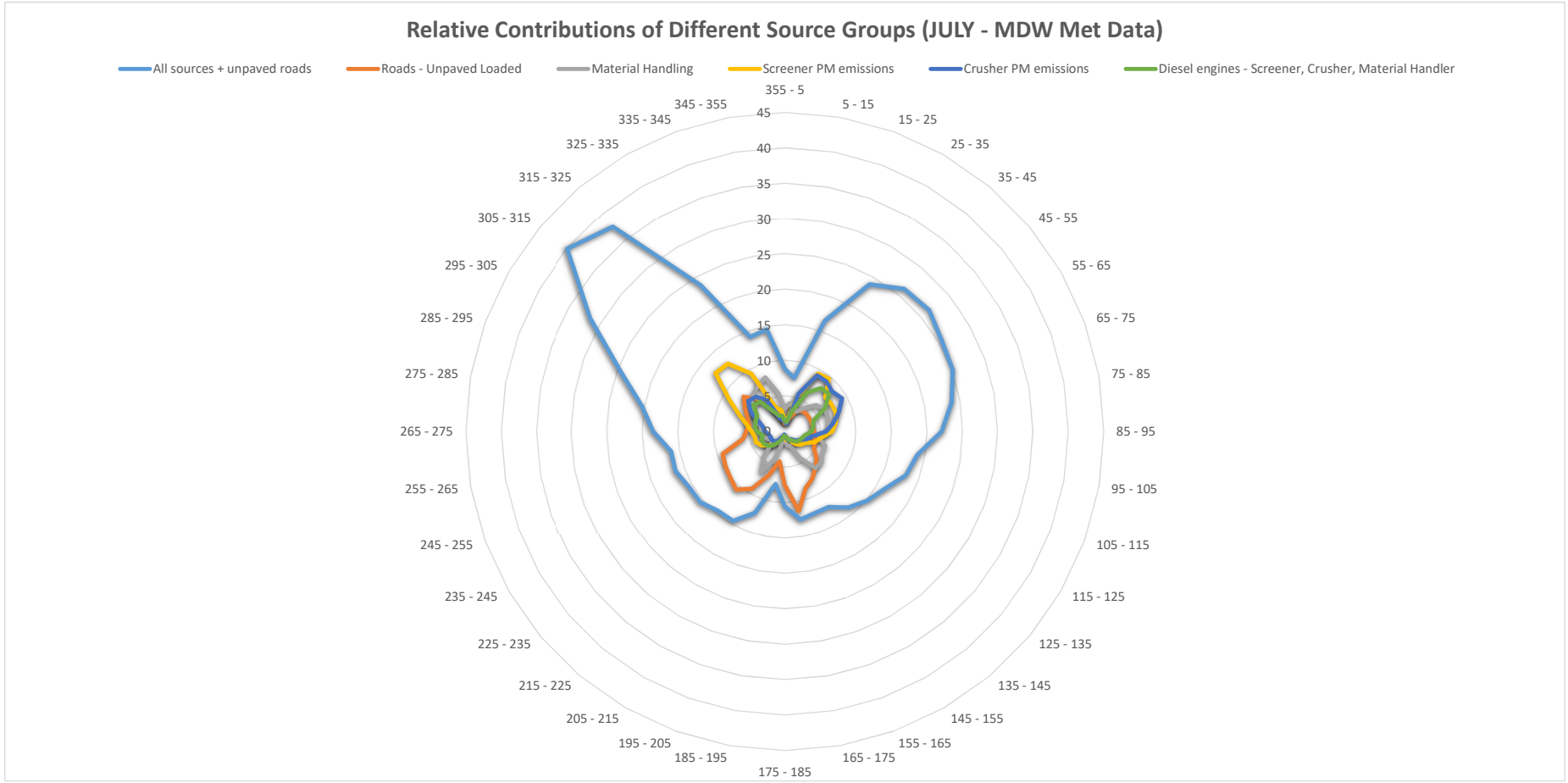
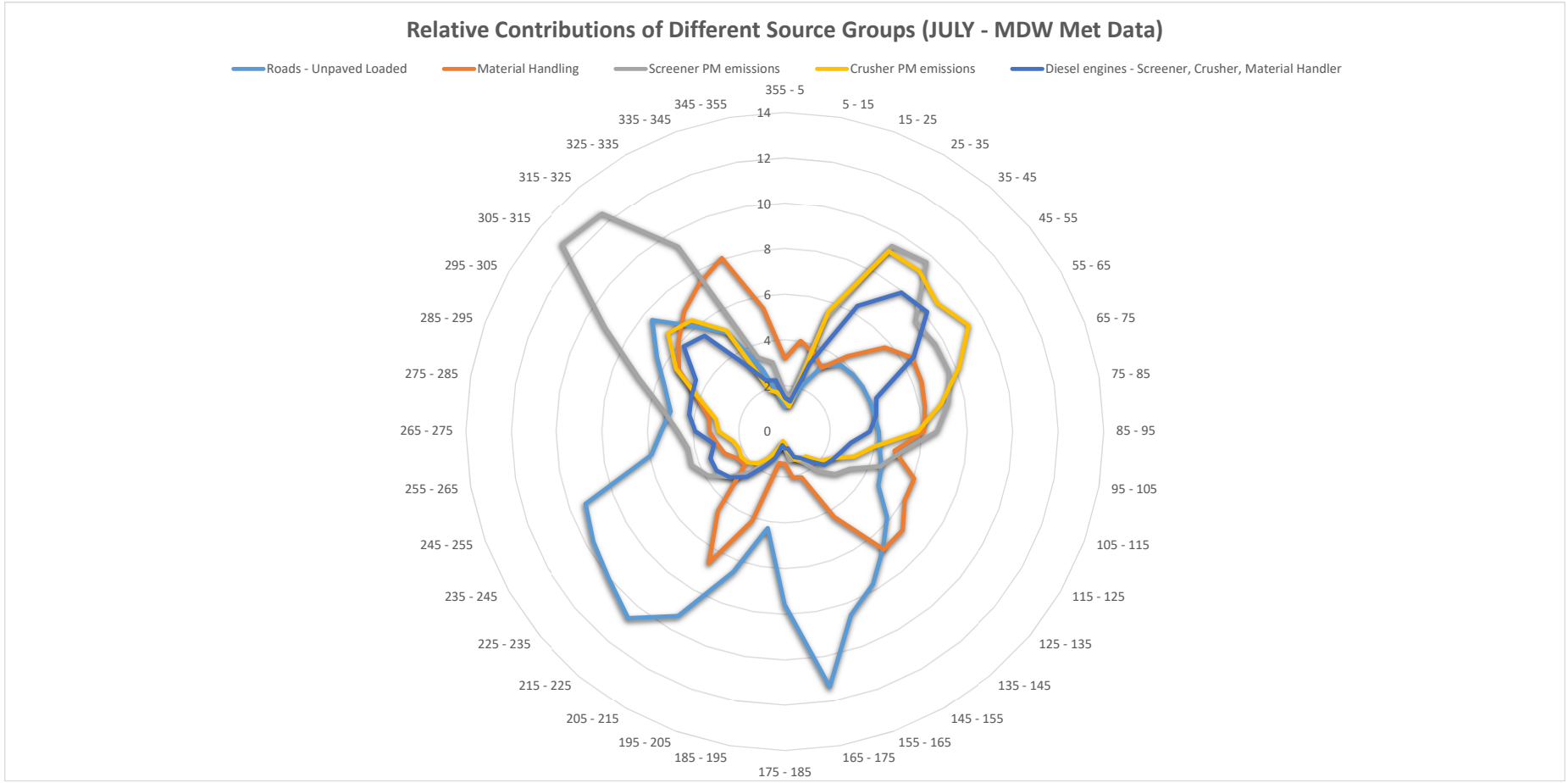
WIND ROSE PLOT:
MDW JUN

DISPLAY:
Wind Speed
Direction (blowing from)



COMMENTS:	DATA PERIOD: **Start Date: 6/1/2013 - 00:00** **End Date: 6/30/2017 - 23:59**	COMPANY NAME:	
		MODELER:	
	CALM WINDS: **1.17%**	TOTAL COUNT: **3585 hrs.**	
	AVG. WIND SPEED: **8.52 Knots**	DATE: **8/24/2018**	PROJECT NO.:


Relative Contributions of Different Source Groups (JULY - MDW Met Data)
All sources + unpaved roads
Roads - Unpaved Loaded
Material Handling
Screener PM emissions
Crusher PM emissions
Diesel engines - Screener, Crusher, Material Handler
355 - 5
5 - 15
15 - 25
25 - 35
35 - 45
45 - 55
55 - 65
65 - 75
75 - 85
85 - 95
95 - 105
105 - 115
115 - 125
125 - 135
135 - 145
145 - 155
155 - 165
165 - 175
175 - 185
185 - 195
195 - 205
205 - 215
215 - 225
225 - 235
235 - 245
245 - 255
255 - 265
265 - 275
275 - 285
285 - 295
295 - 305
305 - 315
315 - 325
325 - 335
335 - 345
345 - 355
45
40
35
30
25
20
15
10


Relative Contributions of Different Source Groups (JULY - MDW Met Data)
Roads - Unpaved Loaded
Material Handling
Screener PM emissions
Crusher PM emissions
Diesel engines - Screener, Crusher, Material Handler
355 - 5
5 - 15
15 - 25
25 - 35
35 - 45
45 - 55
55 - 65
65 - 75
75 - 85
85 - 95
95 - 105
105 - 115
115 - 125
125 - 135
135 - 145
145 - 155
155 - 165
165 - 175
175 - 185
185 - 195
195 - 205
205 - 215
215 - 225
225 - 235
235 - 245
245 - 255
255 - 265
265 - 275
275 - 285
285 - 295
295 - 305
305 - 315
315 - 325
325 - 335
335 - 345
345 - 355
14
12
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8
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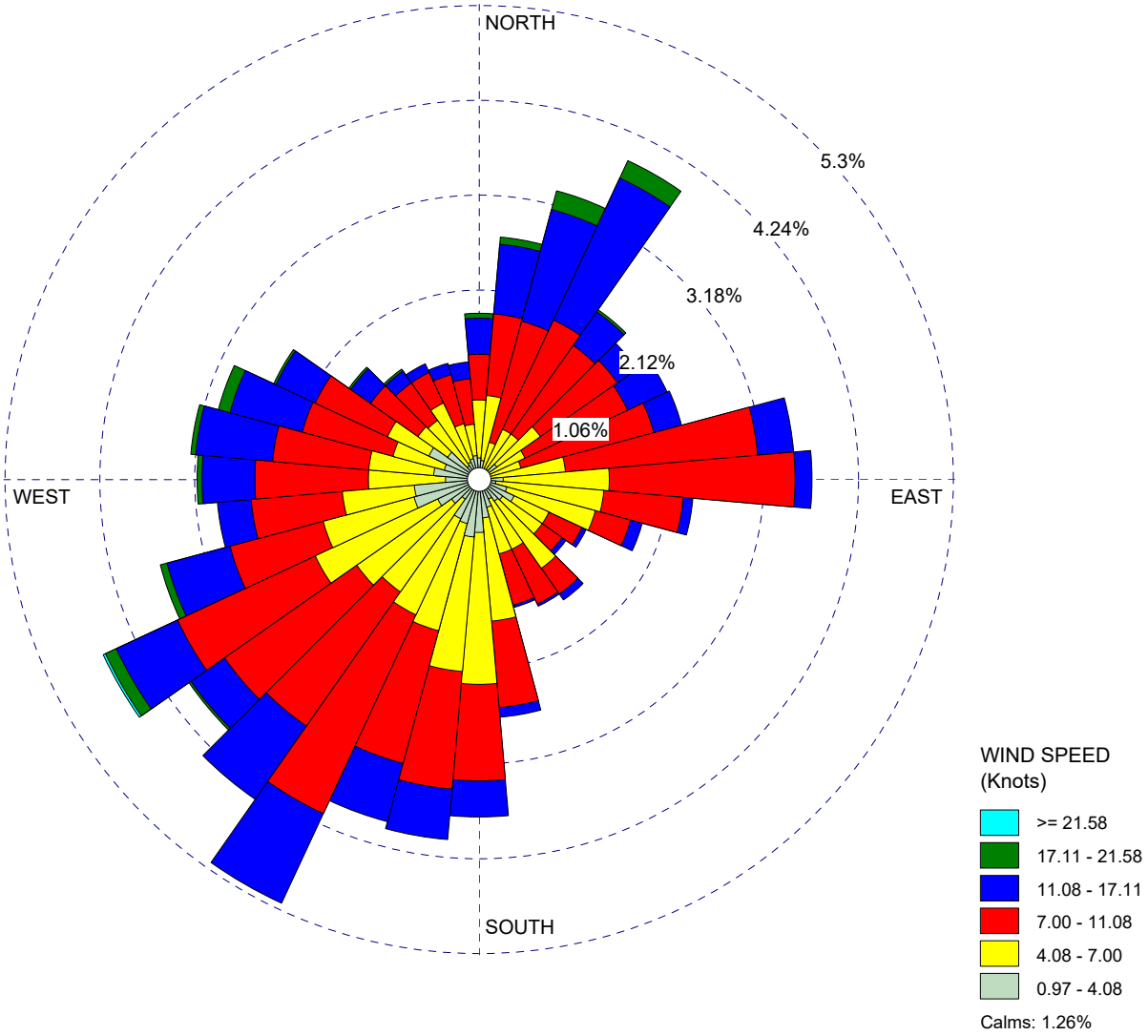
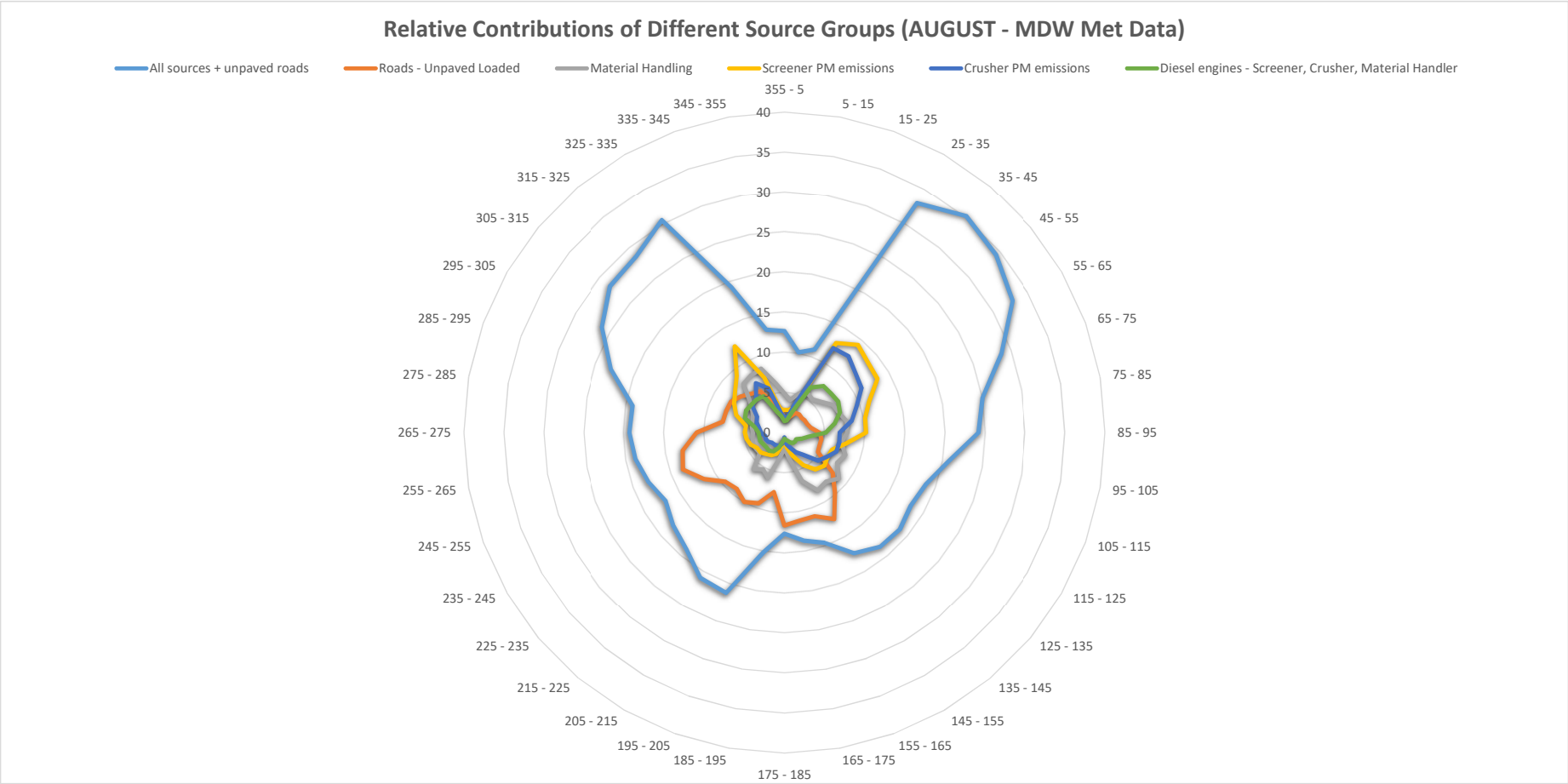
WIND ROSE PLOT:
MDW JUL

DISPLAY:
Wind Speed
Direction (blowing from)



COMMENTS:	DATA PERIOD: **Start Date: 7/1/2013 - 00:00** **End Date: 7/31/2017 - 23:59**	COMPANY NAME:	
		MODELER:	
	CALM WINDS: **1.26%**	TOTAL COUNT: **3695 hrs.**	
	AVG. WIND SPEED: **7.89 Knots**	DATE: **8/24/2018**	PROJECT NO.:


Relative Contributions of Different Source Groups (AUGUST - MDW Met Data)
All sources + unpaved roads
Roads - Unpaved Loaded
Material Handling
Screener PM emissions
Crusher PM emissions
Diesel engines - Screener, Crusher, Material Handler
355 - 5
5 - 15
15 - 25
25 - 35
35 - 45
45 - 55
55 - 65
65 - 75
75 - 85
85 - 95
95 - 105
105 - 115
115 - 125
125 - 135
135 - 145
145 - 155
155 - 165
165 - 175
175 - 185
185 - 195
195 - 205
205 - 215
215 - 225
225 - 235
235 - 245
245 - 255
255 - 265
265 - 275
275 - 285
285 - 295
295 - 305
305 - 315
315 - 325
325 - 335
335 - 345
345 - 355
40
35
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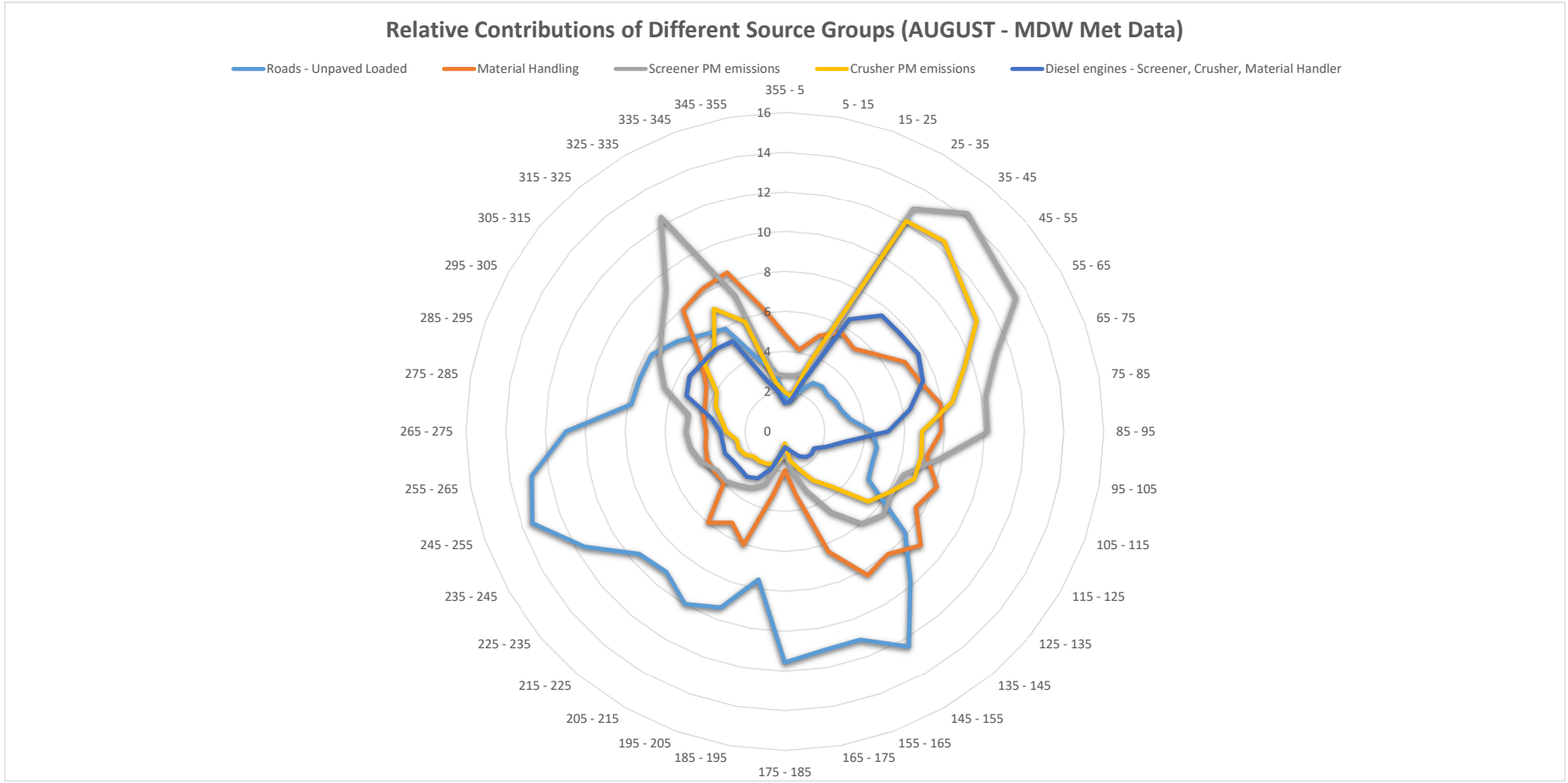
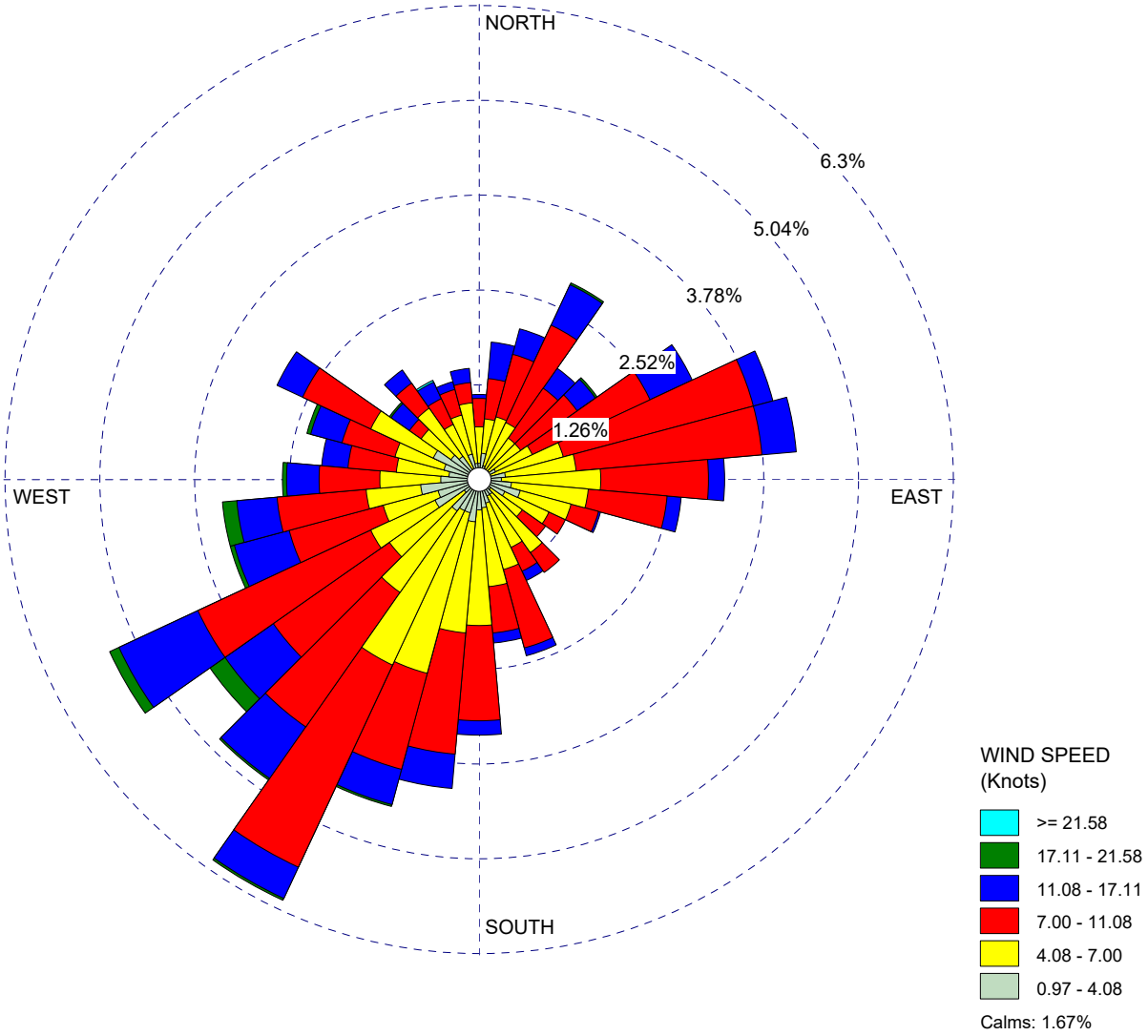
25
20
15
10

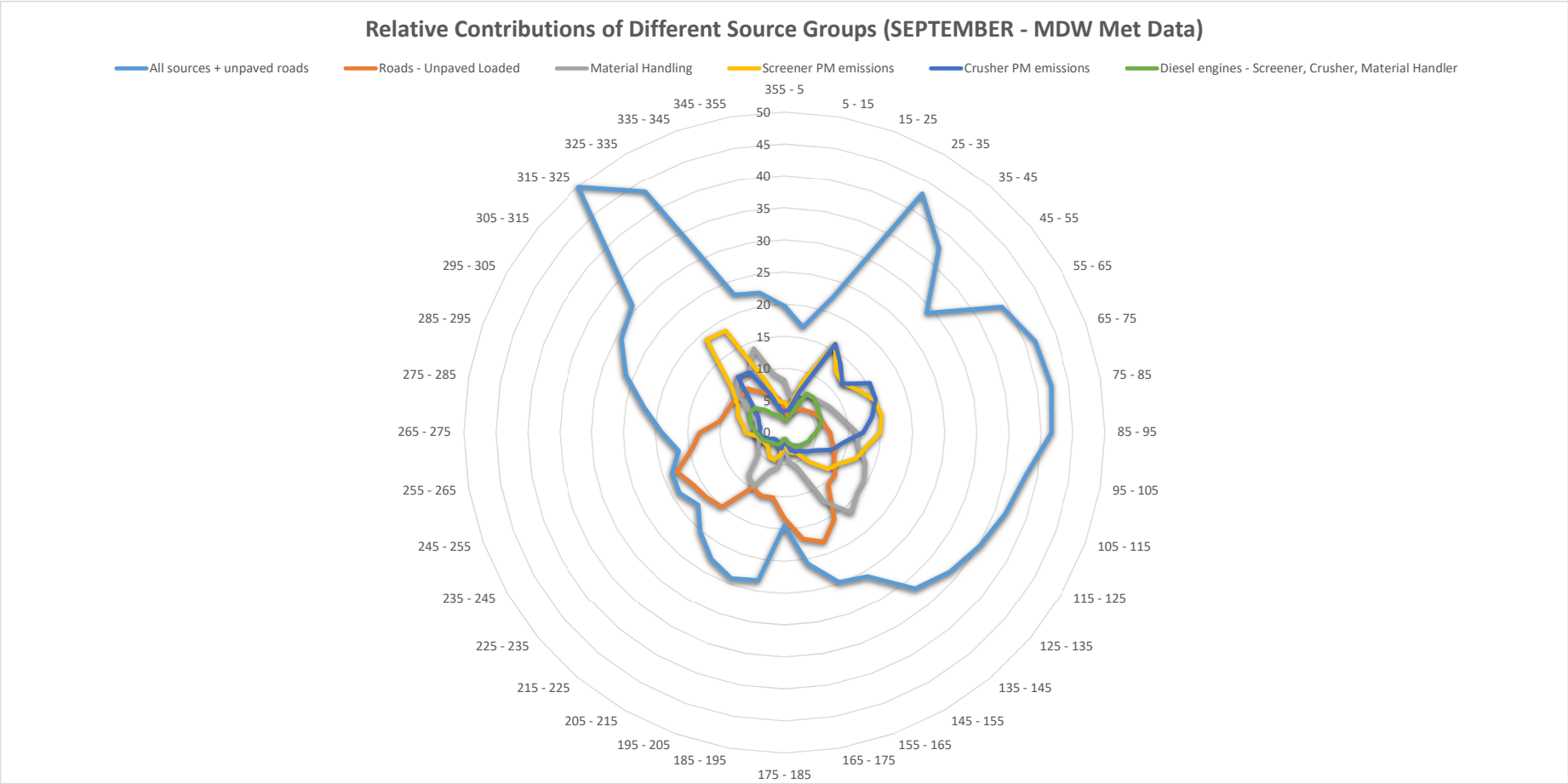

Relative Contributions of Different Source Groups (AUGUST - MDW Met Data)
Roads - Unpaved Loaded
Material Handling
Screener PM emissions
Crusher PM emissions
Diesel engines - Screener, Crusher, Material Handler
355 - 5
5 - 15
15 - 25
25 - 35
35 - 45
45 - 55
55 - 65
65 - 75
75 - 85
85 - 95
95 - 105
105 - 115
115 - 125
125 - 135
135 - 145
145 - 155
155 - 165
165 - 175
175 - 185
185 - 195
195 - 205
205 - 215
215 - 225
225 - 235
235 - 245
245 - 255
255 - 265
265 - 275
275 - 285
285 - 295
295 - 305
305 - 315
315 - 325
325 - 335
335 - 345
345 - 355
16
14
12
10
8
6
4
2
0

WIND ROSE PLOT:
MDW AUG

DISPLAY:
Wind Speed
Direction (blowing from)



COMMENTS:	DATA PERIOD: **Start Date: 8/1/2013 - 00:00** **End Date: 8/31/2017 - 23:59**	COMPANY NAME:	
		MODELER:	
	CALM WINDS: **1.67%**	TOTAL COUNT: **3694 hrs.**	
	AVG. WIND SPEED: **7.47 Knots**	DATE: **8/24/2018**	PROJECT NO.:


Relative Contributions of Different Source Groups (SEPTEMBER - MDW Met Data)
All sources + unpaved roads
Roads - Unpaved Loaded
Material Handling
Screener PM emissions
Crusher PM emissions
Diesel engines - Screener, Crusher, Material Handler
355 - 5
5 - 15
15 - 25
25 - 35
35 - 45
45 - 55
55 - 65
65 - 75
75 - 85
85 - 95
95 - 105
105 - 115
115 - 125
125 - 135
135 - 145
145 - 155
155 - 165
165 - 175
175 - 185
185 - 195
195 - 205
205 - 215
215 - 225
225 - 235
235 - 245
245 - 255
255 - 265
265 - 275
275 - 285
285 - 295
295 - 305
305 - 315
315 - 325
325 - 335
335 - 345
345 - 355
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35
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15
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5
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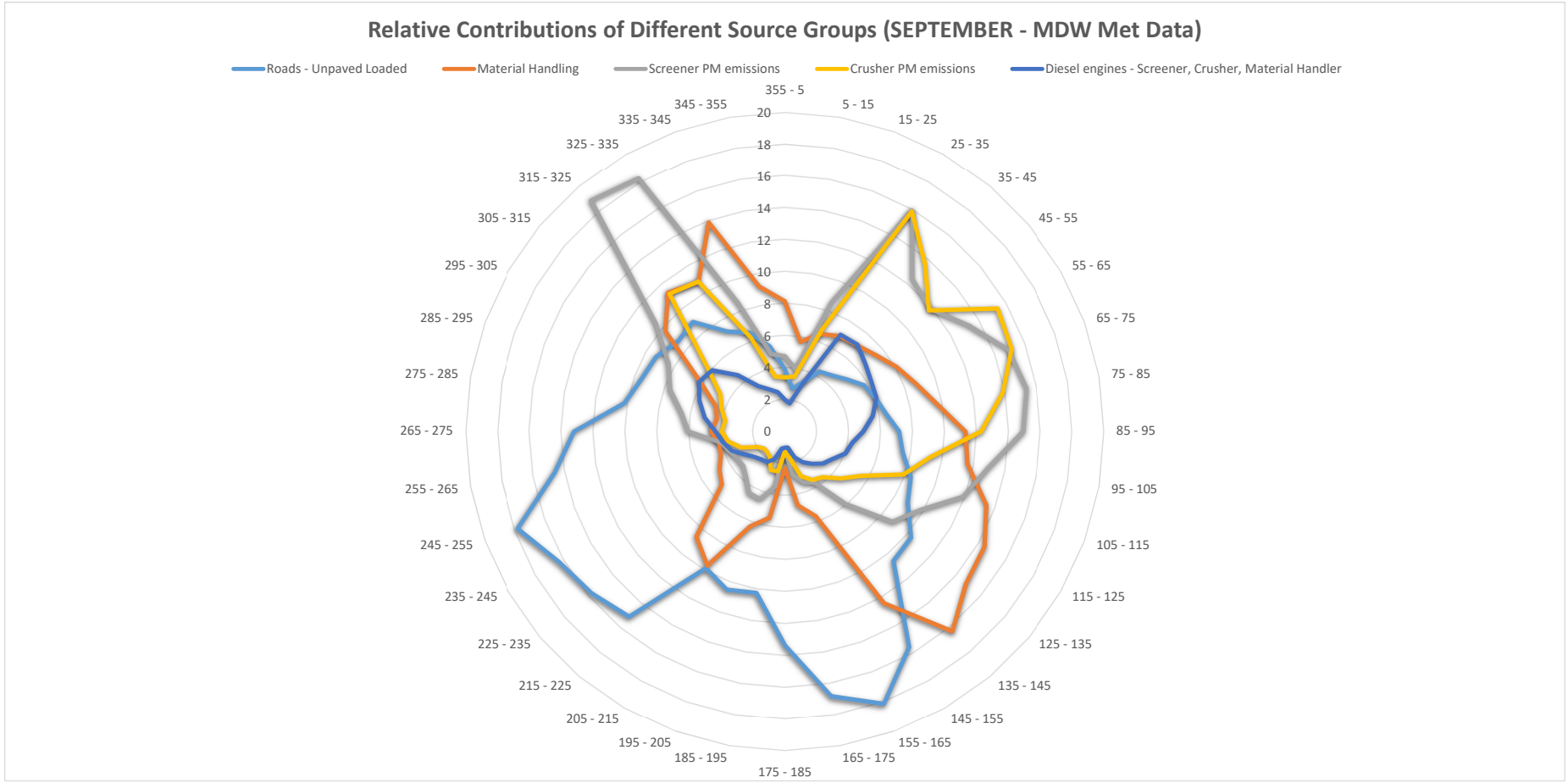
Relative Contributions of Different Source Groups (SEPTEMBER - MDW Met Data)
Roads - Unpaved Loaded
Material Handling
Screener PM emissions
Crusher PM emissions
Diesel engines - Screener, Crusher, Material Handler
355 - 5
5 - 15
15 - 25
25 - 35
35 - 45
45 - 55
55 - 65
65 - 75
75 - 85
85 - 95
95 - 105
105 - 115
115 - 125
125 - 135
135 - 145
145 - 155
155 - 165
165 - 175
175 - 185
185 - 195
195 - 205
205 - 215
215 - 225
225 - 235
235 - 245
245 - 255
255 - 265
265 - 275
275 - 285
285 - 295
295 - 305
305 - 315
315 - 325
325 - 335
335 - 345
345 - 355
0
2
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6
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10
12
14
16
18
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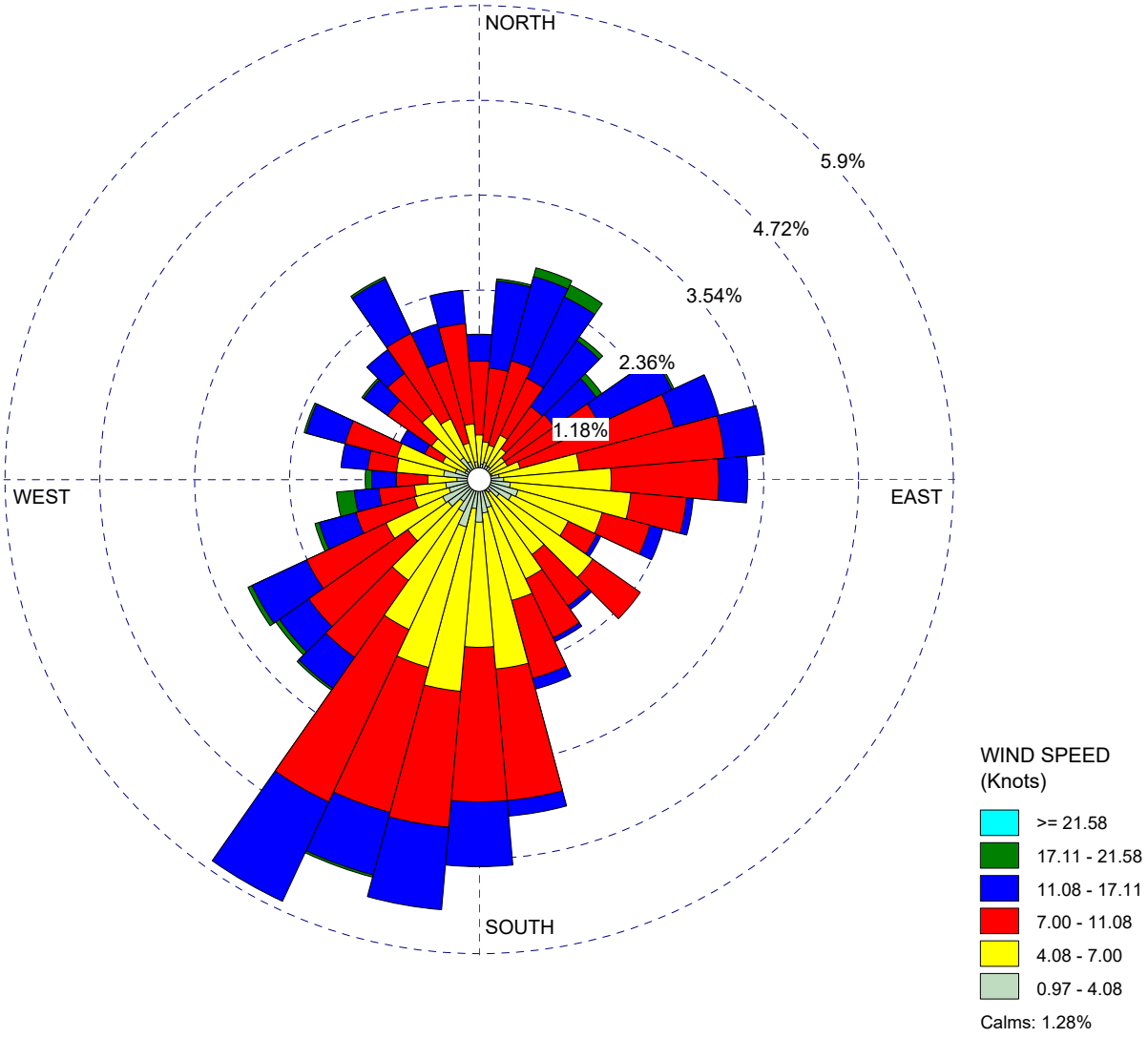
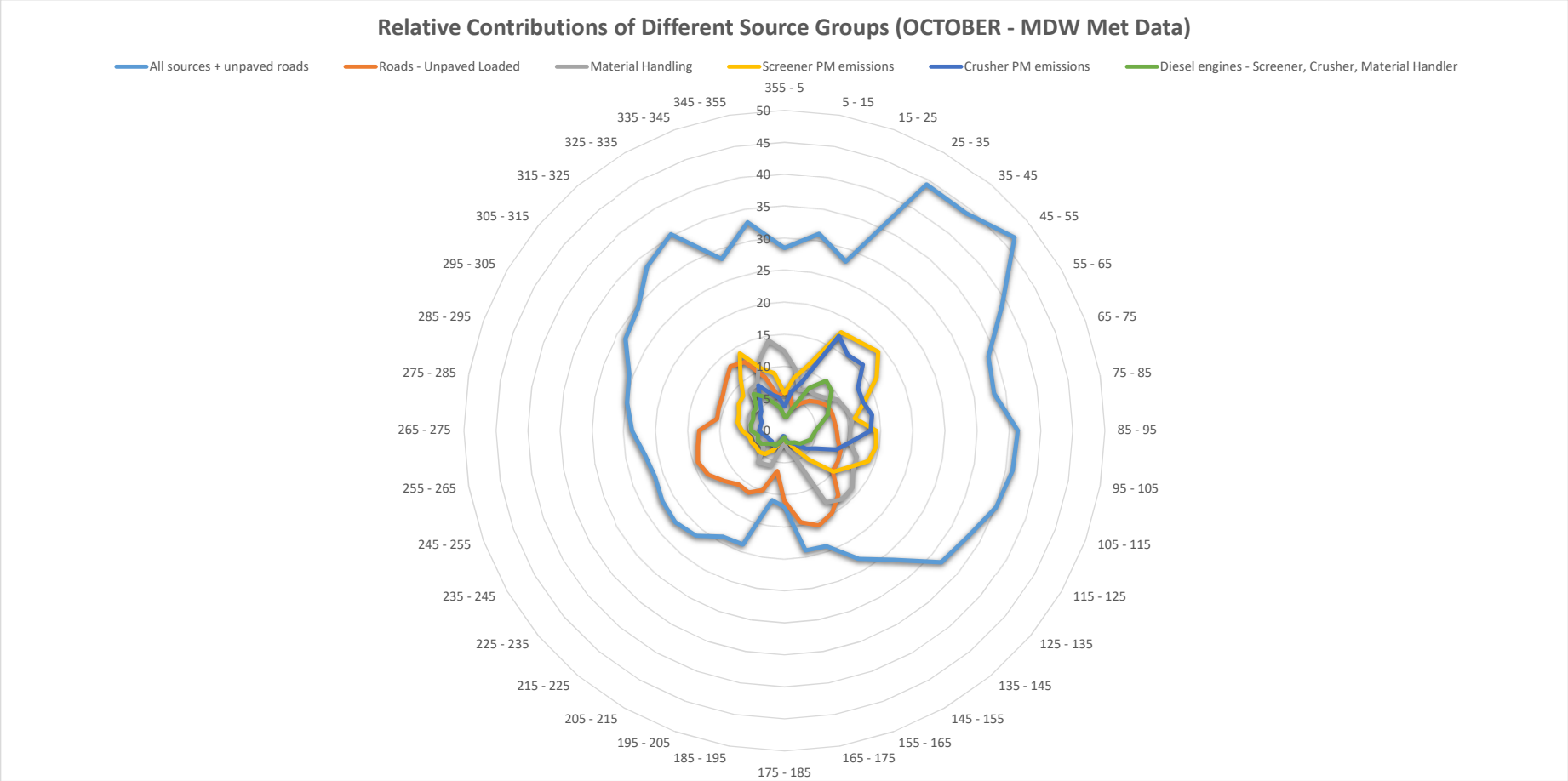
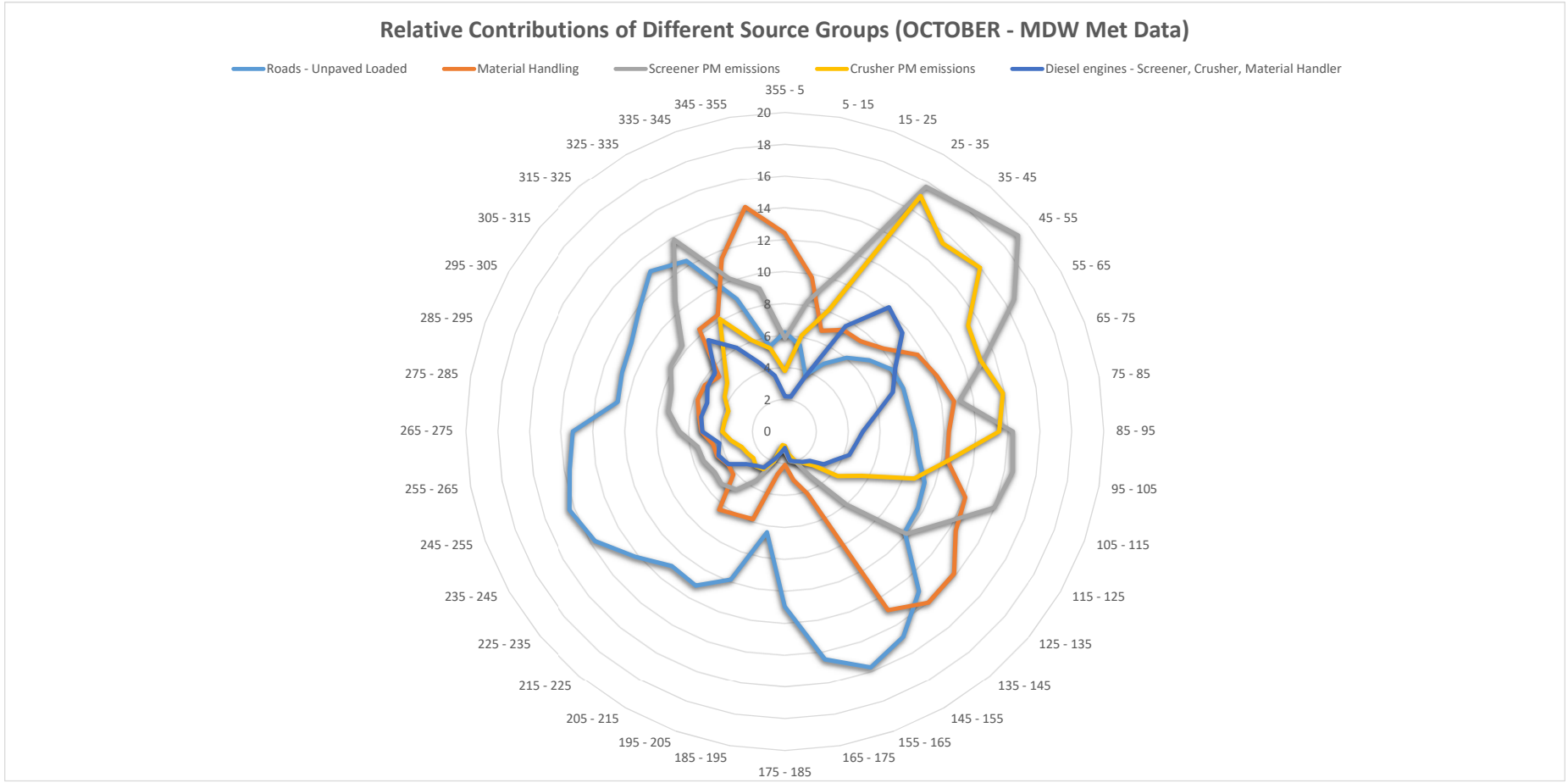
WIND ROSE PLOT:
MDW SEP

DISPLAY:
Wind Speed
Direction (blowing from)



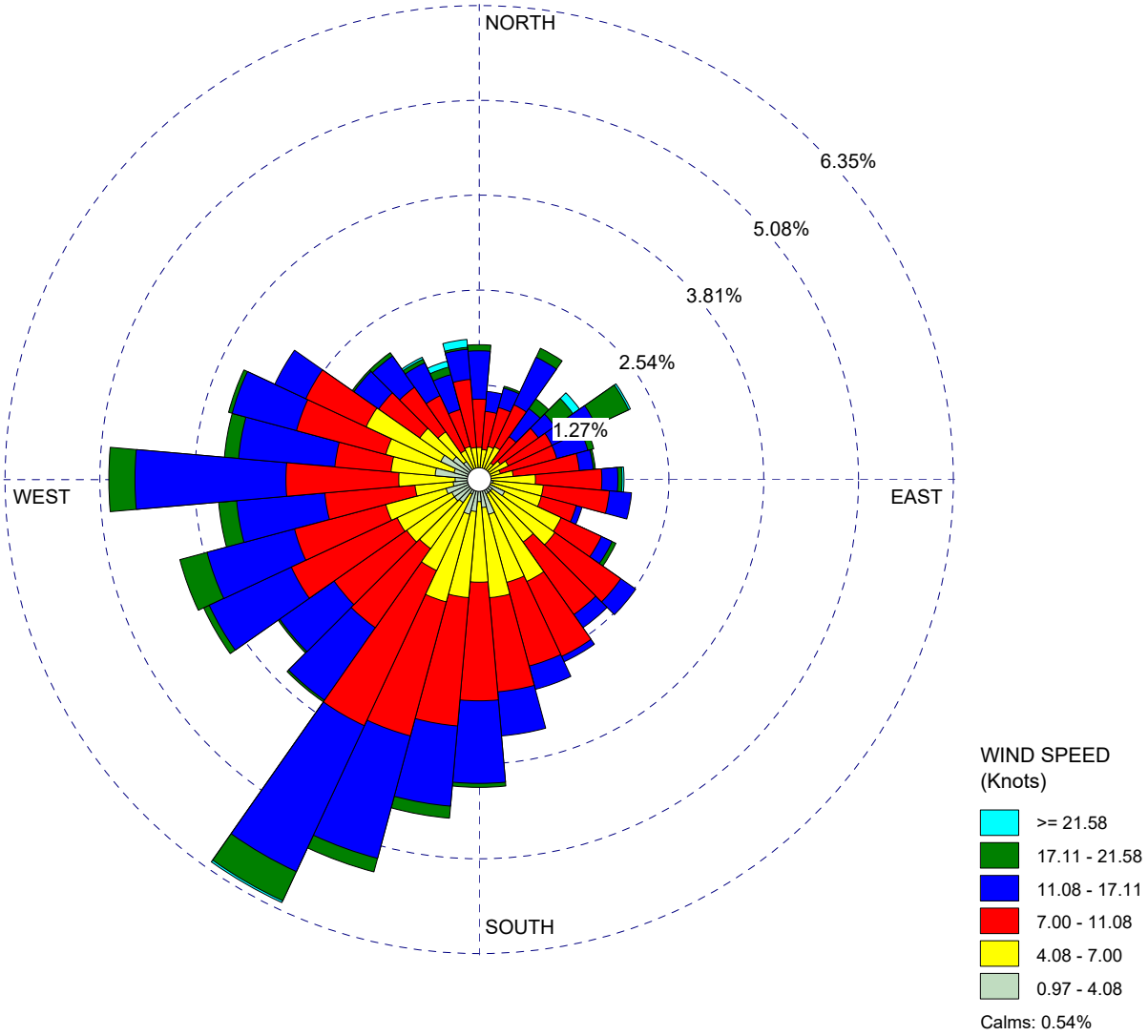
COMMENTS:	DATA PERIOD: **Start Date: 9/1/2013 - 00:00** **End Date: 9/30/2017 - 23:59**	COMPANY NAME:	
		MODELER:	
	CALM WINDS: **1.28%**	TOTAL COUNT: **3586 hrs.**	
	AVG. WIND SPEED: **8.00 Knots**	DATE: **8/24/2018**	PROJECT NO.:


Relative Contributions of Different Source Groups (OCTOBER - MDW Met Data)
All sources + unpaved roads
Roads - Unpaved Loaded
Material Handling
Screener PM emissions
Crusher PM emissions
Diesel engines - Screener, Crusher, Material Handler
355 - 5
5 - 15
15 - 25
25 - 35
35 - 45
45 - 55
55 - 65
65 - 75
75 - 85
85 - 95
95 - 105
105 - 115
115 - 125
125 - 135
135 - 145
145 - 155
155 - 165
165 - 175
175 - 185
185 - 195
195 - 205
205 - 215
215 - 225
225 - 235
235 - 245
245 - 255
255 - 265
265 - 275
275 - 285
285 - 295
295 - 305
305 - 315
315 - 325
325 - 335
335 - 345
345 - 355
50
45
40
35
30
25
20
15
10
5
0

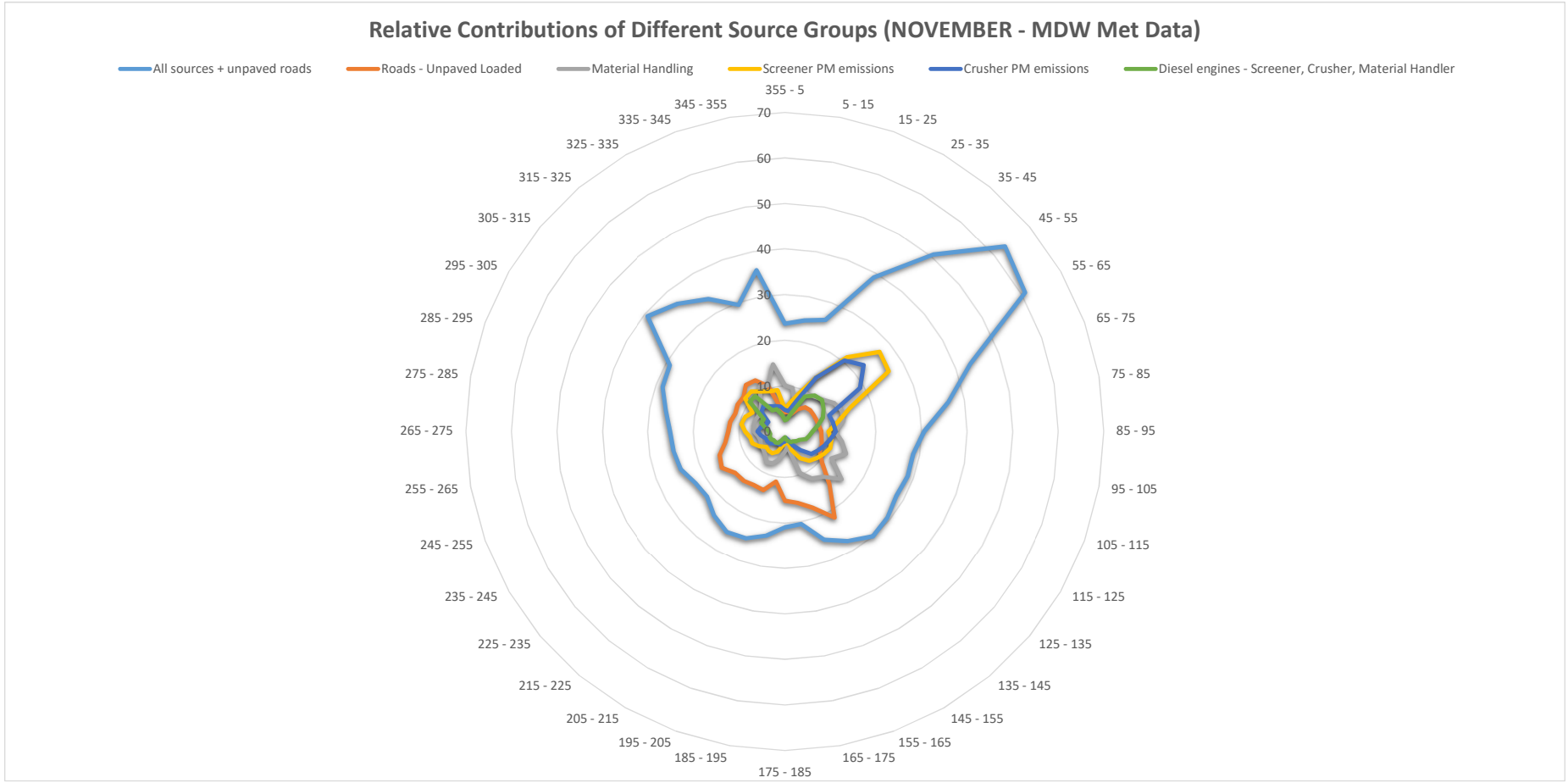

Relative Contributions of Different Source Groups (OCTOBER - MDW Met Data)
Roads - Unpaved Loaded
Material Handling
Screener PM emissions
Crusher PM emissions
Diesel engines - Screener, Crusher, Material Handler
355 - 5
5 - 15
15 - 25
25 - 35
35 - 45
45 - 55
55 - 65
65 - 75
75 - 85
85 - 95
95 - 105
105 - 115
115 - 125
125 - 135
135 - 145
145 - 155
155 - 165
165 - 175
175 - 185
185 - 195
195 - 205
205 - 215
215 - 225
225 - 235
235 - 245
245 - 255
255 - 265
265 - 275
275 - 285
285 - 295
295 - 305
305 - 315
315 - 325
325 - 335
335 - 345
345 - 355
20
18
16
14
12
10
8
6
4
2
0

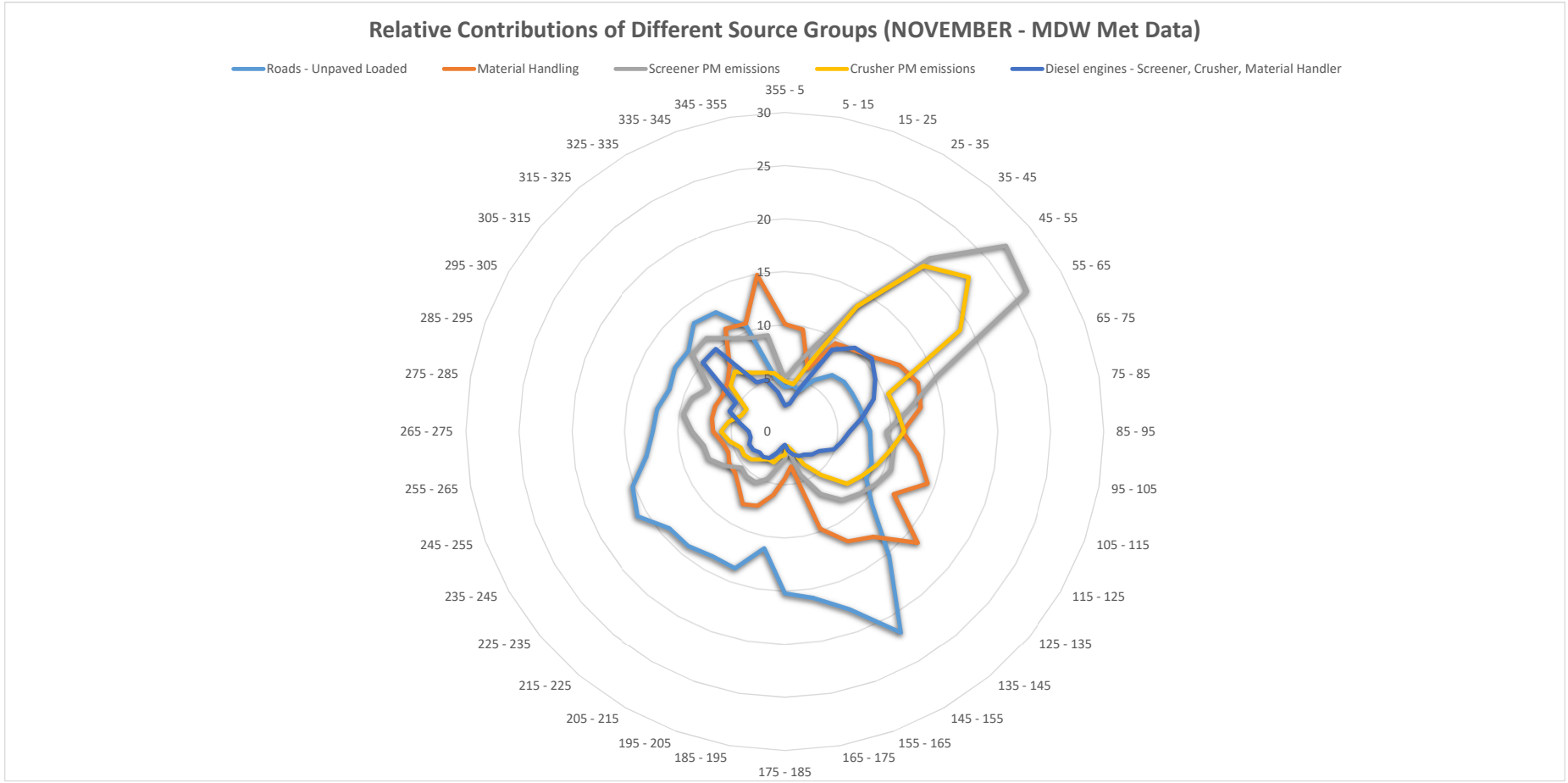
WIND ROSE PLOT:
MDW OCT

DISPLAY:
Wind Speed
Direction (blowing from)



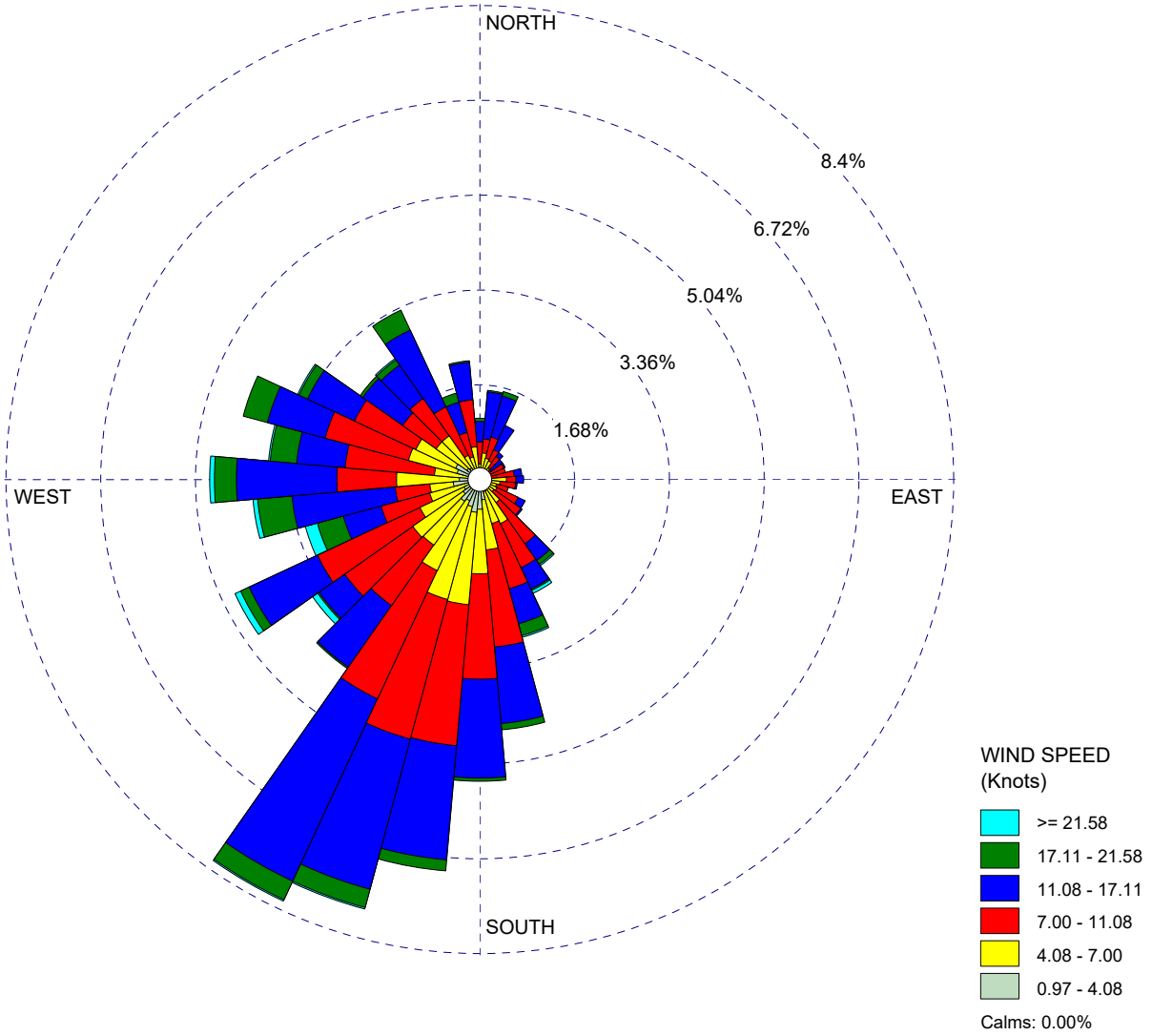
COMMENTS:	DATA PERIOD: **Start Date: 10/1/2013 - 00:00** **End Date: 10/31/2017 - 23:59**	COMPANY NAME:	
		MODELER:	
	CALM WINDS: **0.54%**	TOTAL COUNT: **3710 hrs.**	
	AVG. WIND SPEED: **9.05 Knots**	DATE: **8/24/2018**	PROJECT NO.:


Relative Contributions of Different Source Groups (NOVEMBER - MDW Met Data)
All sources + unpaved roads
Roads - Unpaved Loaded
Material Handling
Screener PM emissions
Crusher PM emissions
Diesel engines - Screener, Crusher, Material Handler
355 - 5
5 - 15
15 - 25
25 - 35
35 - 45
45 - 55
55 - 65
65 - 75
75 - 85
85 - 95
95 - 105
105 - 115
115 - 125
125 - 135
135 - 145
145 - 155
155 - 165
165 - 175
175 - 185
185 - 195
195 - 205
205 - 215
215 - 225
225 - 235
235 - 245
245 - 255
255 - 265
265 - 275
275 - 285
285 - 295
295 - 305
305 - 315
315 - 325
325 - 335
335 - 345
345 - 355
70
60
50
40
30
20
10
0

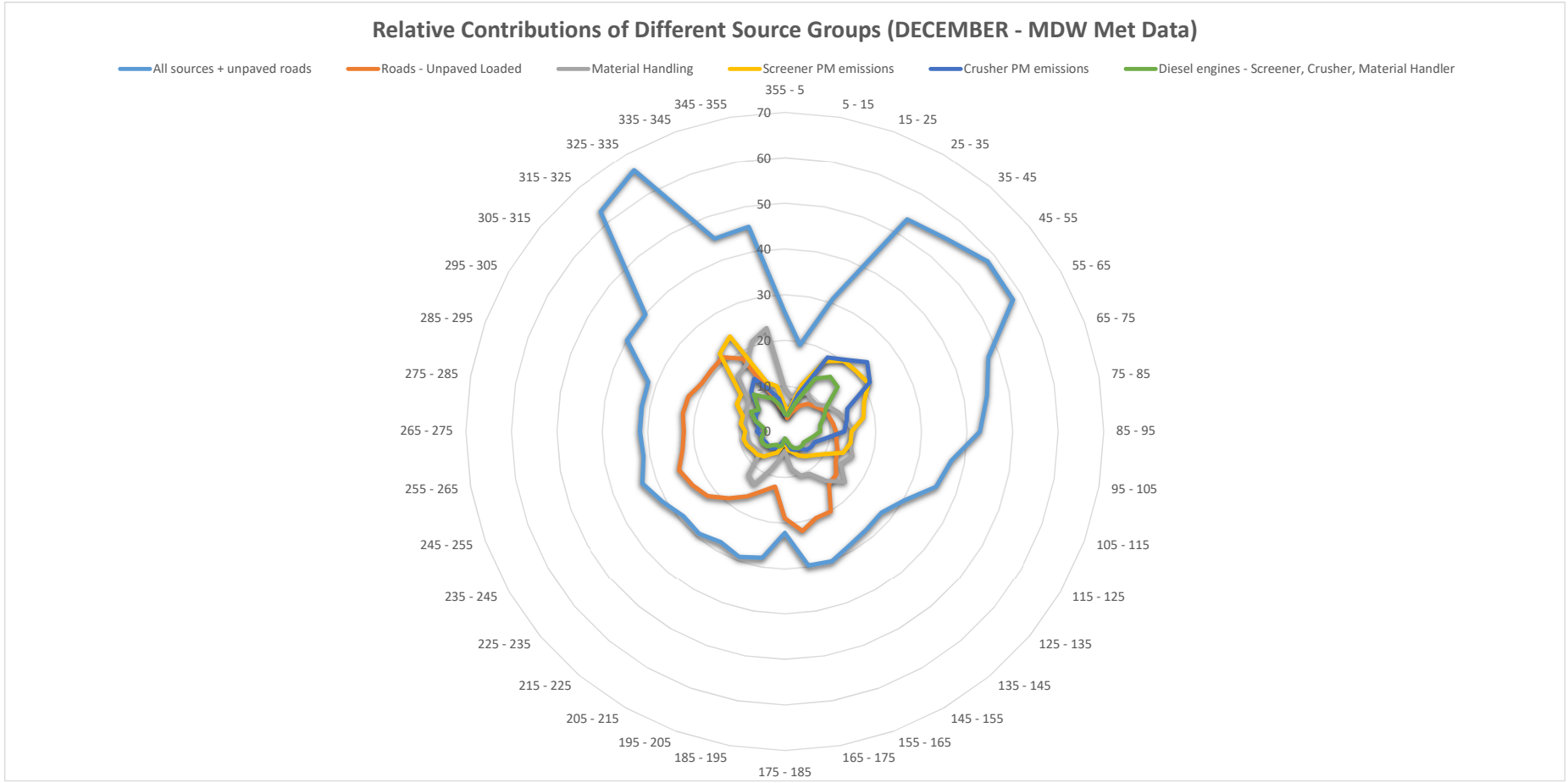

Relative Contributions of Different Source Groups (NOVEMBER - MDW Met Data)
Roads - Unpaved Loaded
Material Handling
Screener PM emissions
Crusher PM emissions
Diesel engines - Screener, Crusher, Material Handler
355 - 5
5 - 15
15 - 25
25 - 35
35 - 45
45 - 55
55 - 65
65 - 75
75 - 85
85 - 95
95 - 105
105 - 115
115 - 125
125 - 135
135 - 145
145 - 155
155 - 165
165 - 175
175 - 185
185 - 195
195 - 205
205 - 215
215 - 225
225 - 235
235 - 245
245 - 255
255 - 265
265 - 275
275 - 285
285 - 295
295 - 305
305 - 315
315 - 325
325 - 335
335 - 345
345 - 355
30
25
20
15
10
5
0

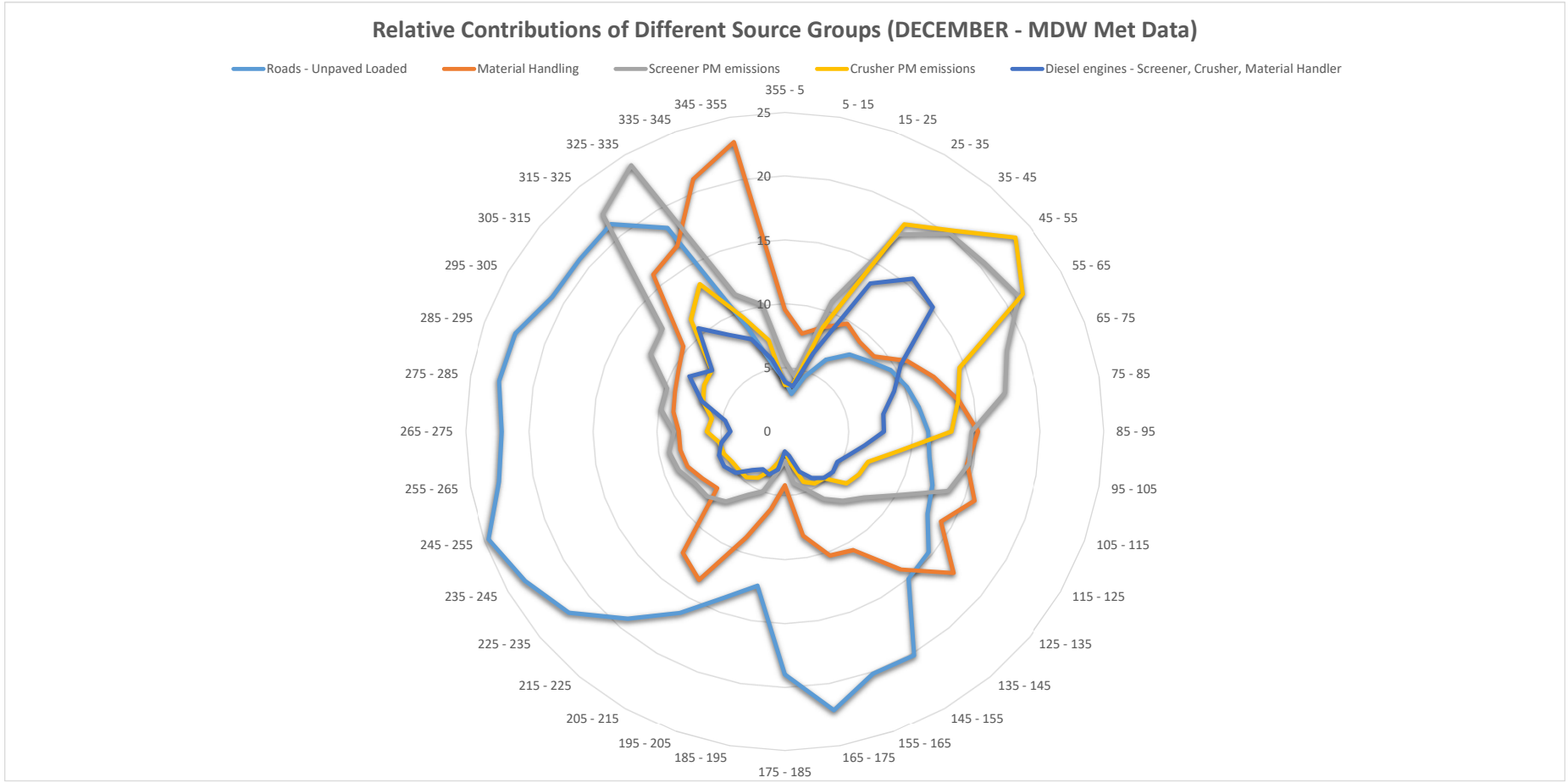
WIND ROSE PLOT:
MDW NOV

DISPLAY:
Wind Speed
Direction (blowing from)



COMMENTS:	DATA PERIOD: **Start Date: 11/1/2013 - 00:00** **End Date: 11/30/2017 - 23:59**	COMPANY NAME:	
		MODELER:	
	CALM WINDS: **0.00%**	TOTAL COUNT: **3600 hrs.**	
	AVG. WIND SPEED: **9.83 Knots**	DATE: **8/24/2018**	PROJECT NO.:


Relative Contributions of Different Source Groups (DECEMBER - MDW Met Data)
All sources + unpaved roads
Roads - Unpaved Loaded
Material Handling
Screener PM emissions
Crusher PM emissions
Diesel engines - Screener, Crusher, Material Handler
355 - 5
5 - 15
15 - 25
25 - 35
35 - 45
45 - 55
55 - 65
65 - 75
75 - 85
85 - 95
95 - 105
105 - 115
115 - 125
125 - 135
135 - 145
145 - 155
155 - 165
165 - 175
175 - 185
185 - 195
195 - 205
205 - 215
215 - 225
225 - 235
235 - 245
245 - 255
255 - 265
265 - 275
275 - 285
285 - 295
295 - 305
305 - 315
315 - 325
325 - 335
335 - 345
345 - 355
70
60
50
40
30
20
10
0

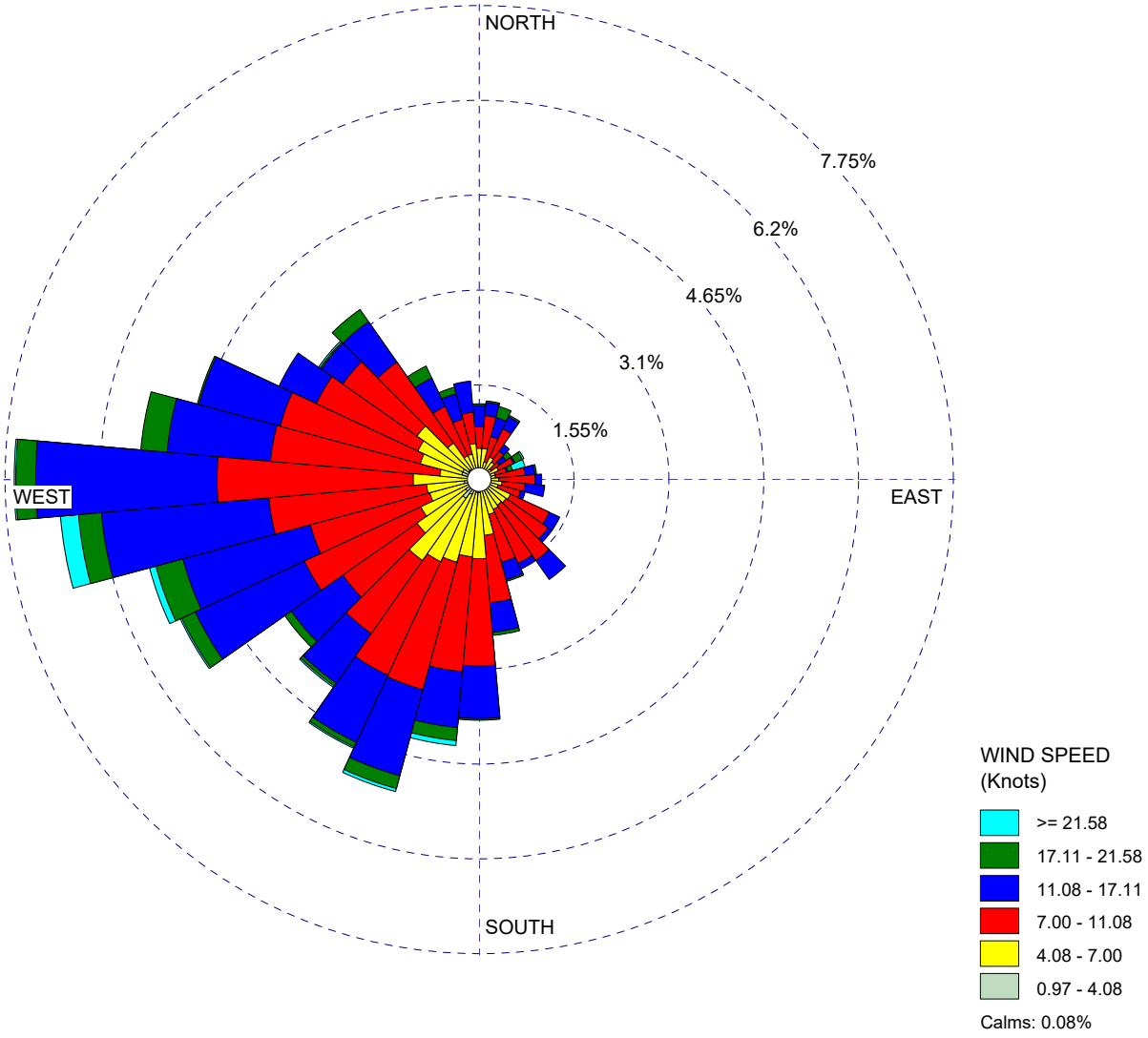

Relative Contributions of Different Source Groups (DECEMBER - MDW Met Data)
Roads - Unpaved Loaded
Material Handling
Screener PM emissions
Crusher PM emissions
Diesel engines - Screener, Crusher, Material Handler
355 - 5
5 - 15
15 - 25
25 - 35
35 - 45
45 - 55
55 - 65
65 - 75
75 - 85
85 - 95
95 - 105
105 - 115
115 - 125
125 - 135
135 - 145
145 - 155
155 - 165
165 - 175
175 - 185
185 - 195
195 - 205
205 - 215
215 - 225
225 - 235
235 - 245
245 - 255
255 - 265
265 - 275
275 - 285
285 - 295
295 - 305
305 - 315
315 - 325
325 - 335
335 - 345
345 - 355
25
20
15
10
5
0

WIND ROSE PLOT:

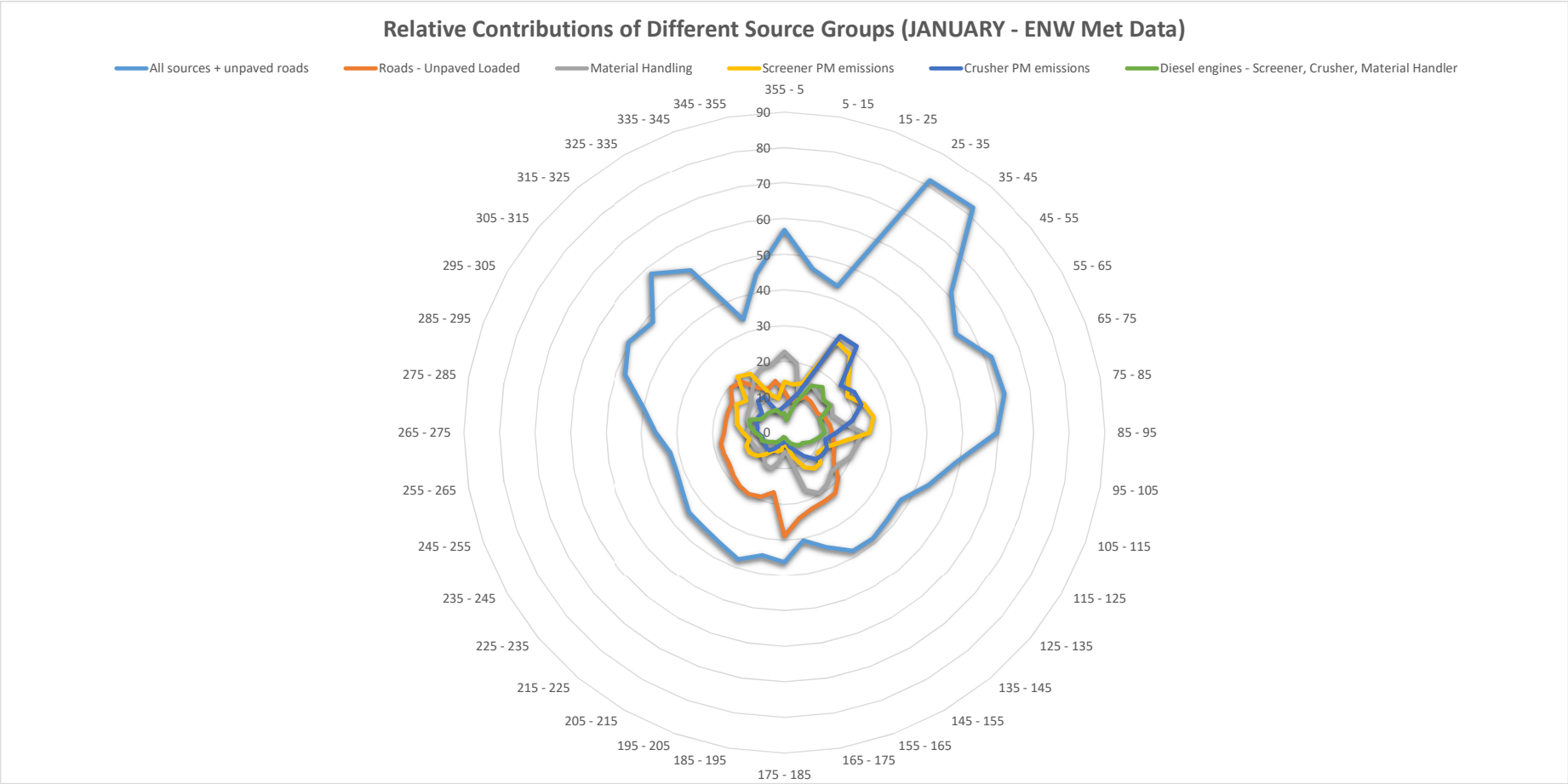
MDW DEC

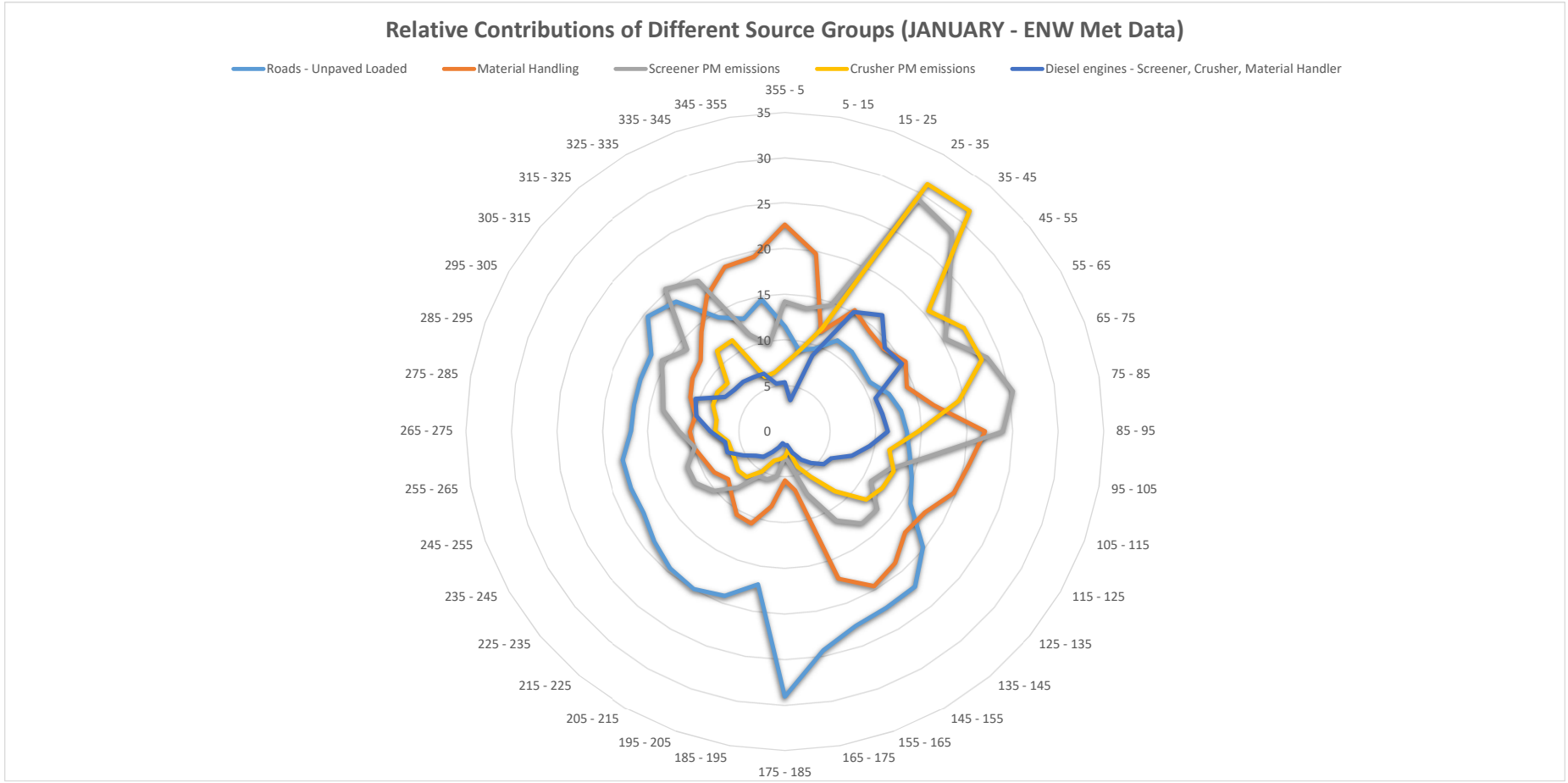
DISPLAY:

Wind Speed
Direction (blowing from)



COMMENTS:	DATA PERIOD:	COMPANY NAME:	
	Start Date: 12/1/2013 - 00:00 **End Date: 12/31/2017 - 23:59**	MODELER:	
	CALM WINDS: **0.08%**	TOTAL COUNT: **3720 hrs.**	
	AVG. WIND SPEED: **9.64 Knots**	DATE: **8/24/2018**	PROJECT NO.:


Relative Contributions of Different Source Groups (JANUARY - ENW Met Data)
All sources + unpaved roads
Roads - Unpaved Loaded
Material Handling
Screener PM emissions
Crusher PM emissions
Diesel engines - Screener, Crusher, Material Handler
355 - 5
5 - 15
15 - 25
25 - 35
35 - 45
45 - 55
55 - 65
65 - 75
75 - 85
85 - 95
95 - 105
105 - 115
115 - 125
125 - 135
135 - 145
145 - 155
155 - 165
165 - 175
175 - 185
185 - 195
195 - 205
205 - 215
215 - 225
225 - 235
235 - 245
245 - 255
255 - 265
265 - 275
275 - 285
285 - 295
295 - 305
305 - 315
315 - 325
325 - 335
335 - 345
345 - 355
90
80
70
60
50
40
30
20
10
0

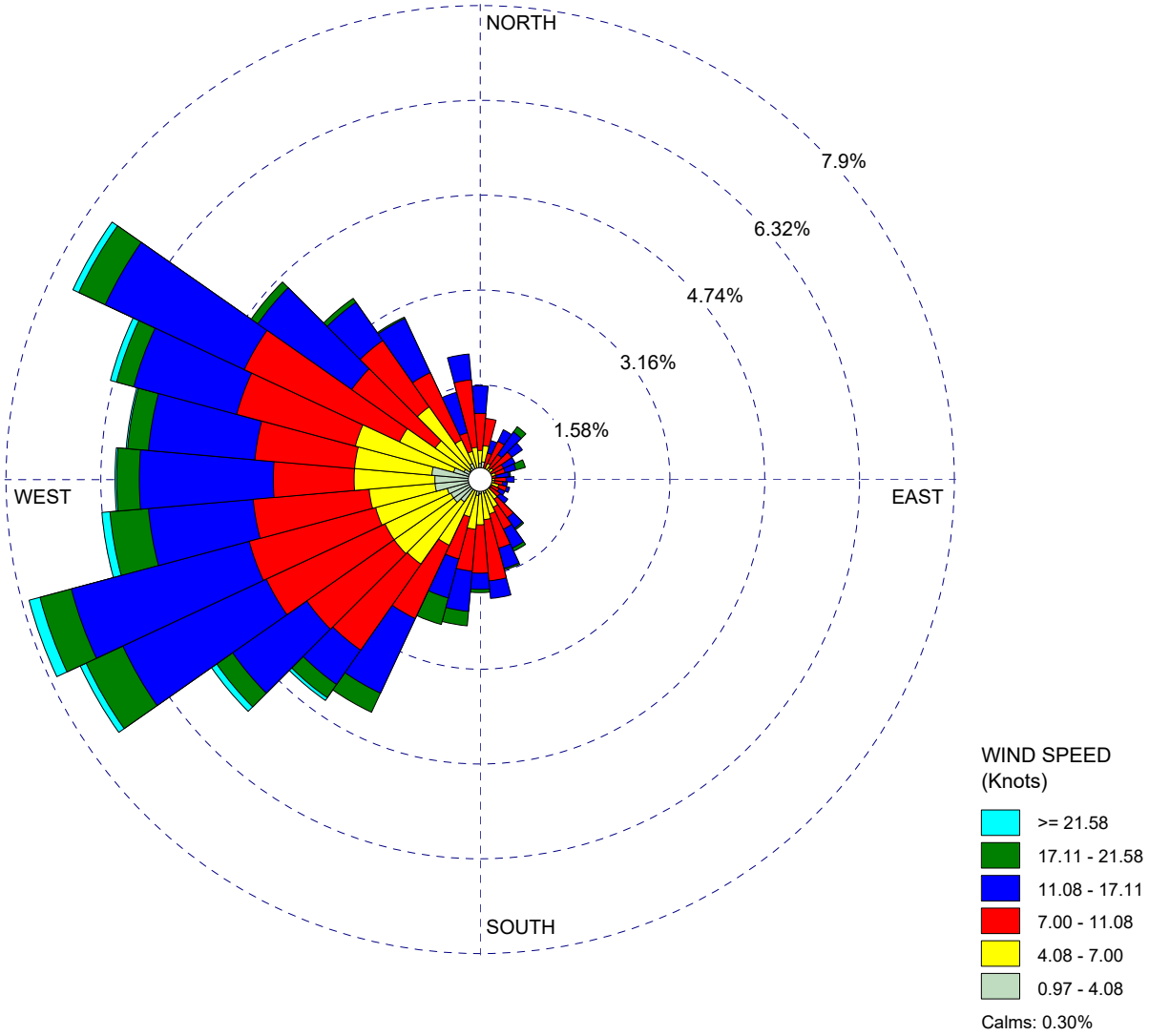

Relative Contributions of Different Source Groups (JANUARY - ENW Met Data)
Roads - Unpaved Loaded
Material Handling
Screener PM emissions
Crusher PM emissions
Diesel engines - Screener, Crusher, Material Handler
355 - 5
5 - 15
15 - 25
25 - 35
35 - 45
45 - 55
55 - 65
65 - 75
75 - 85
85 - 95
95 - 105
105 - 115
115 - 125
125 - 135
135 - 145
145 - 155
155 - 165
165 - 175
175 - 185
185 - 195
195 - 205
205 - 215
215 - 225
225 - 235
235 - 245
245 - 255
255 - 265
265 - 275
275 - 285
285 - 295
295 - 305
305 - 315
315 - 325
325 - 335
335 - 345
345 - 355
35
30
25
20
15
10
5
0

WIND ROSE PLOT:

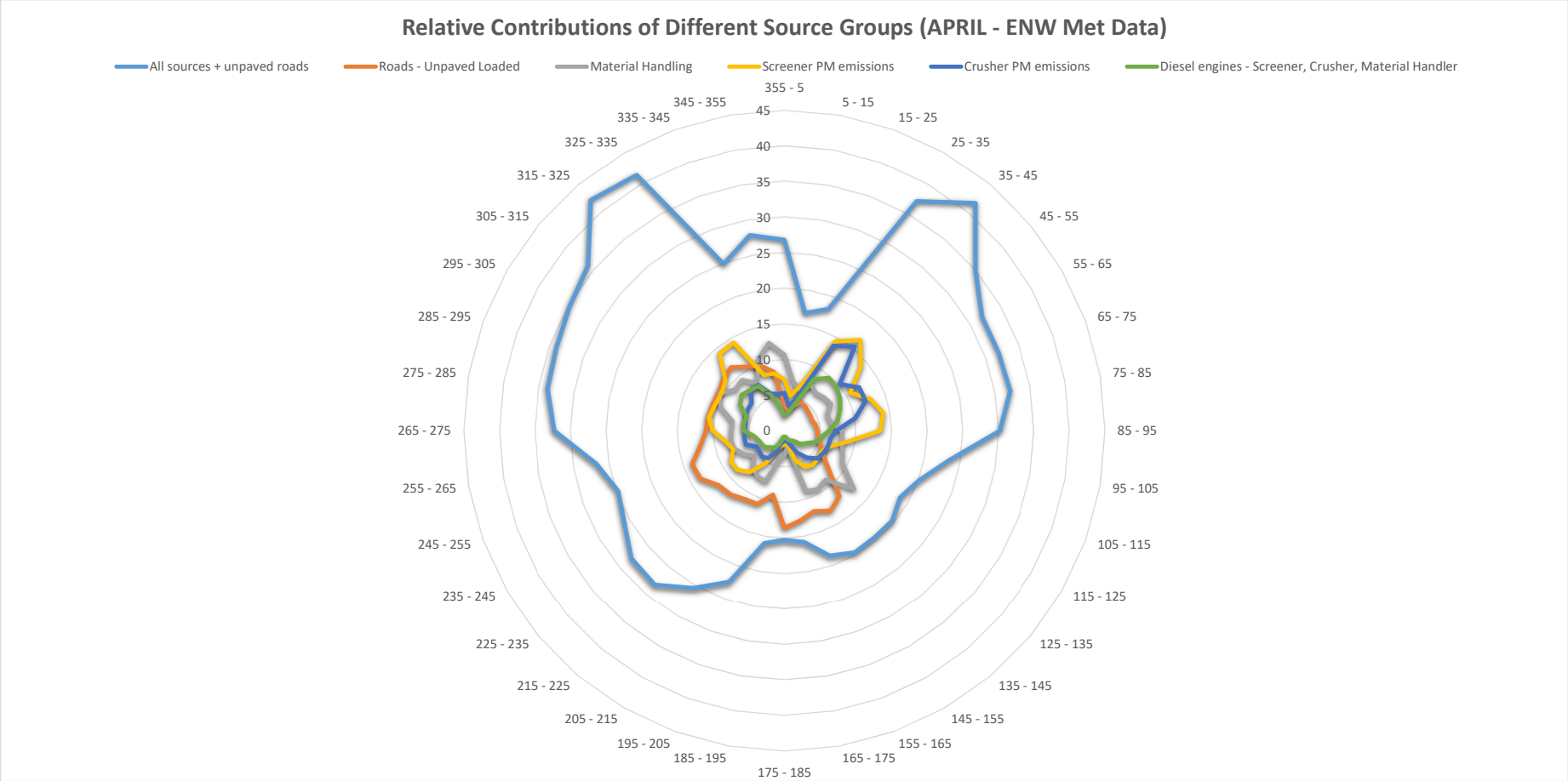
ENW JAN

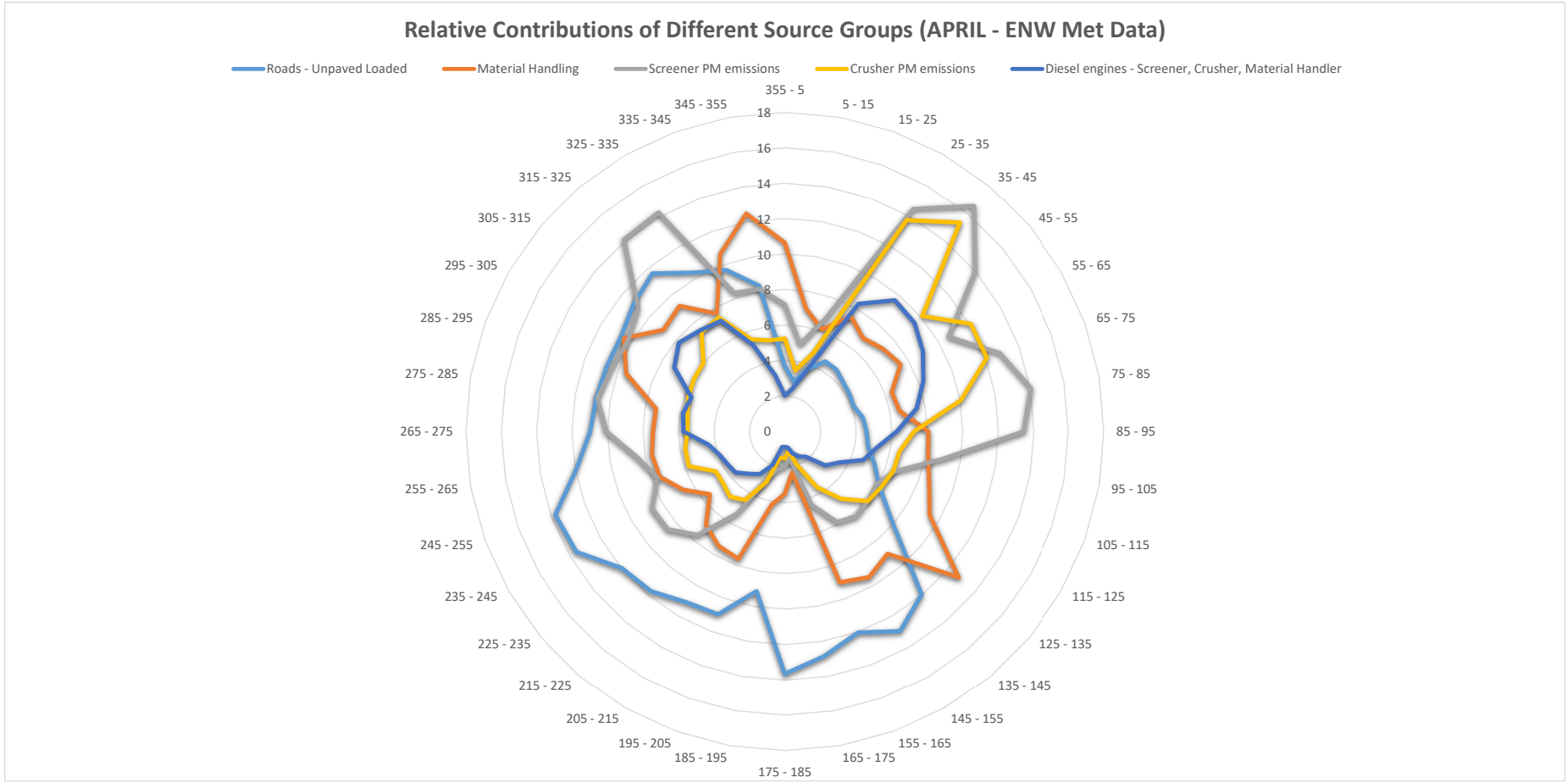
DISPLAY:

Wind Speed
Direction (blowing from)



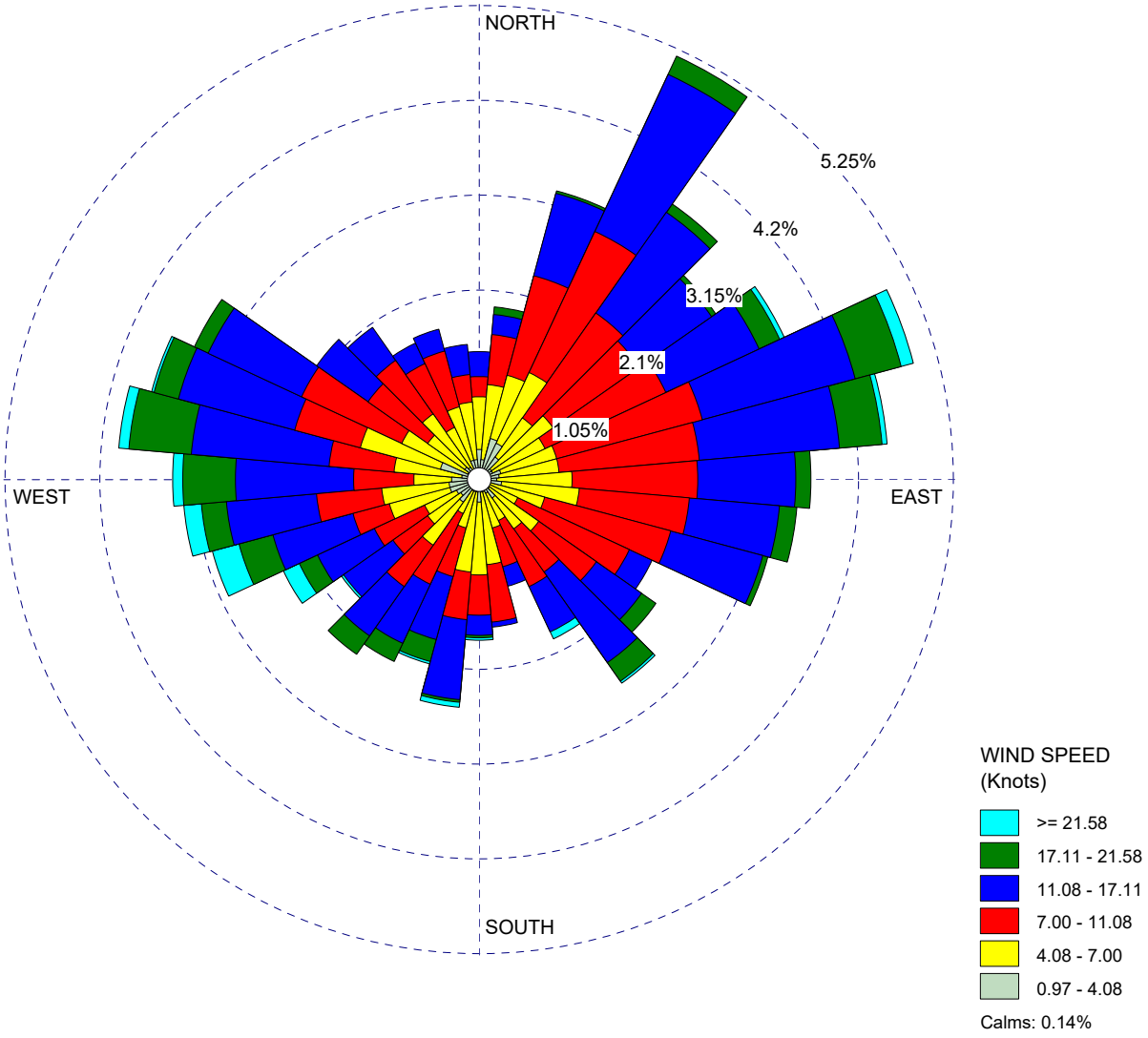
COMMENTS:	DATA PERIOD:	COMPANY NAME:	
	Start Date: 1/1/2011 - 00:00 **End Date: 1/31/2015 - 23:59**	MODELER:	
	CALM WINDS: **0.30%**	TOTAL COUNT: **3720 hrs.**	
	AVG. WIND SPEED: **9.74 Knots**	DATE: **8/28/2018**	PROJECT NO.:


Relative Contributions of Different Source Groups (APRIL - ENW Met Data)
All sources + unpaved roads
Roads - Unpaved Loaded
Material Handling
Screener PM emissions
Crusher PM emissions
Diesel engines - Screener, Crusher, Material Handler
355 - 5
5 - 15
15 - 25
25 - 35
35 - 45
45 - 55
55 - 65
65 - 75
75 - 85
85 - 95
95 - 105
105 - 115
115 - 125
125 - 135
135 - 145
145 - 155
155 - 165
165 - 175
175 - 185
185 - 195
195 - 205
205 - 215
215 - 225
225 - 235
235 - 245
245 - 255
255 - 265
265 - 275
275 - 285
285 - 295
295 - 305
305 - 315
315 - 325
325 - 335
335 - 345
345 - 355
45
40
35
30
25
20
15
10
0

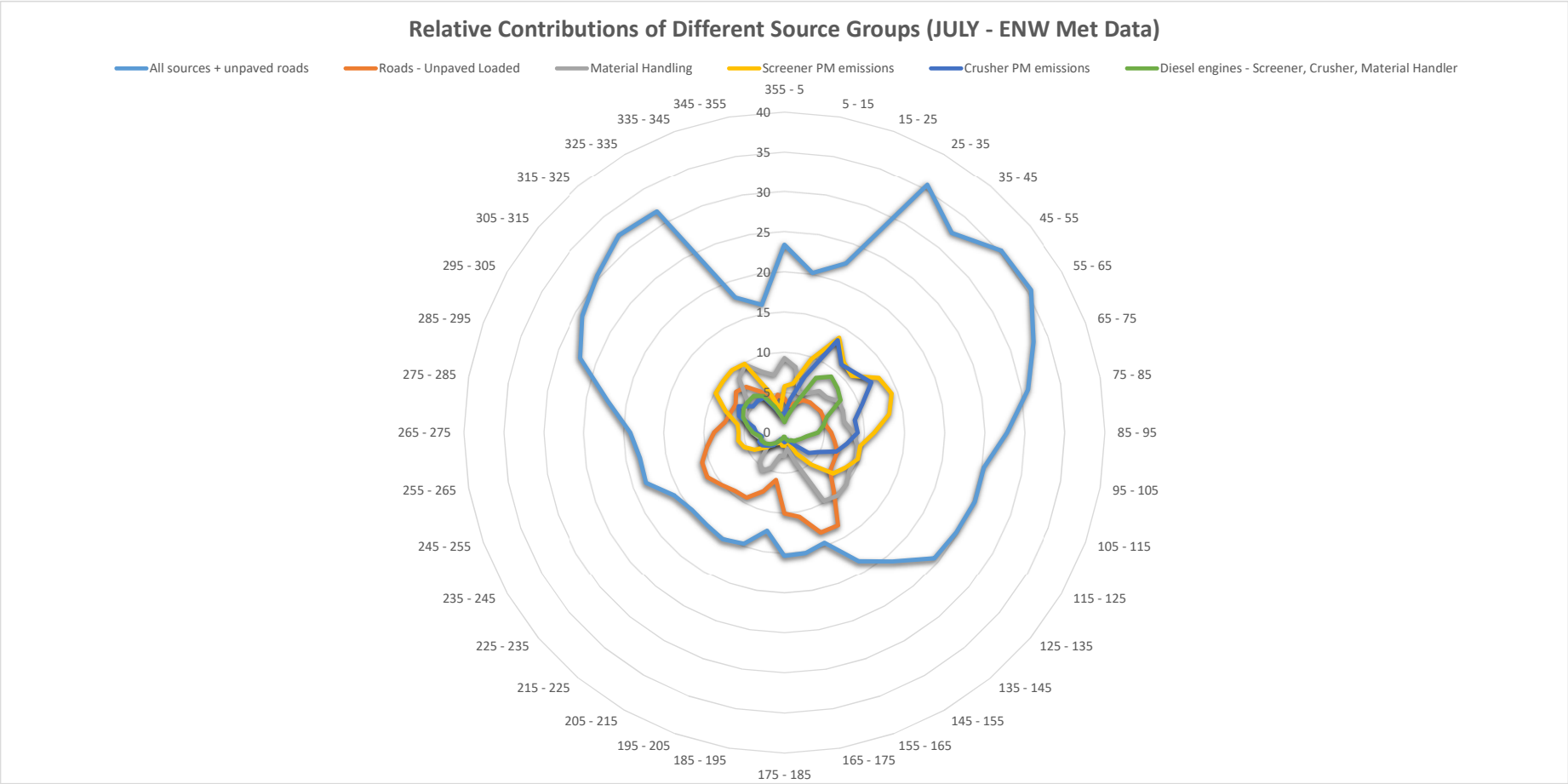

Relative Contributions of Different Source Groups (APRIL - ENW Met Data)
Roads - Unpaved Loaded
Material Handling
Screener PM emissions
Crusher PM emissions
Diesel engines - Screener, Crusher, Material Handler
355 - 5
5 - 15
15 - 25
25 - 35
35 - 45
45 - 55
55 - 65
65 - 75
75 - 85
85 - 95
95 - 105
105 - 115
115 - 125
125 - 135
135 - 145
145 - 155
155 - 165
165 - 175
175 - 185
185 - 195
195 - 205
205 - 215
215 - 225
225 - 235
235 - 245
245 - 255
255 - 265
265 - 275
275 - 285
285 - 295
295 - 305
305 - 315
315 - 325
325 - 335
335 - 345
345 - 355
0
2
4
6
8
10
12
14
16
18

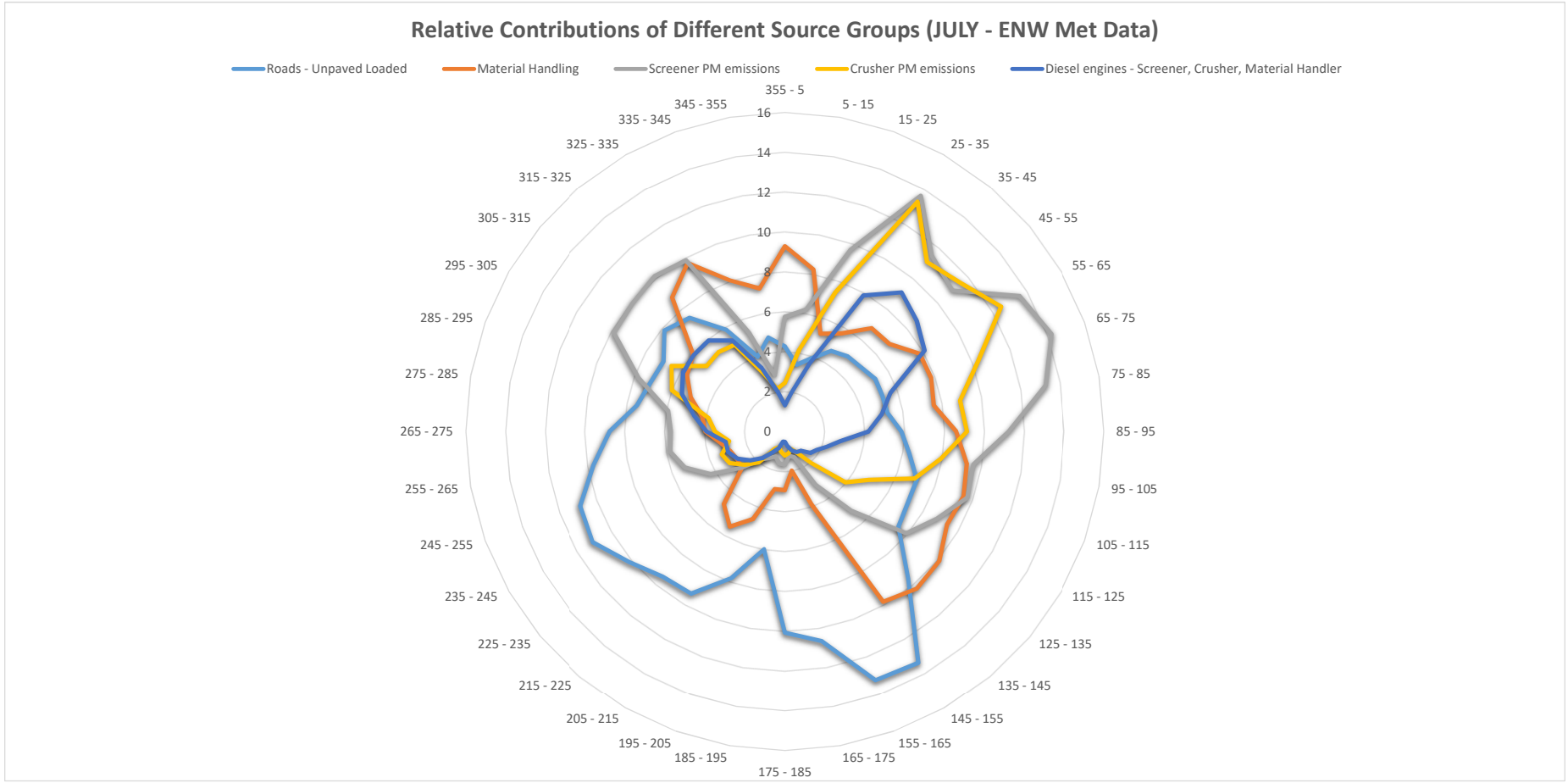
WIND ROSE PLOT:
ENW APRIL

DISPLAY:
Wind Speed
Direction (blowing from)



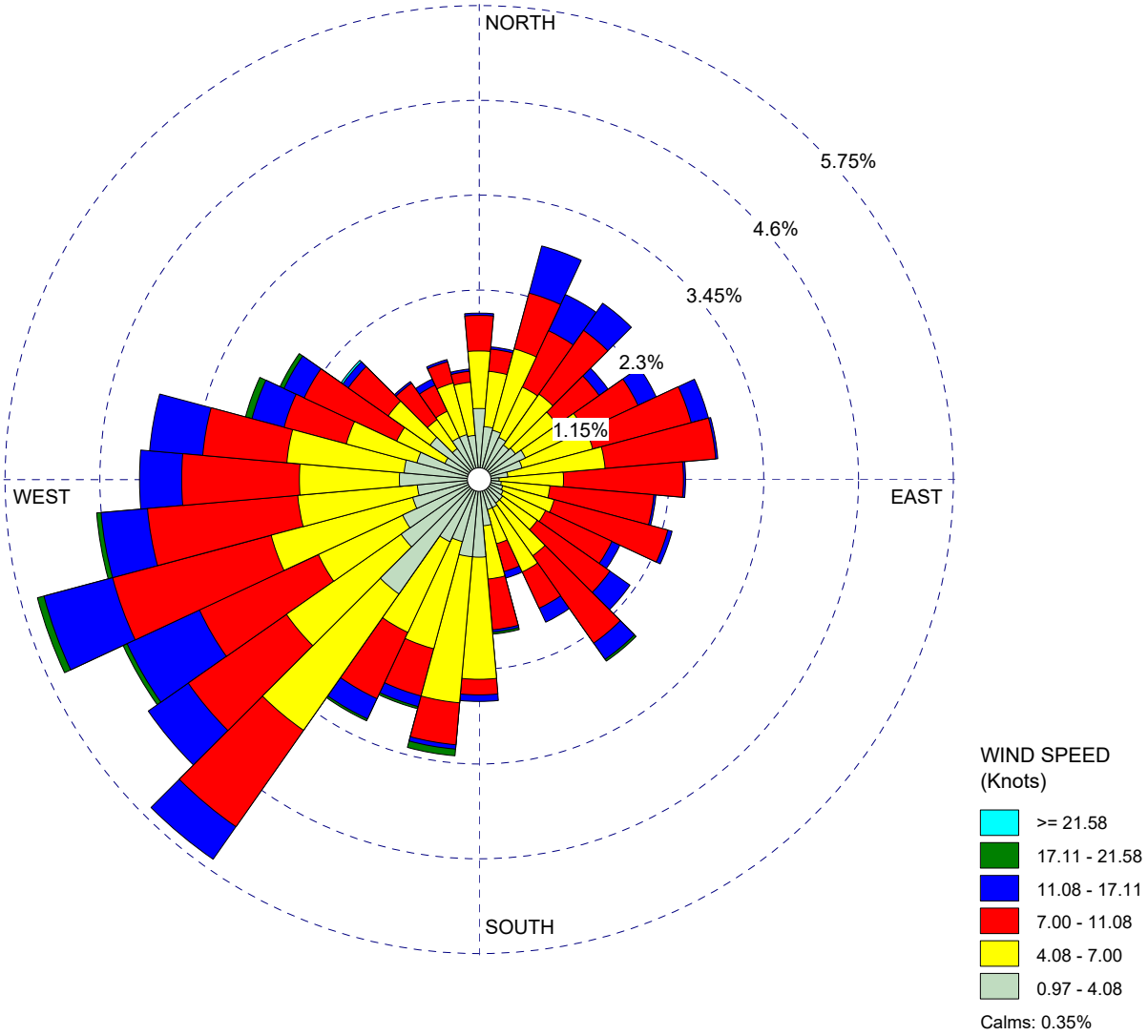
COMMENTS:	DATA PERIOD: **Start Date: 4/1/2011 - 00:00** **End Date: 4/30/2015 - 23:59**	COMPANY NAME:	
		MODELER:	
	CALM WINDS: **0.14%**	TOTAL COUNT: **3599 hrs.**	
	AVG. WIND SPEED: **9.91 Knots**	DATE: **8/28/2018**	PROJECT NO.:


Relative Contributions of Different Source Groups (JULY - ENW Met Data)
All sources + unpaved roads
Roads - Unpaved Loaded
Material Handling
Screener PM emissions
Crusher PM emissions
Diesel engines - Screener, Crusher, Material Handler
355 - 5
5 - 15
15 - 25
25 - 35
35 - 45
45 - 55
55 - 65
65 - 75
75 - 85
85 - 95
95 - 105
105 - 115
115 - 125
125 - 135
135 - 145
145 - 155
155 - 165
165 - 175
175 - 185
185 - 195
195 - 205
205 - 215
215 - 225
225 - 235
235 - 245
245 - 255
255 - 265
265 - 275
275 - 285
285 - 295
295 - 305
305 - 315
315 - 325
325 - 335
335 - 345
345 - 355
40
35
30
25
20
15
10
5
0

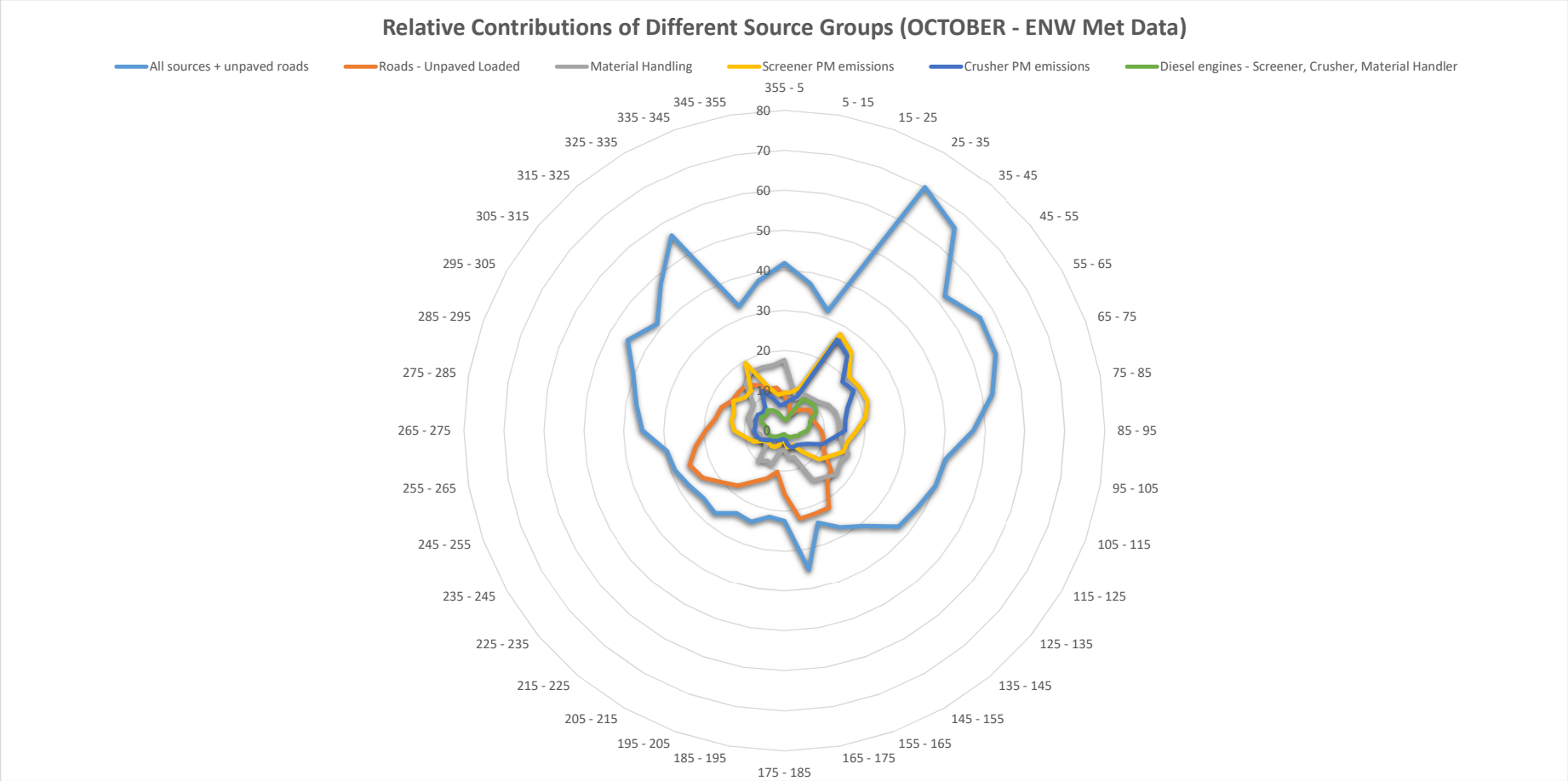

Relative Contributions of Different Source Groups (JULY - ENW Met Data)
Roads - Unpaved Loaded
Material Handling
Screener PM emissions
Crusher PM emissions
Diesel engines - Screener, Crusher, Material Handler
355 - 5
5 - 15
15 - 25
25 - 35
35 - 45
45 - 55
55 - 65
65 - 75
75 - 85
85 - 95
95 - 105
105 - 115
115 - 125
125 - 135
135 - 145
145 - 155
155 - 165
165 - 175
175 - 185
185 - 195
195 - 205
205 - 215
215 - 225
225 - 235
235 - 245
245 - 255
255 - 265
265 - 275
275 - 285
285 - 295
295 - 305
305 - 315
315 - 325
325 - 335
335 - 345
345 - 355
0
2
4
6
8
10
12
14
16

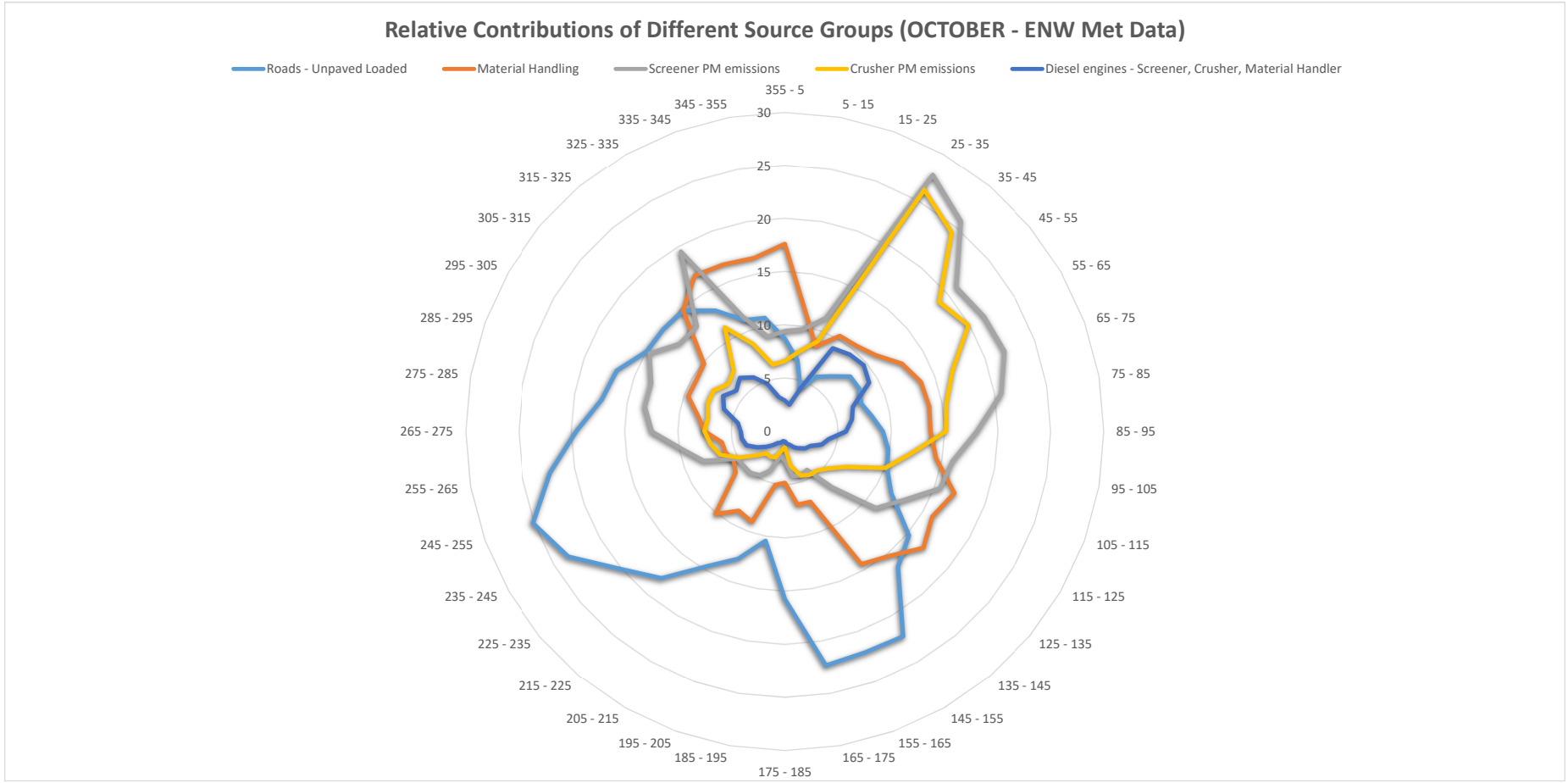
WIND ROSE PLOT:
ENW JULY

DISPLAY:
Wind Speed
Direction (blowing from)



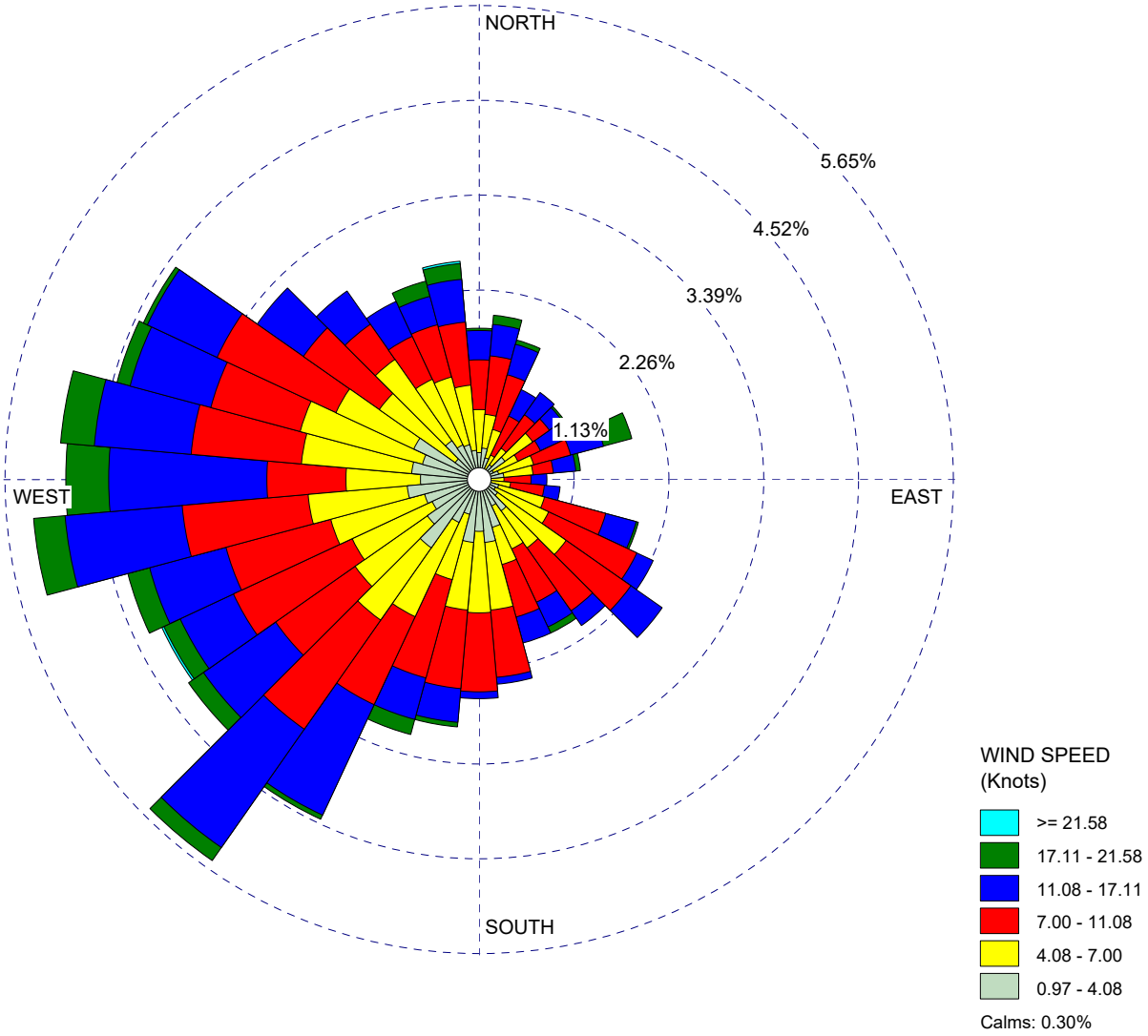
COMMENTS:	DATA PERIOD:	COMPANY NAME:	
	Start Date: 7/1/2011 - 00:00 **End Date: 7/31/2015 - 23:59**	MODELER:	
	CALM WINDS: **0.35%**	TOTAL COUNT: **3718 hrs.**	
	AVG. WIND SPEED: **6.68 Knots**	DATE: **8/28/2018**	PROJECT NO.:


Relative Contributions of Different Source Groups (OCTOBER - ENW Met Data)
All sources + unpaved roads
Roads - Unpaved Loaded
Material Handling
Screener PM emissions
Crusher PM emissions
Diesel engines - Screener, Crusher, Material Handler
355 - 5
5 - 15
15 - 25
25 - 35
35 - 45
45 - 55
55 - 65
65 - 75
75 - 85
85 - 95
95 - 105
105 - 115
115 - 125
125 - 135
135 - 145
145 - 155
155 - 165
165 - 175
175 - 185
185 - 195
195 - 205
205 - 215
215 - 225
225 - 235
235 - 245
245 - 255
255 - 265
265 - 275
275 - 285
285 - 295
295 - 305
305 - 315
315 - 325
325 - 335
335 - 345
345 - 355
80
70
60
50
40
30
20
10
0


Relative Contributions of Different Source Groups (OCTOBER - ENW Met Data)
Roads - Unpaved Loaded
Material Handling
Screener PM emissions
Crusher PM emissions
Diesel engines - Screener, Crusher, Material Handler
355 - 5
5 - 15
15 - 25
25 - 35
35 - 45
45 - 55
55 - 65
65 - 75
75 - 85
85 - 95
95 - 105
105 - 115
115 - 125
125 - 135
135 - 145
145 - 155
155 - 165
165 - 175
175 - 185
185 - 195
195 - 205
205 - 215
215 - 225
225 - 235
235 - 245
245 - 255
255 - 265
265 - 275
275 - 285
285 - 295
295 - 305
305 - 315
315 - 325
325 - 335
335 - 345
345 - 355
30
25
20
15
10
5
0

WIND ROSE PLOT:
ENW OCTOBER

DISPLAY:
Wind Speed
Direction (blowing from)



COMMENTS:	DATA PERIOD: **Start Date: 10/1/2011 - 00:00** **End Date: 10/31/2015 - 23:59**	COMPANY NAME:	
		MODELER:	
	CALM WINDS: **0.30%**	TOTAL COUNT: **3719 hrs.**	
	AVG. WIND SPEED: **8.33 Knots**	DATE: **8/28/2018**	PROJECT NO.:

ATTACHMENT G

DUST MONITORING PLAN

CHICAGO RAIL & PORT, LLC.

Fugitive Dust Plan

Version B. July 2018

Plan Date: **October _16_, 2018**

Revisions:

Revision Number	Date	Sections Revised	Signature

Table of Contents

Introduction

This document constitutes the Operating Program for Fugitive Particulate Matter Control for the Chicago Rail & Port, LLC (CRP) facility located in Chicago, Illinois (the Facility). Fugitive particulate matter (PM) is regulated under title 35 of the Illinois Administrative Code (IAC) subpart K. Pursuant to 35 IAC 212.309(a), fugitive emissions from storage piles, screening operations, traffic area, materials collected by pollution control equipment, and any units for which spraying of choke-feeding is required must be operated under the provisions of an operating program.

This document is organized such that it follows the regulatory requirements of 35 IAC 212.309, 35 IAC 212.310 and 35 212.312. This Operating Program is designed to minimize the opportunity for fugitive PM emissions at the Facility. This Operating Program has been revised to reflect the fugitive PM emission sources in operation as of September 2018 and will be revised as appropriate to reflect any future changes in operations.

Chicago Rail & Port follows the City of Chicago Department of Public Health Bulk Solid Materials rules as guidance but its operations are not regulated by these rules. Bulk Solid Materials are defined in the rules as any solid substance or material that can be used as a fuel or as an ingredient in a manufacturing process that may become airborne or be scattered by the wind, but shall not include salt, grains, Construction and Demolition Materials, materials that are handled or stored pursuant to a recycling, reprocessing, or waste handling Facility permit under Chapter 11-4 of the Code, or materials used in manufacturing cement at a factory. Construction and Demolition Materials are defined in the Rules as follows: Material used in or resulting from the construction, remodeling, repair, landscaping, or demolition of utilities, structures, buildings, and roads, including but not limited to stockpiles of crushed stone, sand, hot mix asphalt plants or ready mixed concrete plants. All current products handled by Chicago Rail & Port are excluded from the definition of Bulk Solid Material under the City's Regulations because they are Construction and Demolition Materials. Chicago Rail & Port is also a registered source under the Illinois Registration of Smaller Sources, (ROSS) Program pursuant to 35 I11. Adm. Code 201.175. It received confirmation of its ROSS registration from the Illinois EPA by letter dated January 4, 2018.

1.0 Facility Overview

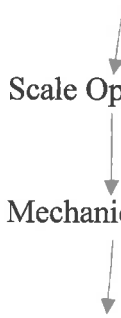
The name of the Facility is Chicago Rail & Port, LLC and will also be referred to in this Plan as "the Facility". The Facility is located at 3245 East 103rd street and extends south to 3310 E 106th St. The Facility consists of approximately 40 acres. It is located along the Calumet River. The main access gate is located just east of the 106th St. bridge with the Calumet River extending along the west side of the property. Chicago Rail & Port consists of 40 acres separated into two parcels. The Northfolk and Southern railroad separates Chicago Rail & Port into a 28 and 12 acre landscape. Types of materials handled may include Limestone, Ballast, and Stone Chips. Chicago Rail & Port operates a bulk material storage and transport operation at the Facility. Various materials are loaded and unloaded via barge, truck, rail and marine vessel at Chicago Rail & Port. Materials may be received and shipped off-site without accumulation in storage piles. Occasionally, material may be temporarily stored at the Facility before being transported from the Facility. Loading and unloading from barges is performed via material handling equipment. Loading and unloading from trucks and railcars is performed via front end loaders. Stone may be processed through a screening operation to separate into different size piles or to remove impurities. Chicago Rail & Port is the owner and operator responsible for the execution of this operating program.

2.0 Roles and Responsibilities

Director of Operations oversees all documentation and matters regarding the Fugitive Dust Plan and daily operations at Chicago Rail & Port. The typical hours of operation of the Facility are from 6am to 2 pm in the summer, spring and fall and from 7am- to 3pm during the winter.

Both the Scale Operator and Mechanical Loader personnel are allowed to raise an alert regarding PM10 emissions at the facility if he/she feels it is necessary. If the Mechanical Loader notices any visible PM10 emission during the handling or transfer of materials, then he/she will call the Scale Operator to report the alert and the Scale Operator will then alert the Director of Operations. The Scale Operator is then required to bring the proper paper work i.e., alert form, method 22 and/or method 9 forms to the Director of Operations. The Scale Operator will then inform the Mechanical Loader and other Chicago Rail and Port employees to perform mitigation methods. Mitigation methods are employed to adequately control or lessen Fugitive Dust. If the implemented mitigation methods are not adequate to resolve the PM10 alert, both the Scale Operator and Mechanical Loader have the authority to stop operations. The Scale Operator or the Mechanical Loader will notify the Director of Operations of any decision to stop operations.

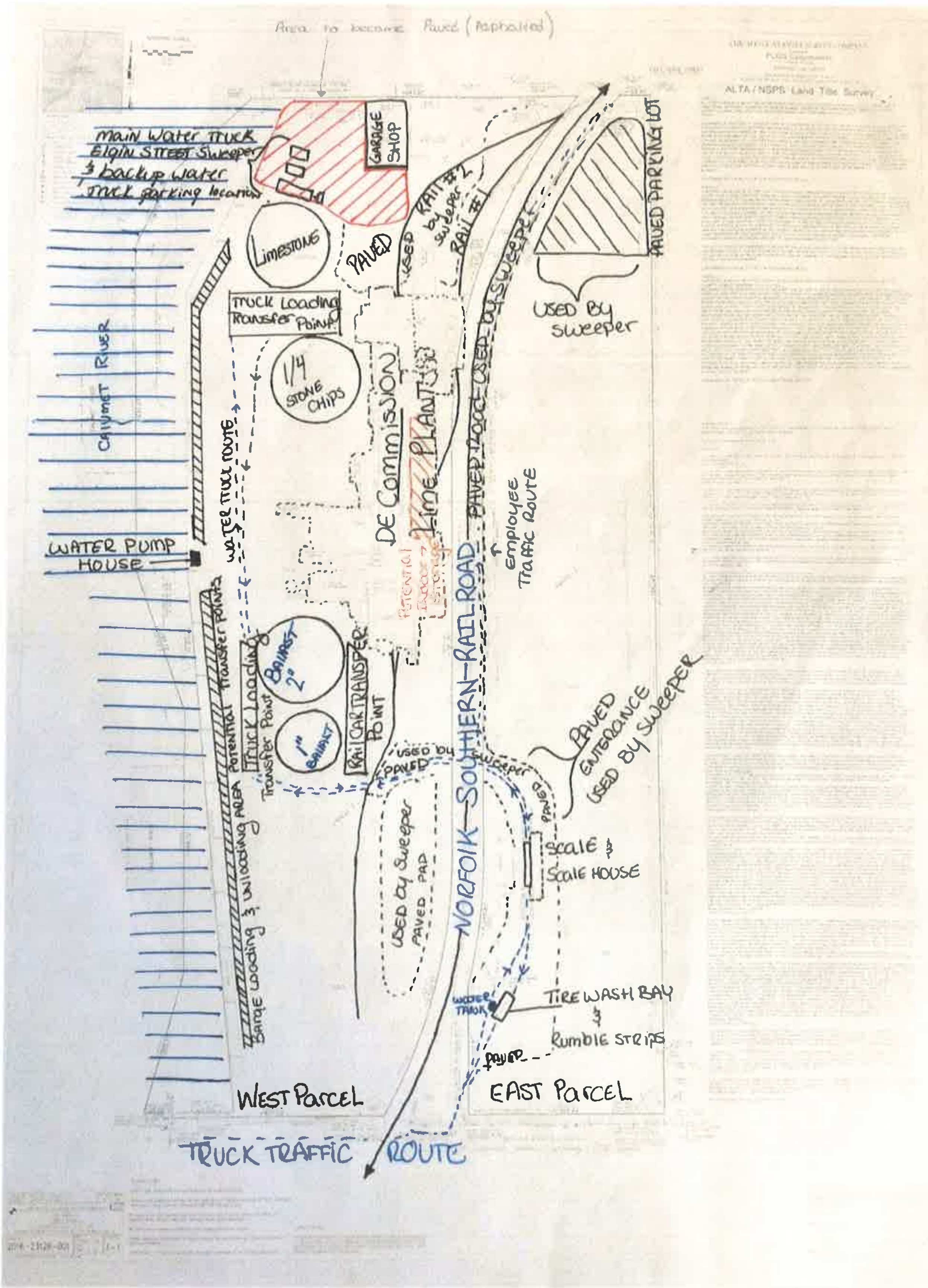
Director of Operations



Employee Personnel- Chicago Rail & Port, LLC

3.0 Site Map

The Chicago Rail & Port terminal site map is shown in Figure 1 below. The site map indicates the locations of the Facility boundaries, buildings and utilities. Figure 1 also shows any roadways used for transport of material into and from the Facility. The control devices are listed as the area in which the pump house is located for the loading of our water truck. Also, the area in which the back-up water truck and street sweeper are located. The site map lists the 4 current stockpile areas located at the facility along with the truck routes and transfer points for the loading of trucks, rail cars and barges.


Area to become Paved (Asphalted)
Main Water Truck
Elgin Street Sweeper
& backup water
truck parking location
GARAGE SHOP
Limestone
PAVED
USED by sweeper
RAIL #2
RAIL #1
PAVED PARKING LOT
USED BY sweeper
USED by SWEEPER
TRUCK Loading Transfer Point
1/4 STONE CHIPS
CALUMET RIVER
WATER TRUCK ROUTE
DE COMMISSION
LIME PLANT
PAVED LOOP USED by SWEEPER
Employee Traffic Route
WATER PUMP HOUSE
POTENTIAL INDOOR STORAGE
NORFOLK-SOUTHERN-RAILROAD
POTENTIAL TRANSFER POINTS
Truck Loading Transfer Point
BALLAST 2"
1" BALLAST
RAILCAR TRANSFER POINT
USED by SWEEPER
PAVED
PAVED ENTERANCE USED BY SWEEPER
Barge Loading & Unloading AREA
USED by Sweeper PAVED PAD
PAVED
Scale & Scale HOUSE
WATER TRUCK
TIRE WASH BAY & Rumble STRIPS
PAVED
WEST Parcel
EAST Parcel
TRUCK TRAFFIC ROUTE
ALTA / NSPS Land Title Survey

4.0 Operations: Inbound & Outbound Unloading

4.1 Pre-Inbound & Outbound Unloading Checks

The Mechanical Loader applies water using portable cannons on a water truck to address the potential for fugitive particulate emissions from parking areas and roadways. The speed limit at all locations on-site is 5 mph. Speed limits are enforced by security personnel, site personnel, operators, and signage. The Scale Operator uses the Chicago Rail & Port; pile mitigation checklist to verify if the stockpile is or needs water or other mitigation methods before use. The Scale Operator then will alert the Mechanical Loader to apply the mitigation methods as needed. These Methods consist of but are not limited to water cannons, spray bars or hoses from the water truck. Watering the loading zones, roadways, entrances, and parking areas with either of the Facilities two water trucks. Along with applying water to the stockpile where any Visible Emission may arise. Other mitigation methods may include using the Elgin Street Sweeper to pick up and Particular Matter on the roadways, entrances and/or loading zones.

Every two weeks, a trained professional (usually a Mechanical Loader or other Chicago Rail & Port employee) uses a street sweeper to remove any dust from roads and parking areas inside the Facility. During non-freezing weather, sweeping is accomplished using an Elgin street sweeper and the water truck that moistens the particles and controls dust emissions when the sweeper is in use. Material removed by the sweeper is disposed of off-site. Street sweeping only occurs during nonfreezing conditions. Any vehicle that enters the former stockpile area at the Facility is required to pass over rumble strips and through a wheel-wash prior to leaving the Facility. The system is designed such that vehicles pass over a series of rumble strips to shake off loose material before entering a wheel-wash so that all sides of the tires are rinsed with water to loosen residual material before exiting the Facility. The wheel-wash operates each day except during freezing conditions. The wheel-wash is inspected twice per month with no more than 21 days in between inspections. The wheel-wash is designed to collect any liquid from its operations, and the liquid drains into a retention pond.

The Director of Operations visually inspects the pavement at the Facility on a quarterly basis. If Chicago Rail & Port identifies damage to the pavement during those inspections, it repairs the damage. Unpaved areas are minimized and treated with water. Existing storage piles at the facility may prevent the paving of areas that are traversed by mobile vehicles in the area of the storage piles. Vehicle traffic in these areas will be minimized as much as reasonably possible to limit fugitive PM emissions. Unpaved areas at the Facility are primarily limited to these areas. Dust suppression (i.e., water spray) is applied on all unpaved surfaces using a water truck which sprays water from the front and rear of the truck in an approximate 10-15 ft spray pattern at least once per day on days when material loading or unloading occurs, except when there is adequate moisture to prevent visible emissions or the temperatures are below freezing. Adequate moisture is determined based on visual observations as documented in the pile mitigation and Method 22 forms. Repairs to both the water truck and high-pressure road washer will be made as soon as possible after the occurrence of malfunctions. If repair to the equipment is not completed within 24 hours a third- party water truck and or high-pressure road washer will be obtained and used as appropriate. Checklists are kept as a record keeping tool for the various items. Street sweeper, water truck, tire wash bay, rumble strips, and pumphouse and can be referenced in attachments 1-7.

4.2 Method 22 Daily Observation Checklist

Shortly after material loading begins, a Method 22 form is filled out by the Scale Operator. The Scale Operator and Mechanical Loader both have the authority to request mitigation methods on the stockpile or loading zones. It is the Scale Operators responsibility to inform the Director of Operations and the Mechanical Loader that an alert has been issued. If visible emissions are observed, they are recorded on the Method 22 form. In the Event of a Method 22 test concludes there are potential visible emissions, then the Scale Operator is responsible to fill out a method 9 form. The Scale Operator will then alert a Chicago Rail & Port employee to provide mitigation methods on the visible emission areas. The Mechanical Loader also has the authority to raise a visible emissions alert, The Mechanical Loader will then inform the Scale Operator of the visible emissions and the Scale Operator will then describe the alert on the Method 22 and High Wind Event Log.

4.3 Truck

Loading Zones are inspected by the Scale Operator and Machinal loader before shipping the specified material. The image below shows a mitigated loading zone along with mitigation methods being performed on the stockpile prior to truck loading. Our Daily Pile Mitigation Checklist is preformed by the Scale Operator whom then informs the Mechanical Loader if mitigation is necessary. It can be any Chicago Rail & Port employee or Mechanical Loader whom can perform mitigation methods and procedures.

The water truck preps the area if material is first placed on the ground from Truck, Rail, Or Barge before being moved to on-site storage piles. Positioning water truck or water sprays if needed. The scale operator uses the pile mitigation checklist before the stockpile becomes active. This checklist helps ensure that mitigation methods are necessary or unnecessary. It is the scale operator role to then alert the Mechanical Loader or a Chicago Rail & Port employee to use mitigation methods on the selected pile.


WATER

4.4 Rail

Stock Piles & Loading Zones are inspected by the Scale Operator and Machinal loader before shipping the specified material. The images below show a mitigated loading zone along with mitigation methods being performed on the stockpile during rail car loading. Our Daily Pile Mitigation Checklist is performed by the Scale Operator whom then informs the Mechanical Loader if mitigation is necessary. It can be any Chicago Rail & Port employee or Mechanical Loader whom can perform mitigation methods and procedures.

Chicago Rail & Port employee personnel such as the Mechanical Loader, Scale Operator and Director of Operations are responsible for the visual surveillance of PM emissions while loading rail cars. In the event that an Mechanical Loader and/or Scale Operator believes there is sufficient dust coming from the loading of rail cars, the water truck sprayers will be utilized to dampen the material before the loading process may resume see Figure 2.

Open top rail cars are loaded directly with a front-end loader; this allows drop height to be minimized more than through the use of a Conveyor system. Drop height is minimized by placing the hinge pin of the bucket as near as possible to the top of the side of the railcar which results in the bottom portion of the bucket being contained inside the railcar when the material in the bucket is off-loaded. In freezing temperatures, in the rare event that moisture is not sufficient employee personal will determine the appropriate measures to unload the material. The image below shows how the sprayers are utilized when wetting the material. The figures below show the process of operations for loading railcars if the stockpile needs mitigation methods to be performed.

4.5 Barge

The Mechanical Loader and Scale Operator are responsible in verifying visible emission for barge unloading. The Scale Operator informs the Mechanical loader of wind direction or any high wind alerts. If Visible emission are present it is the Mechanical Loaders responsibility to alert the Scale Operator. A method 22 and method 9 form are then filled out by the Scale Operator and brought to the Director of Operations for review. Barges are offloaded using an 860 Sennabogan with a clam shell bucket. Drop points are easily reduced by getting the bucket as closest to the stockpile as possible before releasing the material. It is the Scale Operators responsibility to inform the Mechanical loader when this operation is necessary.

4.6 High Wind Events and Freezing Conditions

During Freezing or High Wind Events it is the Scale Operators responsibility to collect wind direction and speed data. The data is then manually entered by the scale operator onto the hourly log sheet and method 22 form. In the event of wind speed at or above 15 mph during two consecutives5 minute intervals of time, the scale operator will alert the Director of Operations and all Chicago Rail & Port employees. The Scale Operator or Director of Operations will alert the mechanical loader that a high wind event has alert has begun. The Scale Operator is responsible for filling out the High Wind Event Log consisting of the start and end time of the event along with the wind speed and direction. For the remainder of their shift, the Scale Operator or Mechanical Loader shall observe the facility for visible fugitive dust and take appropriate steps in response to any visible fugitive dust. If personnel feel that fugitive dust is visible, then the facility will conduct operations to minimize dust as efficiently as possible using mitigation effort, i.e., water truck sprayers and hoses.

Record and retain an event report that includes pertinent PM 10 data found in our calculations sheet (attachment 7) based on total tonnage shipped. The report will include information such as timing of the alert, timing or suspension (if applicable), timing of restart (if applicable), description of mitigation efforts, and other pertinent information relating to the event.

Freezing conditions consist typically from November 1 through March 31 at Chicago Rail & Port, when air temperatures are below 32 degrees Fahrenheit. During freezing conditions, Chicago Rail & Port employees observe for Visible Fugitive Dust. During hard freezing conditions, Chicago Rail & Port only applies water using the portable water cannons on the water trucks to address specific concerns, if it is safe to do so. During freezing conditions, the tire wash bay is drained on a below freezing basis, in which case water is applied on days that is above freezing and the tire wash bay can be utilized. Rumble strips are still utilized during below freezing circumstances. During freezing conditions, sweeping of internal roads and parking areas is accomplished with a dry Elgin street sweeper if it is safe to do so. Please see the method 22 daily observation report to confirm dates that are indeed below freezing.

4.7 Record Keeping

Records relating to this plan are maintained at the Facility and available for inspection. The records are retained for minimum of 2 years. Sample forms and logs that Chicago Rail & Port, LLC use to keep records are located in the attachment section of the plan. These records can be recorded by both the Director of Operations and the Scale Operator. The Scale Operator will do all daily paper work that is then reviewed by the Director of Operations at the end of the day. The records are then kept at the facility for 2 years.

- Log of all cleaning and sweeping of internal roads, parking areas and loading zones. IE: Street Sweeper Log, Water Truck Log.
- Daily log of weather conditions, including wind speed and direction as document by Chicago Rail & Port Shift Leader.
  IE: Method 22, Daily Method 22 Checklist, Hourly weather report checklist, Method 9, High Wind Event Log, Daily AM stockpile mitigation report.
- Instances of suspension of activities due to high wind conditions
- Quarterly opacity test results
- Quarterly fugitive dust test results
- Schedule of routine inspections, maintenance, and testing of all control measure devices and technologies, including schedule for inspection of pump house, weekly inspections around the perimeter of the property for the presence of spilled material extending from the property, and the individuals responsible for such inspections, maintenance, and testing.

5.0 Outdoor Storage Piles

Materials stored outdoors are loaded into trucks with a frontend loader. No materials at the Facility are stored indoors at this time, although the Facility does have a potential area to create a storage pile indoors. Products that can be stored in the Outdoor Storage Piles and are not affected by the weather conditions are considered the following:

- Wetted materials when necessary that have a predominantly large particle size greater than ½".
- Dry materials that have predominantly large particle size greater than ½".

The proper loading method for outdoor materials entails minimizing material drop heights by placing the hinge pine of the frontend loader as near as possible to the top of the side of the truck bed which results in the bottom portion of the bucket being contained inside the truck bed when the material in the bucket is off loaded. Additionally, wetted materials are directly sprayed with water or dampened if moisture is not sufficient prior to and/or during the truck loading. The water truck prepares the unloading area if material is first placed on the ground from truck, rail or barge before being moved to an on-site storage pile.

The Chicago Rail & Port form used by the Scale Operator when preforming visible method 22 testing is seen in attachment 3. It is possible for the Mechanical Loader to alert the scale Operator that Visible dust is coming from the drop points when loading. The Scale Operator then is required to perform a Method 22 on the specific material. If Visible Emission is present when preforming a Method 22 than a Method 9 is required. The alert also gets reported on the Chicago Rail & Port High Wind Event Log found in attachment 1.

6.0 Roadways, Truck Routes and Parking Lot Areas

All internal roads at the Facility that are used for transporting or moving material are paved up to the immediate area surrounding a stockpile. Roads are cleaned by using a street sweeper, with sweeping to be performed so that not more than 4 hours elapses between each street sweeper cleaning or after every 100 trucks of material receipts or dispatches, provided that freezing conditions do not prevent the safe use of the street sweeper.

All semitrucks carrying materials out of the Facility are covered, using the cover supplied by the truck owner/operator that meets the cover requirements in Section 3.09(a) of the City of Chicago Bulk Solid materials Rules. Trucks loaded from the outdoor storage piles are covered immediately upon completion of material loading.

Truck tires are observed at the weigh scale prior to departure from the Facility to assure material is not tracked out. Roads are also inspected for material track out. Accordingly, the combination of the Facility's road sweeping, watering schedule with ongoing monitoring and recordkeeping of same, the limit of access to the few unpaved areas, as well as the rumble strips installed at the truck scale ensures control equivalent to a wheel wash station such that trucks will not cause any track-out materials onto the public way.

6.1 Truck Routes

The maximum speed limit for all vehicles at the Facility is 5 mph. Speed limit signs are posted. Physical barriers prevent transport trucks from accessing unauthorized areas. The daily road sweeping/watering practices with ongoing monitoring and recordkeeping of same as described above in Section6.0, Roadways. Sweeping of the truck route from the main entrance on 3310 E 106 st. stretching north to 3245 E 103rd st, unless the external routes are free and clear of material from the Facility. Roads are also inspected for material tracking by the Scale Operator or Director of Operations. Towards the end of the last daily shift, visual inspection of internal roads is made by the Scale Operator and additional sweeping is made at any areas that have debris based on the visual inspection. The roadways and entrances are swept every 100 semi-trucks that pass through the Facility.

Wheel wash stations are only necessary when trucks are traveling on unpaved roads, and as noted above. The daily watering and sweeping schedule, including final checks at the end of the day, also help ensure that material does not accumulate on the paved roads that could attach it to transport truck tires in the first place. Additionally, the rumble strips installed at the inbound and outbound truck scale knock off wet material that may have accumulated on the transport truck tires.

The facility frequently waters. The wet material Is knocked off from the wheels is accumulated and swept up the wet material that is knocked off from the wheels is accumulated and swept up during the annual tire pit inspections.

7.0 Dust Monitoring Contingency Plan.

Visible fugitive dust and opacity testing are conducted daily. Visible fugitive dust and opacity observations are completed by a trained and certified Chicago Rail & Port employee "visible dust and Opacity Reader" using USEPA Method 22 and USEPA Method 9. Visible fugitive dust and opacity readings are completed daily, and method 9 readings are done quarterly or when an alert has occurred, the days of each evaluation is selected on wither or not the facility is handling load-in load-out operations. During Method 9 readings the specific day for this evaluation is selected based on weather conditions (it is not raining). On the selected day, the visible dust and opacity reader will report their findings in the fugitive dust plan at the facility. The data is collected and stored manually, and an alert system is used to alert personnel of cases where the PM data is elevated. Alerts are transmitted via email, text message, or phone call. Upon receipt of an alert Chicago Rail & Port personnel will determine if the reportable action level has been exceeded.

If Chicago Rail & Port identifies a potential on-site source, Chicago Rail & Port determines which actions listed below it should take to address the potential fugitive emissions. These actions are not required to be taken in any order. Rather, Chicago Rail & Port may take some or all of these actions in any order it chooses based on the suspected source and on-site conditions. Water application is considered the facilities first and primary response activity to control fugitive emissions. Chicago Rail & Port personnel visibly inspect the stockpile and loading procedures regularly to alert if fugitive dust is becoming a potential emission source.

Investigate Fugitive emission levels to determine suspected on-site source(s)

*If an on-site source is identified proceed to I below

*If an on-site source is not identified proceed to V below

I.

A. Product Unloading Potential Source

1. Apply targeted water through water truck

B. Product Transfer Potential Source

1. Apply water through spray bars located on the water truck; and/or

2. Apply targeted water through water truck hose.

C. Product Loading Potential Source

1. Minimize drop distance; and or

2. Reduce feed rate; and/or

3. Apply water through spray bars and water truck hoses

D. Parking Areas or Other Areas Potential Source

1. Apply targeted water through water truck

II. Monitor possible PM 10 Emissions

A. Provided the steps taken from procedure I and the source of the PM 10 emissions has not been resolved proceed to step III.

III. Suspend

A. Suspend the on-site source identified provided the procedure above was determined unsuccessful, after conducting mitigation activities; and,

B. Monitor PM10 levels hourly until the hourly reading for the suspected origin is improved in which case procced to V.

IIII. Restart

When the hourly reading for Fugitive Dust alert has been resolved and the all clear is given. restart the source/activities suspended under III above.

V. Recording

Record and retain an event report that includes pertinent PM10 data, meteorological information, timing of alert, timing of suspension (if applicable), timing of restart (if applicable), description of mitigation efforts, and other pertinent information relating to the event.

8.0 Record Keeping

Records relating to this plan are maintained at the facility and available for inspection. The records are retained for minimum of 2 years. Sample forms and logs that Chicago Rail & Port use to keep records are located in the attachment section of the plan. These records can be recorded by both the Director of Operations and the Scale Operator. The Scale Operator will do all daily paper work that is then reviewed by the Director of Operations at the end of the day. The records are then kept at the facility for 2 years.

- Log of all cleaning and sweeping of internal roads, parking areas and loading zones. IE: Street Sweeper Log, Water Truck Log.

- Daily log of weather conditions, including wind speed and direction as document by Chicago Rail & Port, Shift Leader.
  IE: Method 22, Daily Method 22 Checklist, Hourly weather report checklist, Method 9, High Wind Event Log, Daily AM stockpile mitigation report.

- Instances of suspension of activities due to high wind conditions

- Quarterly opacity test results

- Quarterly fugitive dust test results

- Schedule of routine inspections, maintenance, and testing of all control measure devices and technologies, including schedule for inspection of pump house, weekly inspections around the perimeter of the property for the presence of spilled material extending from the property, and the individuals responsible for such inspections, maintenance, and testing.

9.0 Chicago Rail & Port Facility fact sheet

Chicago Rail & Port, LLC

3245 East 103rd Street

Chicago Illinois 60617

Description of Operation

Chicago Rail & Port handles bulk solid materials, currently granite, limestone and (1/4) stone chips which are transported via train, railcar, and marine vessel. Chicago Rail & Port transfers product directly from one transportation mode to another. Following is a description of various modes of operation along with dust control measures.

Dust Control Equipment

Control equipment is used to address potential dust emissions, the equipment includes:

- Water truck
- Street sweeper
- Tire wash bay
- Rumble strips
- Hose (attachment) and spray bars connected to the water trucks.

Fugitive Dust Measurement

In accordance with various regulatory requirements, various fugitive dust measurement actions are used.

- Visual fugitive dust and opacity testing in accordance with regulatory requirements.
- Visual Fugitive dust source testing along with visual property line monitoring.
- Weather logs required daily.

Contingency Plan

Chicago Rail & Port has developed contingency plans to respond to various potential fugitive dust conditions.

- *High wind Alert issued, or Fugitive Dust alter issued*

1 Alert system to notify personnel of the alert conditions.

2 Investigate to determine suspected source(s)

3 Mitigation efforts

4 Suspension of suspected source activity

10.0 Figures & Attachments

FIGURE(4) RAIL CAR LOADING

YES

Rail Car Loading Activity Summary.

Preplan- Evaluate winds to determine if windspeed will exceed 15 mph as an average over two consecutive five minute intervals during transfer operations.

Mitigation/Control- If necessary dampen wetted materials prior to loading with sprayers or hose from water truck.

Operations Step- Transfer material from bucket loader into railcar; drop height of material is minimized by operating procedure for bucket placement.

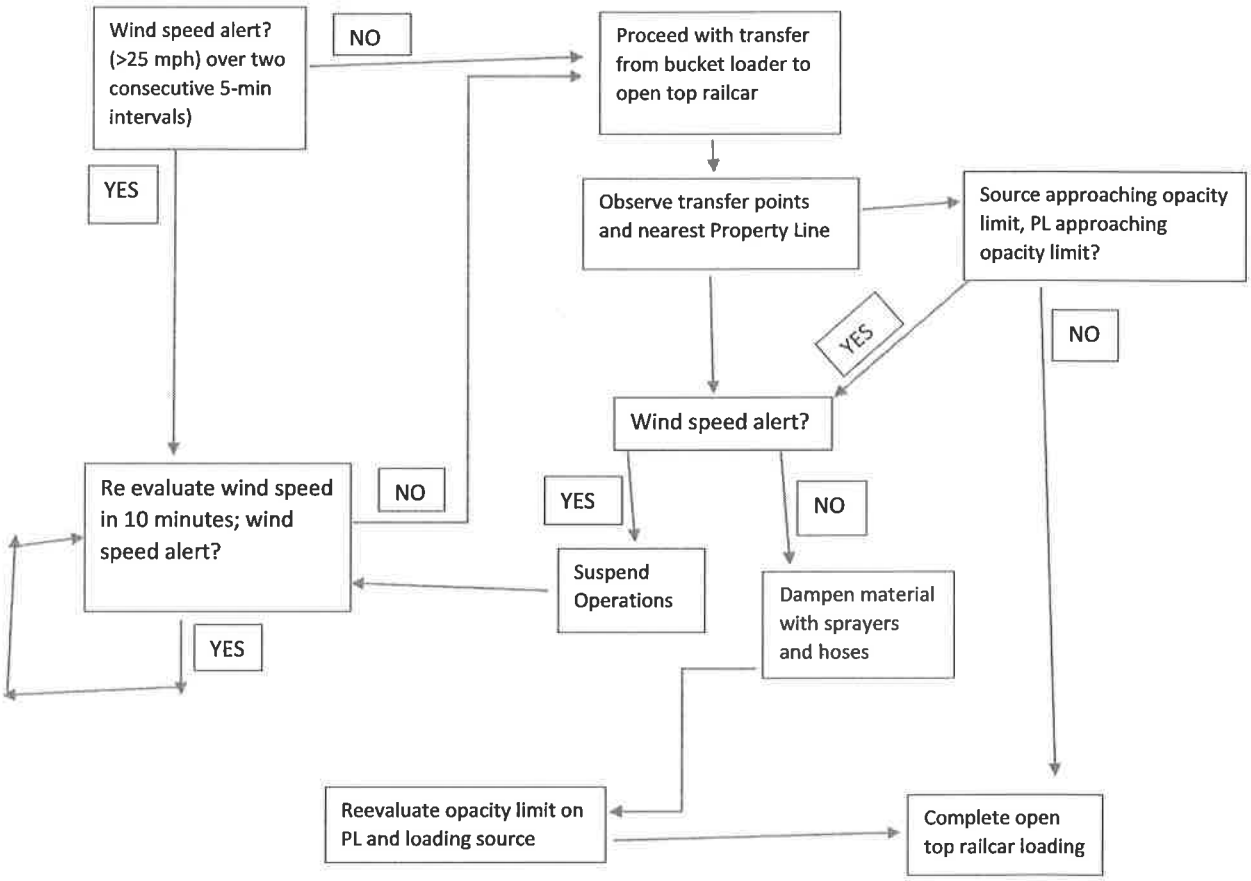


Figure (3) TRUCK LOADING

BEGIN MATERIAL LOADING ACTIVITIES

Preplan- Evaluates winds to determine if windspeed will exceed 25 MPH as an average over two consecutive five-minute intervals during transfer operations (I.E, wind alert)

Preplan- check crusting/ moisture of material to determine mitigation needs

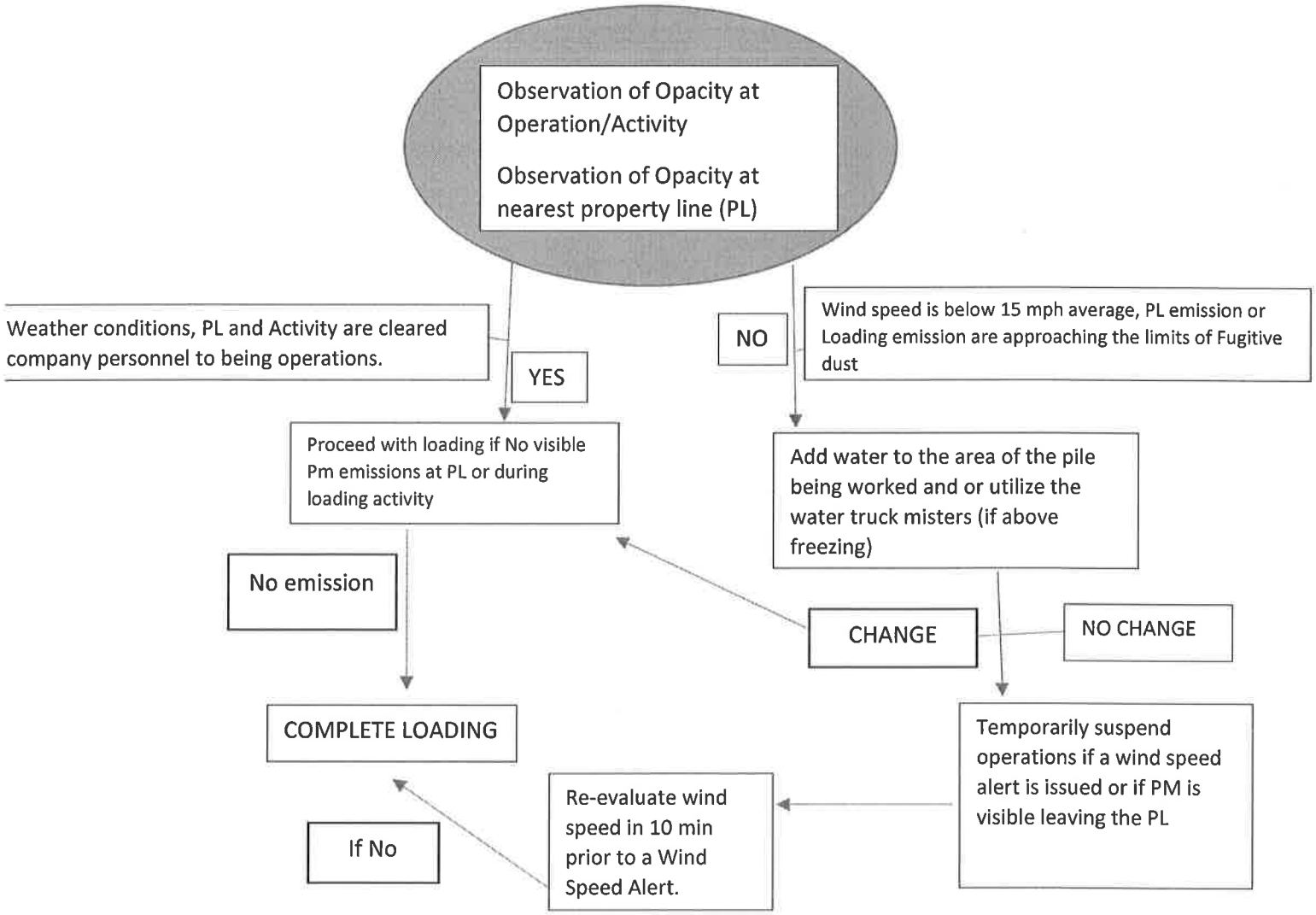
Preplan- position loading operations as favorably as possible, account for location within the facility and weather conditions.

Mitigation- dampen wetted material and or position mobile mister (if above freezing) to impact fugitive emission when necessary

Mitigation- adjust position of mobile misters or water hose throughout loading activated to minimize fugitive emissions when utilized.

Operations- wetted and dry material stored outside are loaded into trucks with a front end loader/moved with a front end loader.

Operations- Drop heights are minimized by the inherent limitation of the front end loader lift height.



Attachment 1

Attachment 1: Chicago Rail & Port High Wind Event Log

1) A high wind alert has been issued
2) PL and stockpiles will need to be checked for potential emissions
3) If the source is found to be coming onsite, mitigate and apply controls per FDP, if the source if from offsite, document in the comments section.
4) Within the next hour if readings show no difference or signs of improvement then all activates need to be suspended until the alert is withdrawn

Completed By:	Facility	Date	Time Start/End	Wind Speed	Wind Direction	Source of possible emission	Comments

Attachment 2

Maintenance Check List

1) Are All Spray Bars on the water truck operating as designed?
   IF NO
   Notate in Findings:
   O Yes
   O NO

2) Are the flood gates on the water truck operating properly?
   IF NO
   Notate in Findings:
   O Yes
   O NO

3) Is Pump on Tanker water truck functioning and has been properly maintenance?
   IF NO
   Notate in Findings:
   O Yes
   O NO

4) Are the water hoses attachable and in good working condition for the water tanker?
   IF NO
   Notate in Findings:
   O Yes
   O NO

5) Is the Pump House in good condition?
   IF NO
   Notate in Findings:
   O Yes
   O NO

6) Is Pump 1 working and in good condition?
   IF No
   Notate in Findings:
   O Yes
   O NO

7) IS Pump 2 working and in good condition?
   IF No
   Notate in Findings:
   O Yes
   O NO

8) Is Pump 3 working and in good condition?
   IF No
   Notate in Findings:
   O Yes
   O NO

9) Is the primer pump working and is good condition?
   IF No
   Notate in Findings:
   O Yes
   O NO

10) Tire wash:

   Blue Tank
   Is the Blue tank holding water properly and in working condition?
   IF NO
   Notate in Findings:
   O Yes
   O NO

11) Are all rumble strips in good working condition?
   IF NO
   Notate in Findings:
   O Yes
   O NO

12) Is the Tire Wash Pit (cement ditch) clean or has been cleaned within 2 weeks? Also is the ditch in good condition?
   IF NO
   Notate in Findings:
   O Yes – Device working as expected, water flow is acceptable, cycles as programmed.
   O No – Device working but not optimal levels or device failed to operate as expected.
   Not Applicable= Not in Service

13) Are the sweepers functioning properly on the Elgin Street Sweeper?
   IF NO
   Notate in Findings:
   O Yes
   O NO

Attachment 3

DAILY ENVIRONMENTAL CHECKLIST	CHICAGO RAIL & PORT	103rd Street Operation

DATE: SHIFT: DAYS: HOURS: 0600 to 1800
COMPLETED BY: NIGHTS: IF UTIZILED

WEATHER CONDITIONS	Average Wind Speed	Direction	Precipitation	Temperature	Lowest temp over 35 degrees (last 3 days)
Beginning of Shift	mph		in	deg	
Middle of Shift	mph		in	deg	

HOUSEKEEPING (EXTERIOR) Area	Location	Material Accumulation (Yes/No)	Method 22 Emission (Yes/No) If Yes, Method 9 Required	Action Taken	Notification No.
General	Truck/Rail Loading				
	Roadways				
	Corner Areas				
	Ship/Barge/Loading/Unloading				
	Fenceline/Boundary				

Remove spilled material and dust accumulations before the end of the shift
Enter maintenance notification for repairs
Dust Suppression is required if visible emissions potentially could leave the property line or above 10% emissions opacity limit
Stop Emissions and notify Environmental Manager and Site Operations Manager if emissions have the potential to leave the property line

STORAGE PILES (Identify pile/location)	Active or Inactive	Method 22 Emissions (Yes/No) If Yes, Method 9 Required	Action Taken

Emission limit is 10% opacity, if active pile, Method 22 for loading/unloading is required
Stop emissions and notify Environmental Manager or Site Operations Manager if emissions have the potential to leave the property line.

Roads Watered	Watered	Swept	Reason Not Swept or Watered	Action Taken	Notification No.
Days					
Nights (If Utilized)					

Attachment 4

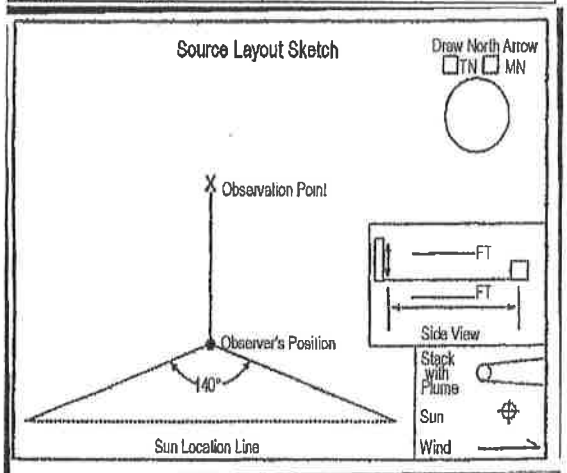
METHOD 22 Daily Observation Checklist

DATE/TIME	MATERIAL	Active/ Inactive	Avg Wind Speed/ Direction	Temperature & Precipitation	Visible Emissions Yes/NO

Attachment 5

EPA METHOD 9 (40 CFR 60 - Appendix A)
VISIBLE EMISSION OBSERVATION FORM

COMPANY NAME		
LOCATION		
LOCATION		
CITY	STATE	ZIP
PROCESS EQUIPMENT		OPERATING MODE
CONTROL EQUIPMENT		OPERATING MODE
DESCRIBE EMISSION POINT		
HEIGHT OF EMISSION POINT	HEIGHT OF EMISSION POINT RELATIVE TO OBSERVER START END	
DISTANCE TO EMISSION POINT START END	DIRECTION TO EMISSION PT. (DEGREES (0-360)) START END	
VERTICAL ANGLE TO OBSERVATION POINT START END	DIRECTION TO OBSERVATION POINT (DEGREES (0-360)) START END	
DISTANCE & DIRECTION TO OBSERVATION POINT FROM EMISSION POINT START END		
DESCRIBE EMISSIONS START END		
EMISSION COLOR START END	WATER DROPLET PLUME ATTACHED ☐ DETACHED ☐ NONE ☐	
DESCRIBE PLUME BACKGROUND START END		
BACKGROUND COLOR START END	SKY CONDITIONS START END	
WIND SPEED START END	WIND DIRECTION START END	
AMBIENT TEMP START END	WET BULB TEMP RH percent	



ADDITIONAL INFORMATION

OBSERVATION DATE	START TIME	END TIME

SEC / MIN	0	15	30	45	COMMENTS
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					

OBSERVER'S NAME (PRINT)	
OBSERVER'S SIGNATURE	DATE
ORGANIZATION	
CERTIFIED BY	DATE

Attachment 6

CR&P Street Sweeping Log

DATE	Time-IN	Time OUT	Sweeping HRS	Truck #	All Paved Roads Observed	Driver	Signature
					and Free of Materical (Y/N)		

CHICAGO RAIL AND PORT ENVIRONMENTAL FORM 1-1A

Chicago Rail and Port
3245 East 103rd Street
Chicago, IL 60617

FUGITIVE PARTICULATE MATTER EMISSION UNIT LOG

TRUCK ID: Z Force 30 | TRAILER ID: P742823

DATE	TIME SERVICED	ROADWAY SERVICED	ROADWAY LOCATION	GALLONS PER MINUTE	APPLICATION RATE	WIDTH OF APPLICATION	TOTAL USED (GALLONS)	APPLICATION AGENT	REASON FOR NON-APPLICATION (IF APPLICABLE) I.E. RAIN
		Main Roadway	106th Street to 103rd Street	466	3 Passes/Hour	12 feet	7,000	water	
		Main Roadway	106th Street to 103rd Street	466	3 Passes/Hour	12 feet	7,000	water	
		Main Roadway	106th Street to 103rd Street	466	3 Passes/Hour	12 feet	7,000	water	
		Main Roadway	106th Street to 103rd Street	466	3 Passes/Hour	12 feet	7,000	water	
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		Main Roadway	106th Street to 103rd Street	466	3 Passes/Hour	12 feet	7,000	water	
		Main Roadway	106th Street to 103rd Street	466	3 Passes/Hour	12 feet	7,000	water	

Attachment 7

Emission Limit Calculations for Material Transfer Operations for Aggregate and Salt

Open Drop Points

	PM	PM_{10}	$PM_{2.5}$	Basis
Open Transfers Typical Wind Speed, mph (U)	10.3	10.3	10.3	AP 42 Table 7.1-9 for Chicago, IL
Moisture Content, % (M)	1	1	1	TCEQ Guidance for Rock Crushing Plants
Particle Size Multiplier (k)	0.74	0.35	0.053	AP 42 Section 13.2.4.2
Open Transfers Emission Factor, lb/ton (E)	0.016	0.008	0.001	AP 42 Section 13.2.4.2

Receiving Number of Open Drop Points (D)	2	2	2	Clam shell to dock face and front-end loader to stockpile.
Receiving Emission Factors, tons/tons of material	1.60E-05	7.56E-06	1.15E-06	E*D

Loaded Out Number of Open Drop Points (D)	1	1	1	Stockpile (by front-end loader) to truck or load to rail cars or barge via clam shell.
Loaded Out Emission Factors, tons/tons of material	8.00E-06	3.78E-06	5.73E-07	E*D

ATTACHMENT H

CLOSURE COST ESTIMATE

CHICAGO RAIL AND PORT, LLC
CLASS V RECYCLING FACILITY
CLOSURE PLAN

This closure plan has been prepared to meet the requirements of Section 14.0 of Article XX – Recycling Facility Permits of the Rules and Regulations for Recycling Facilities (the Rules). The final closure of the Chicago Rail and Port, LLC Class V recycling facility located at 3236-3258 East 106th Street in Chicago (site) will consist of the following activities:

- Removal of all wastes and material from the site;
- Decommissioning and cleaning of the equipment;
- Removal of all equipment; and
- Preparation and submittal of closure documentation.

Closure activities will be initiated within thirty days of the declaration of the acceptance of the last load of waste, or within thirty days of notification of closure, whichever is less. No waste will be accepted at the recycling facility after either of the two above-mentioned activities. Access gates will be secured and signs will be posted which indicate that the recycling facility is closed and is no longer accepting waste.

Waste and Material Removal

Incoming materials are anticipated to be processed within forty-eight hours of receipt to separate the recyclable construction and demolition debris from the non-recyclable construction and demolition debris. The Site is anticipated to accept approximately 4,200 tons per day. Recyclable material is planned to be stored in storage bays formed by concrete blocks, or directly unloaded into the reprocessing facility area for immediate reprocessing.

During a "worst-case" closure, it is assumed that two full days' amount of incoming material will be stockpiled (8,400 tons) and needed to be hauled to a different facility. This material qualifies as clean construction and demolition debris and could be hauled via truck or barge to Hanson Material Service located at 125 North Independence Boulevard in Romeoville, Illinois. Recyclable material in storage bays has value as a commodity and could be sold. Under a worst-case closure, it is assumed that the material is provided to customers for free.

Cleaning of Equipment

After the material has been removed from the site, areas and equipment that were in contact with the material will be cleaned. Processing and stockpile areas will be broom swept or cleaned with a sweeper. The screening equipment will be pressure washed as necessary.

Equipment Removal

After the site has been cleaned, on-site equipment (e.g., loaders, screening equipment) will be removed from the recycling facility for beneficial reuse or resale. No costs are anticipated.

Closure Documentation

Closure activities will be documented and a summary of the documentation will be submitted to the Chicago Department of Public Health.

Closure Cost Estimate

A closure cost estimate has been prepared for the completion of all closure activities. As required by Section 14.0 of the Rules, the closure cost estimate is based on the cost necessary for closure at any time during the life of the facility, is not discounted for current values, and reflects a worst-case scenario.

The closure cost is estimated at $46,536 as shown in Table 1. The closure cost estimate includes removal and disposal of 8,400 tons of waste (two days' volume of the maximum amount of daily incoming waste anticipated), equipment cleaning, and closure certification. As previously stated, under routine closure conditions, no waste would be required to be removed.

Financial Assurance

Sufficient funding is required to be available to complete all closure activities. The closure cost estimate is $46,536. A copy of the irrevocable standby letter of credit in favor of the City of Chicago in the amount of $25,000 will be submitted separately to the Chicago Department of Public Health.

Civil & Environmental Consultants, Inc.

Class V Recycling Facility
Chicago Rail and Port, LLC
Closure Cost Estimate

						Unit Disposal Costs Per Load					
Material Category	**Location**	**Facility Capacity (tons)**	**Load Amount (tons)[1]**	**Destination Disposal Facility**	**Round Trip Travel Time to Fill Site (Hrs)**	**Equipment Loading & Transportation Costs (@ $4/ ton)**	**Transportation Costs (@$80/hr)**	**Disposal Tipping Fees (per load)[2]**	**Total Cost Per Load**	**No. Loads at Capacity**	**Total Removal and Disposal Cost**
Soils & Concrete - By Barge	Stockpile	8400	1470	Hanson Material Services	NA	$5,880.00	$0.00	$1,400.00	$7,280.00	6	$41,600.00
									SubTotal:		**$41,600.00**
						Cleaning ($60 per hour x 12 hours):					$720.00
						Closure Certification:					$2,000.00
									SubTotal:		**$44,320.00**
						Contingency (5%)					$2,216.00
									TOTAL		**$46,536.00**

Notes:

1. One barge load of material is equivalent to approximatley 70 21-ton truck loads.
2. Disposal cost at CCDD facility calculated using $20/21-ton truck load tipping fee.