INTERIM REMEDIAL MEASURES WORK PLAN
FOR MITIGATION OF
POTENTIAL SOIL VAPOR INTRUSION

OBI, LLC
50 BALFOUR DRIVE
CITY OF ROCHESTER
MONROE COUNTY, NEW YORK

NYSDEC SITE CODE #828188

Prepared by: Day Environmental, Inc.
1563 Lyell Avenue
Rochester, New York

Project #: 4845S-13

Date: December 2014

New York State Department of Environmental Conservation
Division of Environmental Remediation, Region 8
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Joe Martens
Commissioner

January 22, 2015

Mr. Mike McAlpin
OBI, LLC
255 Hollenbeck Street
Rochester, New York 14621

Dear Mr. McAlpin;

Re: OBI, LLC Site #828188
Interim Remedial Measures Work Plan for Mitigation of Potential Soil Vapor Intrusion;
December 2014
245-265 & 271 Hollenbeck Street and 50 Balfour Drive
City of Rochester, Monroe County

The New York State Departments of Environmental Conservation (NYSDEC) and Health (NYSDOH), collectively referred to as the Departments, have completed their review of the document entitled "*Interim Remedial Measures Work Plan for Mitigation of Potential Soil Vapor Intrusion"* (the Work Plan) dated December 2014 and prepared by Day Environmental, Inc for the OBI, LLC site in the City of Rochester, Monroe County. Based on the information and representations provided in the Work Plan, and in accordance with 6 NYCRR 375-1.6, the Departments have determined that the Work Plan, with modifications, substantially addresses the requirements of the Order-on-Consent. The modifications are outlined as follows:

1. **Section 2:** The second paragraph is deleted as it contains inaccurate information that was previously commented on in the Departments' letter of September 18, 2014. The results of the soil vapor intrusion evaluation (Soil Vapor Intrusion Evaluation of On-site Structures Summary Report, dated July 2014) indicate: the potential for soil vapor intrusion of trichloroethene (TCE) exists at slabs 2 through 6; an actual current exceedence of TCE in the indoor air was detected at one location; and potential current exceedences of TCE in the indoor air were present at four additional locations due to elevated laboratory detection limits.

2. **Section 4:** The goal of the IRM is modified as follows*: "To use engineering controls to continuously maintain indoor air concentrations of site-related contaminants at background levels to the extent feasible until the source of the vapors can be remediated. Additional engineering controls will be evaluated and implemented, as needed, to achieve this objective."*

3. **Section 5:** Confirmatory indoor air testing will be conducted at Slabs 1, 2, 3, 4, 5, 6, and 7 to evaluate the effectiveness of the IRM site modifications (elimination/reduction of the negative indoor air pressures). Confirmatory indoor air testing at slabs 1 and 2 is added to verify that the IRM is functioning as designed in all areas and is not creating a vapor intrusion issue where none existed before.

4. **Section 5:** A product inventory will be performed, or an existing product inventory will be updated, to accurately distinguish the historic site-related contaminants of concern from the chemicals currently used as part of production at the facility.

5. **Section 5:** All confirmatory indoor air testing must be done in accordance with NYSDOH guidance for evaluating soil vapor intrusion.

6. **Section 6:** The schedule is enforceable under the Order-on-Consent and is not "anticipated." If the schedule in the Work Plan needs to be modified based on the date of this approval letter, then please include a proposed revised schedule in the monthly progress report due February 10, 2015.

7. **Section 6:** The schedule includes performing heating-season activities, such as confirmatory indoor samples, one month after the typical end of the heating season on March 31. The March 31 date is not a definitive date and there are typically heating-season days after March 31. However, if heating-season activities cannot be performed during the 2014-15 heating season, they will not be postponed until the 2015-16 heating season. Rather they will be completed per the schedule and then repeated early (between November 15 and December 31, 2015) in the 2015-16 heating season.

8. **Section 6:** Please be advised that the proposed confirmatory testing following the IRM implementation is <u>not</u> enough to verify that the pressure alterations within the facility are preventing future vapor intrusion from occurring. Since an active sub-slab system was not placed on the building, a detailed monitoring program for the facility is needed in the Interim Site Management Plan to verify that the measures taken in the IRM continue to prevent intrusion of site-related vapors into indoor air of the facility.

9. **Section 6:** The CCR will include PE signed and stamped as-built drawings of the air intake systems.

10. The Remedial Investigation/Feasibility Study Work Plan will be submitted by **March 31, 2015.**

With the understanding that the above noted modifications are agreed to, the Work Plan is hereby approved.

If OBI, LLC chooses not to accept the modifications proposed by the Departments, you are required to notify this office within 20 days after the date of this letter. In this event I suggest a meeting be scheduled to discuss your concerns prior to the end of this 20 day period.

Prior to the start of field work, please attach this letter to the Work Plan and distribute as follows:

- Frank Sowers (NYSDEC, Avon) - 2 hard copies;
- Jacquelyn Nealon (NYSDOH, Albany) – 1 hard copy and 1 electronic copy on CD;
- John Frazer (MCHD) - 1 electronic copy; and
- Lincoln Branch Library - 1 hard copy.

The hard copies should be submitted double-sided.

Please notify me at least 7 days in advance of the start of field activities.

Thank you for your cooperation in this matter and please contact me at (585) 226-5357 if you have any questions.

Sincerely,

Frank Sowers, P.E.
Environmental Engineer II

ec:
B. Putzig
J. Mahoney
J. Nealon
P. Sylvestri
R. Kampff
N. Simon
J. Frazer
J. Deming

INTERIM REMEDIAL MEASURES WORK PLAN
FOR MITIGATION OF
POTENTIAL SOIL VAPOR INTRUSION

OBI, LLC
50 BALFOUR DRIVE
CITY OF ROCHESTER
MONROE COUNTY, NEW YORK

NYSDEC SITE CODE #828188

I, Barton F. Kline certify that I am currently a NYS registered professional engineer and that this Interim Remedial Measures Work Plan for Mitigation of Potential Soil Vapor Intrusion was prepared in accordance with applicable statutes and regulations and in substantial conformance with DER Technical Guidance for Site Investigation and Remediation (DER-10).

Barton F. Kline, P.E.
NYS P.E. License #077874
Project Manager
Day Environmental, Inc.
December 19, 2014

TABLE OF CONTENTS

1.0 INTRODUCTION

This Interim Remedial Measures (IRM) Work Plan describes measures proposed to mitigate potential vapor intrusion into the building located at 50 Balfour Drive, Rochester, New York (Site). This IRM is an integral part of ongoing remedial work being completed at New York State Department of Environmental Conservation (NYSDEC) Site #828188, which includes the properties addressed as 245-265 & 271 Hollenbeck Street and 50 Balfour Drive, Rochester, New York, and includes two structures, one at 50 Balfour Drive, and one at 245-265 Hollenbeck Street (there are no structures at 271 Hollenbeck Street).

The original 50 Balfour Drive structure was constructed in 1923 and was later expanded six times between 1950 and 1998. The Site Plan (Figure 1) identifies the Site structures, including slab/expansion areas and dates of construction. The building is a slab on grade structure, with a total square footage of approximately 134,000 square feet. The building includes some pits and recessed areas, but no basement is present.

The purpose of the proposed actions described in this document are to reduce/prevent vapor intrusion within the facility, thus addressing potential exposure of building occupants to volatile organic compound (VOC) vapors migrating into the indoor air within occupied spaces from contaminated groundwater and soils located beneath the building.

2.0 PREVIOUS TEST RESULTS

Previous studies completed at the Site included the advancement of test borings and test pits, installation of groundwater monitoring wells, and the subsequent testing of soil and groundwater samples. None of the soil samples tested to date had concentrations that exceeded applicable 6 NYCRR Part 375 Industrial Use SCO levels, although several samples (6 of the 47 soil samples tested to date) contained concentrations of perchloroethene (PCE), trichloroethene (TCE), and/or total xylenes that were above applicable 6 NYCRR Part 375 Unrestricted Use SCO levels. Halogenated VOCs (typically PCE, TCE, cis-1,2-dichloroethene, and/or vinyl chloride) were also detected at varying levels in the groundwater monitoring wells, some of which were observed to exceed NYSDEC groundwater standards and guidance values presented in NYSDEC Division of Water Technical Operations and Guidance Series (TOGS) 1.1.1.

Results of the recently completed soil vapor intrusion evaluation (Soil Vapor Intrusion Evaluation of On-site Structures Summary Report, dated July 2014) identified only one location where indoor air quality at this Site was determined to have been potentially adversely impacted as a result of soil vapor intrusion. The reported exceedance of the applicable NYSDOH Indoor Air Guidance Value for TCE at Slab 5 was considered potentially attributable to intrusion of sub-slab soil vapors, as TCE was also detected in the Slab 5 sub-slab vapor sample at a significantly higher concentration (by one or more orders of magnitude) than at other tested sub-slab locations. No additional instances of

potential soil vapor intrusion were observed; however, laboratory-reported non-detectable results at several of the indoor air sampling locations (Slabs 3, 4, 6, and 7) included analytical detection limits that were above the NYSDOH Indoor Air Guidance Value for TCE due to matrix interference resulting from a chemical used during the manufacturing process.

3.0 IRM SITE EVALUATION

DAY performed communication testing and site evaluation activities in October 2014 to evaluate remedial options for mitigation of potential soil vapor intrusion at specific locations within the building (i.e. Slabs 2 through 6 as identified in Figure 1). The results and findings of these activities were presented to NYSDEC (letter to Frank Sowers regarding "Summary of Communication Test Plan Results", dated November 7, 2014), and included the following observations:

1. While the slabs appeared to be in moderately good condition (limited number of open/unsealed cracks observed), multiple site features were noted which could complicate the potential implementation of a Sub-Slab Depressurization System (SSDS), including slab elevation changes, piping and drainage trenches, floor sumps, etc.

2. A site survey performed with a PID at Slab 5 (area of highest interest due to an indoor air test exceedance in this area), checking floor cracks and penetrations, identified no locations of apparent soil vapor intrusion in this area.

3. A stone subbase was not detected beneath any of the slabs tested (Slabs 2, 3, 4, 5 or 6), as it appears the slabs were poured directly onto the subgrade soils. This was identified as a potentially significant item of concern, as a permeable subbase is a critical component of an effective SSDS.

4. With the exception of the Slab 3 test area, the estimated SSDS radius of influence at the tested slabs was minimal, ranging from 4 to 13 feet.

5. Indoor air pressures were measured relative to the outdoor atmosphere to assess and quantify the existence of any negative indoor air pressure. Negative indoor air pressures were observed to range from -0.005 to -0.052 inches H_2O at select facility locations and dates, and even higher negative indoor air pressures are expected in colder weather, when doors are fully closed. This facility condition was considered significant in that negative indoor air pressures created by facility ventilation air imbalances can be a significant contributor to soil vapor intrusion occurrence.

It was concluded from the above that SSDS installation may not be the most practical remedial option for this Site, and alternative options for addressing the ventilation air imbalance were evaluated.

In accordance with the NYSDOH *Guidance for Evaluating Soil Vapor Intrusion in the State of New York* document, and as practical, directly addressing a ventilation air imbalance and negative indoor air pressure is a viable alternative remedial measure to a SSDS for mitigation of potential soil vapor intrusion at the Site.

An analysis of existing equipment and prior Site ventilation studies indicate that the Site presently exhausts an estimated 48,000 SCFM, but only has a current make-up air return capacity of approximately 18,000 SCFM. This is a net imbalance of 30,000 SCFM, which explains the relatively high negative indoor air pressures observed at the facility.

In evaluating potential ways to address this ventilation imbalance, OBI LLC identified two existing make-up air units (one estimated at 18,000 SCFM and one estimated at 11,000 SCFM) at the Site that have been non-functional for many years. Restoration, repair and/or refurbishment of these two make-up air units (29,000 SCFM total) could effectively offset the bulk of the currently estimated 30,000 SCFM air imbalance.

A Site Plan showing the locations of the currently operational ventilation exhausts at the Site, as well as existing and proposed make-up air units, is provided in Figure 2. It is worth noting that production operations at the Site are separated into two semi-isolated areas: plating operations are conducted in the portion of the building identified in Figure 1 as Slab 2; and general fabrication operations are conducted in the remainder of the building (Slabs 3 through 7). As seen in Figure 2, the plating operations (Slab 2) area is mostly isolated from the fabrication area (Slabs 3 through 7), with only two doorways connecting these two areas, both of which are often closed for HVAC isolation purposes. Access points between Slabs 3, 4, 5, 6, and 7 are open aisleways which allow for relatively free movement of airflow. As such, the plating and fabrication areas were evaluated separately relative to ventilation air flows. A preliminary estimate of the equipment airflows in these two areas, based on review of equipment specifications, prior Site ventilation studies, and discussions with facility personnel, is provided in Table 3-1 below.

TABLE 3-1
SITE VENTILATION EQUIPMENT AIR FLOWRATES

Slab 2 (Plating)	Exhaust (CFM)	Current Return (CFM)	Proposed Return (CFM)
• Customatic Line Exhaust	9,000		
• Barrel + Hoist Line Exhaust	12,000		
• EN Line Exhaust	16,000		
• EN Kill Tank Exhaust	5,500		
• Batch Tank Exhaust	1,500		
• Make-Up Air Unit #1		18,000	18,000
• Make-Up Air Unit #4		0	18,000
Totals	**44,000**	**18,000**	**36,000**

TABLE 3-1 (Continued)
SITE VENTILATION EQUIPMENT AIR FLOWRATES

Slabs 3-7 (Fabrication)	Exhaust (CFM)	Current Return (CFM)	Proposed Return (CFM)
• Robot 3 Exhaust	800		
• Robot 4 Exhaust	700		
• Dust Collector Exhaust	2,500		
• Make-Up Air Unit #5		0	11,000
Totals	**4,000**	**0**	**11,000**

As noted above, the majority of the exhausted airflow occurs from the plating area (Slab 2), and it is estimated that this area accounts for 26,000 SCFM of the current 30,000 SCFM imbalance. The largest of the two non-functioning make-up air units (18,000 SCFM) is located in proximity of Slab 2, with a distribution arm extending 100 to 150 feet into the Slab 2 area, and which is anticipated to address much of the imbalance in the plating area. The remainder of the floor space (fabrication area, Slabs 3 through 7) accounts for an estimated 4,000 SCFM imbalance, which would directly benefit from operation of the 11,000 SCFM make-up air unit located in proximity of Slab 7, providing a *positive net airflow* to the fabrication area, as well as providing an indirect source of excess make-up air into the plating area. As such, the Slab 5 area (area of highest interest due to an indoor air test exceedance in this area) is anticipated to directly benefit from the positive net airflow in the fabrication area, and could potentially be brought under positive pressure even if other parts of the facility (i.e. Slab 2 plating area) were to remain slightly negative.

4.0 MITIGATION OF VAPOR INTRUSION IMPACTS

Based on the results of the Site evaluation, it was concluded that the Site-wide indoor (above-slab) air pressures can be modified more readily than Site-wide sub-slab pressures at this facility. As such, elimination/reduction of the negative indoor air pressures was selected as the primary component of the IRM to address potential soil vapor intrusion at this facility.

OBI LLC proposes to mitigate potential soil vapor intrusion occurrence at the Site through completion of the IRM activities described below.

1. Restoration, repair and/or refurbishment of Make-Up Air Unit #4 (estimated 18,000 SCFM fresh air return capacity), which will require disconnection, removal and transportation of the unit off-site for repairs.

2. Restoration, repair and/or refurbishment of Make-Up Air Unit #5 (estimated 11,000 SCFM fresh air return capacity), which will require on-site restoration and installation of new utility connections.

3. Review of select facility ventilation equipment for rebalancing following start-up of the additional make-up air units. Restoration of the make-up air units will decrease the pressure drop across existing ventilation fans, thus increasing airflows across existing ventilation equipment. Balancing of select equipment will be completed as feasible to reduce exhaust and/or increase make-up air flow rates to pre-IRM work conditions or better given consideration to applicable operational, regulatory, health and safety requirements.

4. Completion of ventilation air flow rate testing to quantify select exhaust and return air flow rates. It is anticipated that a third-party, professional air testing firm will be utilized for this activity.

5. Monitoring of indoor air pressures during heating season to assess the effectiveness of the mitigation activities in addressing the facility air imbalance, and to identify operational Site parameters for future (Interim Site Management Plan) monitoring purposes. Indoor air pressures will be measured relative to subslab air pressures at Slabs 2 through 6, during typical peak production conditions (i.e. when ventilation equipment identified in Table 3-1 is simultaneously operating).

No permits are known to be required for the completion of this work. These IRM activities are non-intrusive, and will not involve exposure, disturbance, handling or management of subsurface media, soils or vapors. As such, there are no Community Air Monitoring Program requirements for this work, and health and safety requirements for this work are minimal. IRM activities will be completed in accordance with the site-specific Health and Safety Plan (HASP) dated January 2014, as applicable for basic physical and environmental hazards that may be experienced during completion of the work.

The IRM Site modifications described above are intended to eliminate/reduce indoor air pressures (relative to the subslab air pressure) to the extent feasible throughout the building, with Slab 5 being considered the most critical area due to prior detection of an indoor air exceedance in this area. The goal of these IRM activities is to eliminate/minimize the potential for soil vapor intrusion, improving indoor air quality throughout the facility, and eliminating the indoor air quality exceedance reported in the Slab 5 area.

5.0 CONFIRMATORY INDOOR AIR TESTING

Confirmatory indoor air testing will be performed at least 30 days following completion of the IRM Site modifications, and during typical heating season outdoor conditions, to assess the effectiveness of the mitigation activities and to confirm that the monitored locations meet applicable indoor air guidance values for the soil vapor intrusion parameters of concern.

Confirmatory indoor air testing will include the collection of indoor air samples from Slab 5 (location of lone prior indoor air exceedance potentially attributable to intrusion of sub-slab soil vapors), and Slabs 3, 4, 6, and 7 (locations where minimum reporting limits

were previously not met due to interference of non-target compounds); and collection of two background outdoor air samples. The indoor air samples will be collected from the same locations utilized during the indoor sampling event performed as part of the Soil Vapor Intrusion Evaluation of On-Site Structures (i.e. locations IA-3 and IA5 through IA-8). The background samples will be collected approximately three to five feet above the ground surface from exterior locations upwind of the facility, as determined at the time of sample collection. The outdoor air samples will be collected concurrently with the indoor air samples to evaluate the potential influence, if any, of outdoor air on indoor air quality.

To aid in the interpretation of the test results, pertinent information that may interfere or affect the sampling event will be documented. Such information may include, but is not limited to, wind direction, the location of potential interferences (e.g., gasoline stations, factories, small engine use, etc.), weather conditions (e.g., precipitation and outdoor temperature), odors, readings from field instrumentation (e.g., PID), and significant activities in the vicinity (e.g., operation of heavy equipment).

The indoor and background air samples will be collected using laboratory certified clean Summa Canisters over an 8-hour sampling period to provide results that are representative of a typical workplace exposure period. The Summa Canister air flow-rate will be controlled with pre-calibrated regulators supplied by the laboratory. Vacuum gauges on the regulators will be monitored during sample collection to check for proper operation of the Summa Canister (i.e., slow changes in vacuum), and to verify that a consistent sample collection rate is maintained over the 8-hour sampling event. The vacuum reading will be recorded at the start of the test and monitored throughout the test. Additionally, a PID will be used to screen the air space above the Summa Canisters to establish background conditions prior to sampling and during the sampling event to identify VOC fluctuations that may occur during the sampling interval.

The indoor and outdoor air samples will be submitted under chain-of-custody documentation to a NYSDOH ELAP-certified analytical laboratory for analysis of VOCs via USEPA Method TO-15 using applicable ASP protocol. Sample collection, testing, quality assurance and quality control procedures will be the same as used during prior air sampling collection and analysis performed under the Soil Vapor Intrusion Evaluation Of On-Site Structures Work Plan, dated February 2014, and as approved by NYSDEC (letter to M. McAlpin from F. Sowers dated 2/26/14).

Spectrum Analytical Inc. of Warwick, Rhode Island (Spectrum) will be retained to complete the analytical laboratory testing. Spectrum is a NYSDOH ELAP certified laboratory (ELAP ID LAI00329). The analytical laboratory results will be provided in an ASP Category B data package. The analytical laboratory will be consulted to minimize previously experienced interference(s) caused by non-target compounds, and will be requested to meet the minimum reporting limit of 0.25 µg/m3 for TCE and vinyl chloride, and 3 µg/m3 for PCE and the remaining TO-15 list VOCs for the indoor/outdoor air samples. The analytical laboratory data will be submitted to an independent party for review and preparation of a DUSR. The DUSR will comply with NYSDEC requirements, and be submitted to EQuIS within 90 days of receipt of the analytical laboratory data.

Laboratory results will also be submitted to the NYSDEC with the applicable monthly progress report(s), and as a part of the IRM Construction Completion Report.

It is anticipated that Data Validation Services of North Creek, New York (DVS) will be retained to complete a DUSR on the Category B deliverables analytical laboratory data that is generated as part this work plan. The DUSR will be conducted in accordance with the provisions set forth in Appendix 2B of DER-10 Technical Guidance for Site Investigation and Remediation dated May 2010. The findings of the DUSR will be incorporated in the IRM Construction Completion Report.

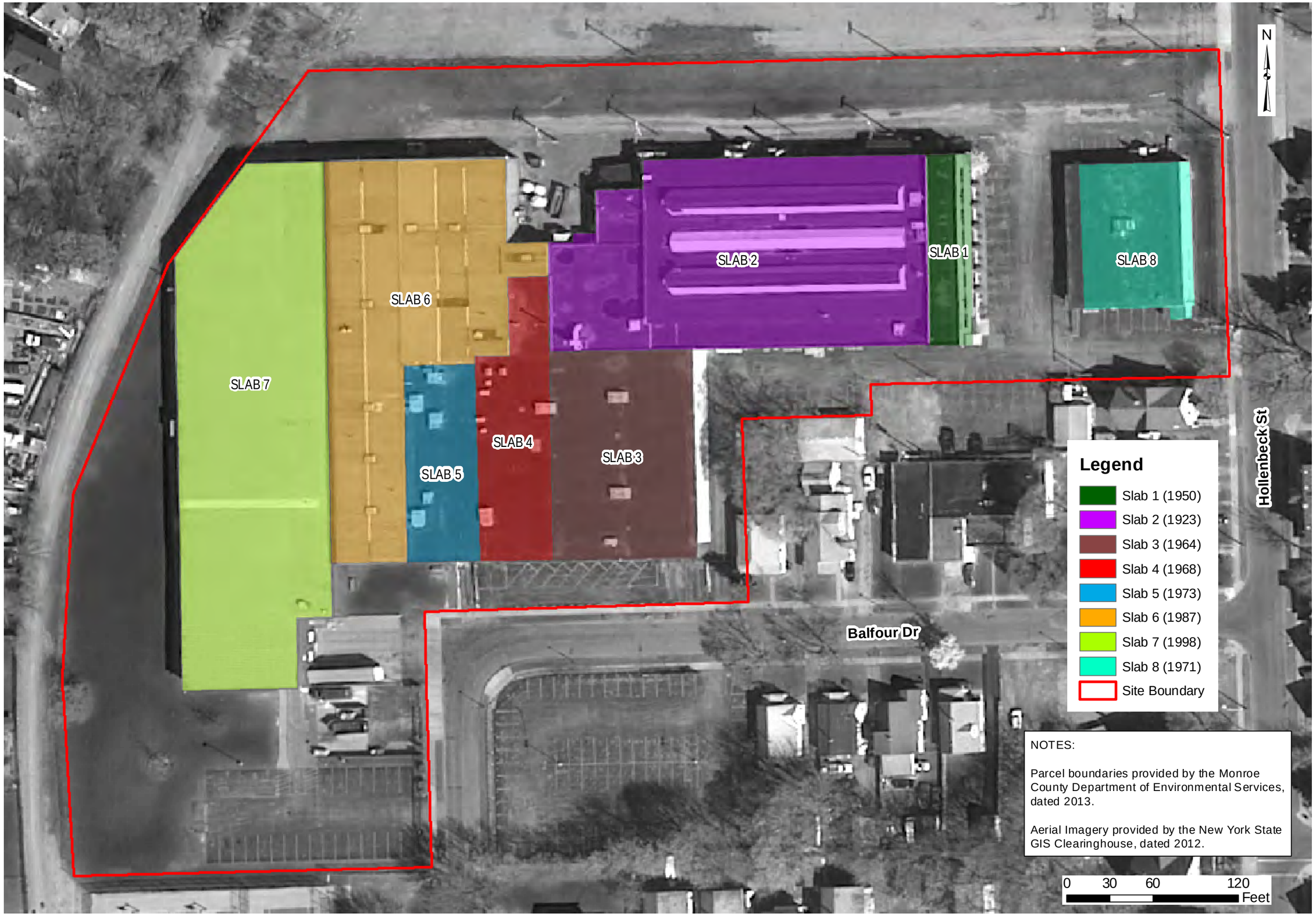
6.0 SCHEDULE

The anticipated schedule for completion of the IRM activities is provided below.

Date	Activity
12/19/14	Work Plan submittal
1/2/15	Work Plan approval by DEC
1/30/15	Equipment parts procurement and delivery
2/28/15	Make-up air unit repairs, re-installation, start-up and testing
3/27/15	HVAC/exhaust equipment testing and balancing
4/30/15	Indoor Air Sampling (min. 30 days following completion of above)
5/29/15	Receipt of preliminary indoor air results
8/28/15	DUSR/EQuIS completion and submittal
11/16/15	IRM Construction Completion Report submittal
1/29/16	Interim Site Management Plan submittal

The IRM Construction Completion Report (CCR) will describe the IRM work completed, and will present conclusions and recommendations. This report will include air monitoring data, indoor air pressure and HVAC air flow measurements; copies of the analytical laboratory test results and executed chain-of-custody documentation; tables comparing test results to applicable guidance values and standards; a copy of the DUSR; an updated Site Plan; and other applicable documentation relative to the IRM work that was completed.

An Interim Site Management Plan (ISMP) will also be developed upon completion of the IRM activities. The ISMP will include an operation, maintenance, and monitoring plan that includes the steps that will be implemented to verify that the system continues to effectively reduce/prevent vapor intrusion at the facility. The anticipated submittal dates for the IRM CCR and ISMP listed above assume that the IRM Work Plan activities, as specified herein, will be sufficient to mitigate potential soil vapor intrusion at the Site, and that no additional work will be required.



Last Date Saved: 12 Dec 2014 Document Path: E:\GIS\GIS Mapping\Mxd\pn\4845S-13\mxd\pn\4845S-18 - Slabs by Construction Date.mxd

DESIGNED BY	DATE
RLK	12-2014
DRAWN BY	DATE DRAWN
CPS	12-2014
SCALE	DATE ISSUED
AS NOTED	12-12-2014

day
DAY ENVIRONMENTAL, INC.
Environmental Consultants
Rochester, New York 14606
New York, New York 10170

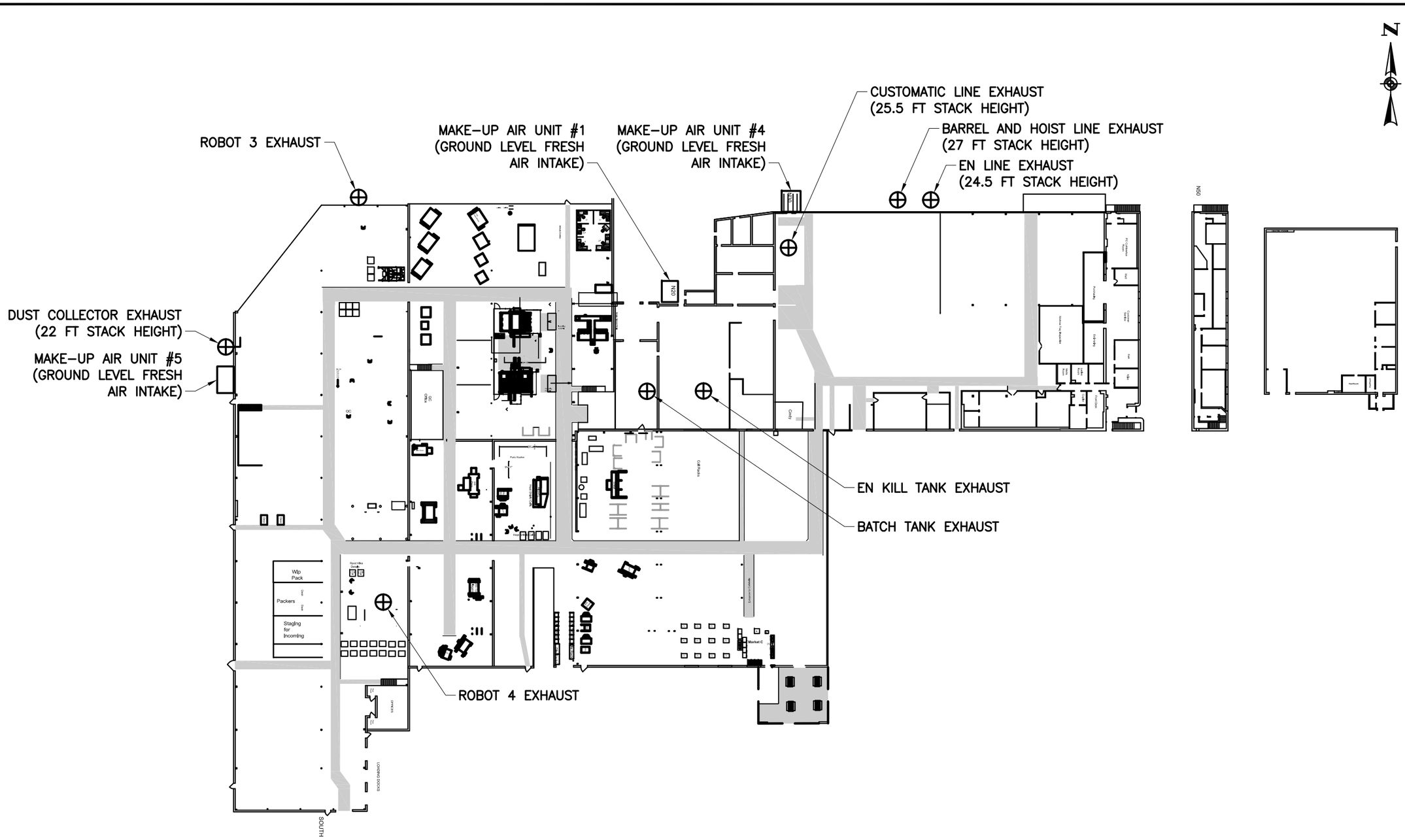
Project Title
245-265 AND 271 HOLLENBECK STREET
AND 50 BALFOUR DRIVE
ROCHESTER, NEW YORK

IRM WORK PLAN

Drawing Title
Site Plan with Slab Expansion Areas and Dates of Construction

Project No.
4845S-13

FIGURE 1



Field Verified By	BFK
DATE	12-2014
DRAWN BY	RJM
DATE DRAWN	12-12-2014
SCALE	As Noted
DATE ISSUED	12-12-2014

DAY ENVIRONMENTAL, INC.
ENVIRONMENTAL CONSULTANTS
ROCHESTER, NEW YORK 14606
NEW YORK, NEW YORK 10170

PROJECT TITLE
245-265 AND 271 HOLLENBECK STREET
AND 50 BALFOUR DRIVE
ROCHESTER, NEW YORK
IRM WORK PLAN

DRAWING TITLE
Ventilation Exhaust And Return Locations

PROJECT NO.
4845S-13

FIGURE 2