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SITE MANAGEMENT PLAN

FORMER CRESCENT PURITAN LAUNDRY

NYSDEC SITE # C828163
1630 DEWEY AVE AND 161 PALM STREET
ROCHESTER, NEW YORK

Prepared for:

1630 Dewey Avenue, LLC
C/O Norstar Development USA, L.P.
200 South Division Street
Buffalo, N.Y. 14204

Prepared by:

Panamerican Environmental, Inc.
2390 Clinton Street
Buffalo, N.Y. 14227

OCTOBER 2012

SMP Template: March 2010

Former Crescent Puritan Laundry

MONROE COUNTY, NEW YORK

Site Management Plan

NYSDEC Site Number: C828163

Prepared for:
1630 Dewey Avenue, LLC
C/O: Norstar Development USA, L.P.
200 South Division Street
Buffalo, New York 14204

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Revisions to Final Approved Site Management Plan:

Revision #	Submitted Date	Summary of Revision	DEC Approval Date

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SITE MANAGEMENT PLAN

1.0 INTRODUCTION AND DESCRIPTION OF REMEDIAL PROGRAM

1.1 INTRODUCTION

This document is required as an element of the remedial program at Former Crescent Puritan Laundry Site (hereinafter referred to as the "Site") under the New York State (NYS) Brownfield Cleanup Program (BCP) administered by New York State Department of Environmental Conservation (NYSDEC). The site was remediated in accordance with Brownfield Cleanup Agreement (BCA), Index # C828163-07-10, Site # C828163, which was executed on July 6, 2010

1.1.1 General

1630 Dewey Avenue, LLC entered into a BCA with the NYSDEC to remediate a 1.335 acre property located in Rochester, New York. This BCA required the Remedial Party, 1630 Dewey Avenue, LLC, to investigate and remediate contaminated media at the site. A figure showing the site location and boundaries of this 1.335-acre Site is provided in the Alta survey map provided in Appendix B. The boundaries of the site are more fully described in the metes and bounds site description that is part of the Environmental Easement.

After completion of the remedial work described in the IRM Construction Completion Report (CCR) and the Remedial Action Work Plan, some contamination was left in the subsurface at this site, which is hereafter referred to as 'remaining contamination." This Site Management Plan (SMP) was prepared to manage remaining contamination at the site until the Environmental Easement is extinguished in accordance with ECL Article 71, Title 36. All reports associated with the site can be viewed by contacting the NYSDEC or its successor agency managing environmental issues in New York State.

This SMP was prepared by Panamerican Environmental, Inc., on behalf of 1630 Dewey Avenue, LLC, in accordance with the requirements in NYSDEC DER-10

Technical Guidance for Site Investigation and Remediation, dated May 2010, and the guidelines provided by NYSDEC. This SMP addresses the means for implementing the Institutional Controls (ICs) and Engineering Controls (ECs) that are required by the Environmental Easement for the site.

1.1.2 Purpose

The site contains contamination left after completion of the remedial action. Engineering Controls have been incorporated into the site remedy to control exposure to remaining contamination during the use of the site to ensure protection of public health and the environment. An Environmental Easement granted to the NYSDEC, and recorded with the Monroe County Clerk, will require compliance with this SMP and all ECs and ICs placed on the site. The ICs place restrictions on site use, and mandate operation, maintenance, monitoring and reporting measures for all ECs and ICs. This SMP specifies the methods necessary ensure compliance with all ECs and ICs required by the Environmental Easement for contamination that remains at the site. This plan has been approved by the NYSDEC, and compliance with this plan is required by the grantor of the Environmental Easement and the grantor's successors and assigns. This SMP may only be revised with the approval of the NYSDEC.

This SMP provides a detailed description of all procedures required to manage remaining contamination at the site after completion of the Remedial Action, including: (1) implementation and management of all Engineering and Institutional Controls; (2) media monitoring; (3) operation and maintenance of all treatment, collection, containment, or recovery systems; (4) performance of periodic inspections, certification of results, and submittal of Periodic Review Reports; and (5) defining criteria for termination of treatment system operations.

To address these needs, this SMP includes three plans: (1) an Engineering and Institutional Control Plan for implementation and management of EC/ICs; (2) a Monitoring Plan for implementation of Site Monitoring; (3) an Operation and Maintenance Plan for implementation of remedial collection, containment, treatment, and recovery systems (including, where appropriate, preparation of an Operation and Maintenance Manual for complex systems).

This plan also includes a description of Periodic Review Reports for the periodic submittal of data, information, recommendations, and certifications to NYSDEC.

It is important to note that:

- This SMP details the site-specific implementation procedures that are required by the Environmental Easement. Failure to properly implement the SMP is a violation of the environmental easement, which is grounds for revocation of the Certificate of Completion (COC);
- Failure to comply with this SMP is also a violation of Environmental Conservation Law, 6NYCRR Part 375 and the BCA (Index # C828163-07-10, Site # C828163), for the site, and thereby subject to applicable penalties.

1.1.3 Revisions

Revisions to this plan will be proposed in writing to the NYSDEC's project manager. NYSDEC may also initiate revisions to this plan. In accordance with the Environmental Easement for the site, the NYSDEC will provide a notice of any approved changes to the SMP, and append these notices to the SMP that is retained in its files.

1.2 SITE BACKGROUND.

1.2.1 Site Location and Description

The site is located in the City of Rochester, County of Monroe, New York and is identified as ID No. 090.340-02-41 and 42.1 on the Monroe County Tax Map. The site is an approximately 1.335-acre area bounded by Palm Street to the north, private property to the south, private property to the east, and Dewey Avenue to the west. The boundaries of the site are more fully described in the environmental easement ALTA title survey map with Metes and Bounds (Appendix B).

1.2.2 Site History

The subject site contains three adjacent parcels located in the City of Rochester at the southeast corner of Dewey Avenue and Palm Street (refer to Figure 1). The area is historically mixed residential/commercial and some industrial (Kodak Park is nearby). The 1630 Dewey Avenue property contained a vacant approximately 52,000 square foot 2-story brick, former commercial laundry facility. This facility was demolished as part of the BCP and replaced with the new facility described above.

The former facility operated as a commercial laundry (Crescent Puritan Laundry) since at least the late 1920's to the mid 1970's or early 1980's. Prior to its vacant state, the

property had various tenants after the laundry closed which included plastic fabrication, printing, tool machining, bathroom and kitchen cabinet sales, and other commercial/retail uses through the early 1980's and 1990's. Some of the tenants included DJ Printing, Monroe Micro film, Samson's Gym (second floor) and Vella Bath & Kitchen. The 149 and 161 Palm Street properties formed an asphalt covered parking area behind the former laundry facility. These properties were historically used to support the laundry facility and historically contained vehicle garage and petroleum storage operations most likely to service laundry operations.

The adjacent property to the east is an automobile service and repair operation which has operated in this capacity since at least the 1950's. Further east and north is residential and beyond that is Kodak Park, a division of Eastman Kodak. North of the parcels along Palm Street is residential. The adjacent properties north along Dewey Avenue at Palm are commercial/retail including a Sunoco gasoline station. West of the properties across Dewey Avenue are a former industrial facility (Steko) and other commercial/retail establishments including a motor cycle shop, auto service center, and a carpet center. The Steko property has a long history as the Clark Steko Corporation which was a large commercial building that may have been associated with paper manufacturing and supply as early as the 1920's. South of the properties across an alleyway (Industrial Alley – former railroad line) is mixed residential and retail/commercial including an insulation, roofing and gutter repair store and advent auto

A series of investigations and site assessments have been completed at the property including:

- Phase I and Phase II Environmental Site Assessment completed by Galson Corporation for the City of Rochester Department of Environmental Services in 1999.
- Addendum to The Phase I Environmental Site Assessment: Final Report FOIA Response from NYSDEC completed by Galson in April 1999.
- Modified Phase I Environmental Site Assessment for 149 and 161 Palm Street, Rochester, New York. Completed by Day Environmental, Inc. for the City of Rochester, April 19, 2000

- Phase I/II Environmental Site Assessment for 1630 Dewey Avenue and 149/161 Palm Street. Completed by PEI for Norstar in September 2006.
- Follow-up Phase II ESA 141 and 161 Palm Street, completed by PEI, for Bergmann Associates, March 2010;
- Follow-up Phase II ESA 1630 Dewey Avenue, completed by PEI, for Bergmann Associates, March 2010;
- Supplemental Site Characterization 1630 Dewey Avenue Rochester, New York. Completed by ATC Associates for Norstar in July 2010
- Supplemental Investigation of Historic Fill Material and Soil Sampling to Fill Analytical Data Gaps. Completed by PEI for Norstar, April 2011.
- Interim Site Management Plan (ISMP) Soil Characterization for New Site Development. Completed by PEI for Norstar, April 2011.
- Remedial Investigation/Alternatives Analysis Report and Remedial Work Plan, Former Crescent Puritan Laundry, Completed by PEI for Norstar, May 2012.

1.2.3 Geologic Conditions

Prior to new development the site had little to no topsoil owing in large measure to the fact that the site is principally covered with the old laundry facility and asphalt parking areas.

Based on field information obtained from the numerous past property investigations, as well as this investigation, the following is a summary of the property geology:

Prior to re-development, fill materials were observed from the surface to a depth of from two (2) to three (3) feet across the open area of the site. This fill consisted of coarse to fine gravel, fine to medium sand, traces of coal, and sometimes bits of concrete. In areas adjacent the former building walls and foundations fill material was observed to be as much as to 12 feet in depth especially adjacent the foundations of the old building basement areas. This soil fill material has been removed from 90 to 95 percent of the site as a result of the excavation of IRM areas and new development facilities (building structure, driveways, parking areas). Imported clean stone fill has been placed across the

site to: backfill all IRM excavations; backfill beneath/around building slabs/foundations and placed beneath asphalt parking/driveway areas. IRM excavation cross sections are provided on Figure 7. During final construction, open areas were covered with either final asphalt layer for parking and driveways, concrete sidewalks and/or topsoil for landscaping (see Figure 6). Figure 6 also describes the areas and depths of remaining historic fill on site

Below the original fill layer, to a depth of up to 12 feet, the site generally consists of fine to medium sandy silt with a trace of gravel, and sometimes traces of coal and concrete. From 10 feet up to 15 feet below grade (where those depths were encountered) the geology consists of hard silty clay with traces of sand, gravel, and weathered rock fragments. Bedrock was encountered at approximately 15 feet below grade.

Groundwater flow beneath the site is from the south-southwest to the north-northeast based upon groundwater elevations measured in the monitoring wells. Groundwater elevations are provided on Table 8 and groundwater contours are depicted on Figure 8.

1.3 SUMMARY OF REMEDIAL INVESTIGATION FINDINGS

A Remedial Investigation (RI) was performed to characterize the nature and extent of contamination remaining at the site upon completion of the IRM. The results of the RI are described in detail in the following report:

- Remedial Investigation/Alternatives Analysis Report and Remedial Work Plan; Former Crescent Puritan Laundry; Site # C828163; 1630 Dewy Avenue, 149 and 161 Palm Street, Rochester, New York; prepared for: 1630 Dewey Avenue, LLC.; Prepared by: Panamerican Environmental, Inc.; August 2012.

Prior to undertaking the RI the existing Former Crescent Puritan Laundry building was demolished and an IRM completed to remove underground storage tanks (USTs) and associated impacted soil (refer to Section 4.0). A separate Construction Completion Report (CCR) covering the demolition and IRM activities has been prepared and submitted to NYSDEC (*Former Crescent Puritan Laundry- IRM Construction Completion Report; NYSDEC Site Number C828163; 1630 Dewey Avenue, 149 and 161 Palm Street,*

Rochester, New York; Prepared for: 1630 Dewey Avenue, LLC; Prepared By: Panamerican Environmental, Inc.; May 2012).

Prior to undertaking the RI the existing Former Crescent Puritan Laundry building was demolished and a Site Remediation IRM completed. Investigations conducted prior to the BCP program identified historic USTs and VOC/SVOC impacted soils on site. In addition, elevated VOCs were observed in northern perimeter monitoring wells. The Site Remediation IRM removed the USTs and impacted soils from across the site and also provided bio-treatment in selected areas of the site's groundwater. Data gaps remaining after completion of the IRM included the need to monitor groundwater quality across the site post IRM remediation and to monitor possible VOC contamination related to soil vapor intrusion. The following sections discuss the remedial investigation tasks conducted to gather the required data to fill these data gaps identified after the IRM.

Specific objectives of the RI were as follows:

- Install and sample perimeter groundwater wells to assess groundwater impacts from off-site and on-site sources by evaluating groundwater quality entering and leaving the site;
- Install and sample soil vapor probes along the north site perimeter to assess volatile chemical contamination related to soil vapor intrusion; and
- Fill any data gaps resulting from previous assessments and the IRM Site Remediation.

Generally, the RI determined that in several groundwater monitoring wells VOC and SVOCs were detected at concentrations above groundwater standards (NYSDEC TOGS Standards). Also, a number of VOCs were detected in the vapor probe samples collected from the three vapor probes installed along the north site perimeter.

Below is a summary of site conditions when the RI was performed in 2011:

Soil

As previously noted, prior to the RI, a Site Remediation IRM removed the USTs and impacted soils from across the site. As a result of the IRM site soils were not address as part of the RI. Complete details of the Site Remediation IRM are provided in Section 1.4 Summary of Remedial Actions.

The Site Remediation IRM also included a supplemental investigation to further characterize the soil and fill material at the site. The program consisted of test trenching

and collecting Soil samples from within areas A through D and area TP as shown on Figure 4 prior to undertaking the IRM. Samples were analyzed for parameters not previously tested for in the impacted areas.

Soil samples SI-01 to 04 (refer to Figure 4) were analyzed for TCL VOCs and SVOC plus STARS and TICs; TAL Metals plus cyanide; PCBs; and Pesticides. The results of the historic soil/fill sampling (SI-01 to 04) indicated that the soil/fill met Part 375 Restricted Residential SCO with the exception of one sample, SI-03A. This sample contained four PAH compounds which slightly exceeded Restricted Residential SCO as follows:

-Benzo(a)anthracene 1.0 ppm versus 1.0 ppm SCO

-Benzo(a)pyrene 1.1 ppm versus 1.0 ppm SCO

-Benzo(b)fluoranthene 1.1 ppm versus 1.0 ppm SCO

-Indeno(1,2,3-cd)pyrene 0.7 ppm versus 0.5 ppm SCO

The additional parameters (TAL metals plus cyanide; PCBs and pesticides) analyzed for in samples collected from the four impacted areas (A-D) did not indicate any exceedences of restricted residential SCO in any of the samples. The supplemental investigation soil sample analytical results are summarized in Table 3.

Site-Related Groundwater

Ten (10) groundwater monitoring wells were installed as part of the RI program (MW-RI-01 to MW-RI-10). The wells were sampled in November 2011 and three (3) additional monitoring wells (MW-RI-03A, MW-RI-04A and MW-RI-07A) were installed and sampled in January 2012 (refer to Figure 8 for well locations and groundwater contours).

Samples from the ten initial groundwater wells were analyzed for the following:

- TCL VOCs + STARS + TICs;
- TCL SVOCs + STARS + TICs;
- TAL Metals + cyanide;
- PCBs; and
- Pesticides.

Samples from the subsequently installed wells were analyzed for the following:

- TAL Metals and
- PCBs (MW-RI-03A only)

Table 6 (1st round of sampling) presents a comparison of the detected groundwater compound concentrations to the Class GA Groundwater Quality Standards (GWQS) per NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations (June 1988). Groundwater elevations are provided in Table 8 and groundwater contours are provided on Figure 8.

The Table 6 analytical results are discussed below:

Volatile Organic Compounds (VOCs)

VOCs were detected in all 10 of the initial groundwater samples. Only one or two compounds had concentrations that exceeded TOGS values in any of the monitoring well groundwater samples with the exception of MW-RI-01 which had seven compounds with concentrations that exceeded TOGS. The seven compounds were petroleum based compounds. MW-RI-01 was installed within the area where a petroleum storage UST and associated impacted soil were removed under the IRM. The source of the MW-RI-01 groundwater contamination was removed by the IRM based on all of the confirmation soil samples meeting the Unrestricted Use SCOs. The elevated petroleum VOC concentrations are most likely due to residual contamination associated with the UST and impacted soils. It appears to be localized since most of the elevated compounds were not detected in down gradient wells (see Figure 8 for groundwater flow contours) or if detected they were at very low concentrations and most below TOGS. Only two petroleum related compounds were detected in well samples other than in MW-RI-01 that were above TOGs: Benzene in well samples MW-RI- 02, 03, 06, 09 and 10 and Methyl-tert-butyl Ether in MW-RI-02 and 03. The chlorinated solvent related compound

Tetrachloroethene was detected at a concentration exceeding TOGS in MW-RI-04 and 05.

Semi-Volatile Organic Compounds (VOCs)

Only two SVOCs were detected in any of the wells above TOGs values; Bis(2-ethyhexyl) phthalate and Pentachlorophenol. Bis(2-ethyhexyl)phthalate was detected in the groundwater samples from MW-RI-08 and 09. This compound was non-detect in all of the other samples.

Pentachlorophenol was detected in the sample from MW-RI-08 at a concentration above its TOGs level. This compound is used in the manufacturing of pesticides and also in wood preservatives, especially for utility poles. This compound was also non-detect in all other groundwater samples. This well is located up-gradient and at the extreme south west corners of the site directly adjacent a utility pole which is possibly the source of this compound in the groundwater at this location.

PCBs

Only one PCB compound (Aroclor 1248) was detected in any of the groundwater samples. Aroclor 1248 was detected in the groundwater sample from MW-RI-03 at a concentration above its TOGs value. As part of the supplemental groundwater investigation the new well installed directly adjacent to MW-RI-03 was sampled for PCBs as well as metals. The results of the sample from this well (MW-RI-03A) indicated that no PCBs were detected in the sample.

Pesticides

No pesticides were detected in any of the groundwater samples above TOGs values.

Metals

A number of metal compounds were detected in all of the groundwater samples with several above TOGs values. Most of these exceedences were identified in the first sampling round of the ten monitoring wells. In the first round all well samples detected iron, manganese and sodium concentrations above TOGs values. Cadmium, copper, lead, and selenium were also detected in the MW-RI-03 sample at concentrations above TOGs values. Lead was also detected in MW-RI-07 and 08 at concentrations above TOGs values. The initial ten groundwater samples did not meet turbidity requirements resulting in very elevated metal concentrations. The supplemental groundwater investigation included, installing three larger wells at specific locations adjacent existing wells. Samples were collected from the new wells using low flow techniques that resulted in low turbid samples. As anticipated, metal concentrations detected in all three of the new wells were greatly reduced from the concentrations detected in the adjacent existing wells. For example, the sample from new well MW-RI-03A indicated non-detect for cadmium, copper, lead and selenium. These previously all exceeded TOGs values in the adjacent MW-RI-03 sample. Lead was also non-detect in the samples from new wells MW-RI-04A and 07A. Iron and manganese concentrations that greatly exceeded TOGs values in the original ten wells were below TOGs values in samples from MW-RI-03A and 04A and just slightly exceeded the TOGs value in MW-RI-07A. The sodium concentration in all three new wells still exceeded TOGs but at greatly reduced concentrations. Sodium appears most likely to be pervasive in the general groundwater regime. In summary, the elevated metal results are most likely attributed to the elevated turbidity in the original sampling round.

Groundwater Sampling - 2nd Round - Select Wells

The IRM Site Remediation work plan required sampling select monitoring wells to assess the groundwater bio-treatment administered in IRM excavation areas B and C (refer to Figures 4 and 8). The work plan requires that confirmatory groundwater sampling is to be conducted quarterly for the first year from wells MW-RI-05, MW-RI-06, MW-RI-08, MW-RI-09 and MW-RI-10 to confirm that groundwater has naturally attenuated, or is progressing toward attenuation. The frequency of sampling beyond the one year will be determined after reviewing the one year results with the NYSDEC.

Due to the number of elevated VOCs detected in MW-RI-01during the initial sampling round, as noted above, this well was also sampled a second time to assess progression toward attenuation with the source now removed. As of the preparation of this document the second round of sampling of the above wells has been completed. Sampling occurred on February 29, 2012 and the results are reported on Table 6A in comparison to each well's first round results. As per the work plan the groundwater samples were analyzed for the following parameters with the exception of MW-RI-01 which was analyzed for VOCs only:

- TCL VOCs + STARS + TICs; and
- TCL SVOCs + STARS + TICs.

Generally, there was a reduction of concentrations of all individual compounds identified in the initial round. However, the results for tentatively identified compounds (TICs) increased. Additional rounds of sampling will be reported as they are completed.

Site-Related Soil Vapor Intrusion

Three soil vapor probes were installed during the RI along the north site perimeter (Refer to Figure 8). A number of VOCs were detected in the soil vapor samples collected from the probes. Table 7 presents detected EPA TO-15 VOCs. At present, New York State does not have regulations that regulate soil vapor constituent concentrations. The three soil vapor probes were installed directly adjacent the following groundwater monitoring wells (refer to Figure 8):

VP-01 – MW-RI-04

VP-02 – MW-RI-05

VP-03 – MW-RI-06

Table 7 indicates that a number of petroleum related VOCs were detected in all three soil vapor probe samples. The highest levels appear to be in the VP-03 sample which somewhat correlates with petroleum compounds detected in the adjacent.MW-RI-06 groundwater sample. In general, lower concentrations of petroleum related compounds

were detected in VP-01 and VP-02 samples with no petroleum VOCs detected in the adjacent well samples. The solvent tetrachloroethene was detect in all three soil vapor samples and was also detected in the MW-RI-04 and 05 groundwater samples. The solvent trichloroethene was detected in the VP-02 soil vapor sample but was not detected in any of the associated monitoring wells. Based on these results, the extent of soil vapor detections off-site to the north and east has not been defined.

Since all contaminant sources have been removed from the site it appears that the petroleum and solvent related compounds in the soil vapor are related to residual contamination remaining after source removal. The remaining off-site contamination to the north may represent an on-going source of petroleum- related compounds in the soil vapor.

Underground Storage Tanks

The Site Remediation IRM included the removal of six USTs from the site. Details of the UST removals under the IRM are discussed in Section 1.4.

1.4 SUMMARY OF REMEDIAL ACTIONS

THE SITE WAS REMEDIATED IN ACCORDANCE WITH THE FOLLOWING NYSDEC- APPROVED WORK PLANS:

- Work Plan for Demolition of Former Crescent Puritan Laundry (Eastman Commons), 1630 Dewey Avenue, 149 And 161 Palm Street Rochester, *New York*", prepared for Norstar Development USA, L.P., prepared by Panamerican Environmental, Inc., May 2010).

- Work Plan For Interim Remedial Measure-Site Remediation, Former Crescent Puritan Laundry (Eastman Commons), 1630 Dewey Avenue, 149 And 161 Palm Street Rochester, New York", prepared for Norstar Development USA, L.P., prepared by Panamerican Environmental, Inc., August 2010.

- Remedial Investigation/Alternatives Analysis Report and Remedial Work Plan; Former Crescent Puritan Laundry; Site # C828163; 1630 Dewy Avenue, 149 and

161 Palm Street, Rochester, New York; prepared for: 1630 Dewey Avenue, LLC.; Prepared by: Panamerican Environmental, Inc.; August 2012.

- Supplemental Remedial Work Plan, Former Crescent Puritan Laundry; Site # C828163, August 2012.

- Decision Document; Former Crescent Puritan Laundry; Brownfield Cleanup Program; Rochester, Monroe County; Site No. C828163; September 2012; Prepared by: Division of Environmental Remediation, New York Department of Environmental Conservation.

- Remedial Work Plan Revision 1 Former Crescent Puritan Laundry NYSDEC Site No. C828163; October 5, 2012.

The following is a summary of the Remedial Actions performed at the site:

Building Demolition IRM

An IRM was initiated in January 2011 to demolish the on-site building to prepare the site for redevelopment and to provide access to evaluate environmental conditions under the building.

Approximately 931 tons of material was removed from the site during building demolition. The material consisted primarily of boiler ash, and construction and demolition debris (including asbestos containing material).

All supporting analytical and disposal data is provided in the previously noted CCR.

Site Remediation IRM

As previously noted, prior to the RI, a Site Remediation IRM removed the USTs and impacted soils from across the site. The IRM addressed source areas (refer to Figure 4) of apparent petroleum release and the relative low levels of solvents in downgradient wells as follows:

- Excavation, removal and proper disposal the six USTs;

- Excavation and off-site disposal of 4,930 tons of impacted soil from the five source areas;
- Treatment of groundwater with accelerated bio-remediation by the addition of a hydrogen release type mixture to the soil/water interface in the northern excavations (areas A and B); and,
- Backfilling of all excavation areas with approved off-site clean fill material.

Removal of Underground Storage Tanks

The Site Remediation IRM included the removal of the two known USTs (8000 gallon UST in Area A and 1000 gallon UST in Area B as shown on Figure 4). Prior to removal, NOCO (NYSDEC permitted facility for handling/disposing of non-hazardous waste oil for fuel blending) sampled and characterized the contents of the two USTs. The results indicated that the contents were predominately water mixed with a small amount of fuel oil. After characterization, NOCO pumped the UST and transported the tank contents to their permitted fuel blending facility in Tonawanda, NY. A total of 5,150 gallon were pumped from the 8000 gallon UST and 500 gallons from the 1000 gallon UST. The USTs were removed from the ground, tank bottoms were sampled and drummed for future disposal (refer to 4.3.2 Drummed Wastes), and the USTs cleaned and cut up for off-site disposal. The dismantled tanks were transported to Metalica Buffalo, Inc., a permitted scrap processor-recycler.

Impacted soil removal proceeded after UST removal. During the excavation of impacted soil from Area B, four additional buried vertical tanks were uncovered. Two of these USTs were directly east of the 1000 Gallon UST location and were identical in shape (5 feet in diameter and 4 feet vertical). The tanks contained a small amount of water with a petroleum odor. Tank capacity was estimated at 500+/- gallons each. The liquid contents were sampled for disposal and then pumped to 55 gallon drums. The sample analytical results from the northern UST detected a PCB compound, Aroclor 1254 at 2.95 ppm (refer to Section 4.4.1). For disposal purposes the contents of this UST were considered hazardous material. The owner submitted a RCRA Subtitle C Site Identification Form to apply for an EPA ID number (NYR000182675) for the proper disposal of the hazardous waste. Also, only the northern most UST had tank bottom material. This was sampled for disposal and drummed. Two additional slightly larger vertical USTs (5 feet in diameter and 7 feet vertical with cone shaped bottom) were uncovered in the same excavation. The

contents were primarily water with petroleum odor (approximately 700 gallons). After sampling, NOCO pumped and transported the contents to their fuel blending facility. Tank bottoms from each of these tanks were also sampled for disposal and drummed in 55 gallon drums. All four tanks were then cleaned, dismantled and transported to Metalico. All UST removal/disposal operations were in accordance with the approved work plan. The locations of the removed USTs are depicted on Figure 4.

All supporting analytical and disposal data is provided in the previously noted CCR.

Impacted Soil Removal

Using the data from previous assessment programs and a supplemental investigation conducted just prior to the IRM, an evaluation of the extent of impacted soil was conducted which indicated five distinct areas of soil impacted with petroleum related contamination (refer to Figure 4).

Area A – large 8000 gallon UST location

Area B – small 1000 gallon UST location

Area C – possible former UST location

Area D – possible mineral spirits

Area TP – Petroleum Impacted soil

The discovery and removal of additional USTs resulted in an increase of impacted soil removed. Figure 4 depicts the actual extent of impacted soil removal for each of the above designated areas and Figure 7 provides cross section of each of the remedial excavation areas. A total of 4,930 tons of impacted soil were removed and transported to Waste Management's Mill Seat Landfill. The following is an estimate of the approximate volume of soil removed from each area:

Area A – 30 feet x 12 feet x 13 feet deep – 175 +/- cubic yards

Area B – 120 feet x 35 feet (avg.) x 13 feet deep (avg.) – 2020 +/- cubic yards

Area C – 20 feet x 27 feet x 12 feet deep - 240 +/- cubic yards

Area D – 20 feet x 22 feet x 10 feet deep - 150 +/- cubic yards

Area TP – 25 feet x 12 feet x 8.5 feet deep – 95 +/- cubic yards

All soils removed in each area were screened by PEI's inspector using a PID and visual inspection to determine when the extent of impacted soil was reached. Confirmation soil samples were collected and analyzed per the Work Plan and DER-10 requirements. Confirmation soil samples are provided in Table 5.

Confirmation soil sample analytical results verified that all impacted soil had been removed from the designated areas with the exception of a section of the north wall of area B. This area is directly along the north site property perimeter where an area of impacted soil extends off site to the north at a location approximately 6 to 8 feet below grade along Palm Street and its utility corridor.

Groundwater Treatment

Previous groundwater analytical results from micro-wells installed during follow-up Phase II ESAs completed in 2010 resulted in a limited groundwater remediation program as part of the IRM. The program used accelerated bioremediation at selected locations (Areas B and C on Figure 4) where chlorinated hydrocarbon impacts were detected in groundwater samples collected from wells installed prior to the IRM.

Accelerated biological treatment consisted of applying a bio-treatment amendment material called 3-D Microemulsion (3DMe) by Regenesis, Inc. to the bottom of each excavation and mixing the material in with the groundwater and bottom soils. Clean stone backfill was then place in each excavation. The specifications for the 3DMe application are provided in the CCR. Approximately 630 pounds (21- 30 pound pails) of 3DMe was mixed with approximately 725 gallons of water (10 to 1 ratio water to amendment) and spread over the lower north half on Area B and mixed in with the groundwater and first layer of stone fill. Approximately 150 pounds of 3DMe was mixed with approximately 175 gallons of water and spread over the bottom of Area C in the same manner as in Area B.

The initial effectiveness of the treatment will be determined after a year of quarterly groundwater sampling results from groundwater monitoring wells installed downgradient to Areas B and C under the subsequent RI program (see Section 1.3).

Interim Site Management Plan

An Interim Site Management Plan (ISMP) ("*Interim Site Management Plan for the Former Crescent Puritan Laundry (Eastman Commons), 1630 Dewey Avenue, 149 And 161 Palm Street Rochester, New York*", prepared for 1630 Dewey Avenue, LLC, *prepared by Panamerican Environmental, Inc., April 2011.)* was prepared to address the management of site soils that were excavated for the installation of building foundations, basement area, floor slabs and paved areas for the new facility constructed on the site. The areas excavated were outside the impacted soil areas that were remediated under the IRM. The ISMP specifically addressed the inspection, sampling and final disposition of soils to be removed for the purposes mentioned (refer to Figure 5).

The volume of soil excavated for the new facilities exceeded backfill needs on site and therefore most of the excess soil was transported offsite to an approved disposal facility. A total of 7,687 tons of soil material were removed and transported to Waste Management's Mill Seat Landfill. As stated, not all material was sent off-site. Select excavated soils, which passed Part 375 Restricted Residential criteria, and in most cases, Unrestricted Use requirements, was used to backfill at depth near structural footings and building foundations.

A total of twenty (20) ISMP soil confirmation samples were collected and analyzed during ISMP activities (refer to Figure 4 for locations and Table 4 for analytical results).

Over 95 percent of the site's surface area has been excavated related to removal of the existing laundry facilities or to new construction. It is estimated that up to a minimum of two (2) feet of surface soil/fill material has been removed across most of the site. Most of the soil/fill material was sent off-site for disposal. A smaller portion which met Restricted Residential SCOs was re-distributed as foundation backfill (at depth). The quantities of removed materials are discussed in Section 4.0 and in the CCR. The estimated nature and extent of soil contamination is shown on Figure 6.

Figure 5 illustrates the new development overlay of the former laundry building. The IRM UST and soil removal areas are also shown on this figure. Cross sections of the IRM areas are provided on Figure 7. Upon completion of the new development there will be very limited green areas as illustrated on Figure 6. Large portions of open designated

landscaped areas shown on Figure 5 have had significant removal of site fill soils or structures (existing building and IRM excavation areas). These areas were mostly backfilled with clean stone to raise the area to final grade prior building construction, asphalt paving and landscaping. The area to be landscaped along the north property perimeter was completely excavated to the property line (3 to 8 feet in depth) to remove the old building that extended to the property line. Also, IRM Area B excavation (10 to15 feet deep) extended to the north property line and backfilled with clean stone fill. Most of the new facility open courtyard has also been excavated to remove the old building slabs/foundations and basement area (3 to 8 feet in depth).

Remedial Work Plan Actions

1 - Sub-slab Depressurization System Inspection/Testing

Visible sections of the sub-slab depressurization system were inspected by the NYSDEC and the Applicant's representative. Air flow pressure switches were selected with a wide adjustable range because at the time of installation it was hard to say what the actual operation pressure would be. On July 19, 2012 the alarm and pressure switches were set up and tested by the installation contractor with NYSDEC and NYSDOH representatives present. The alarm pressure switch at each fan was set at 0.2" water column (w.c.) below the measured pressure to produce the alarm. The Alarm was tested by turning off the fan and the alarm was energized. The alarm was also tested by disconnecting each pressure switch from the SSDS and the alarm was energized. At the time of this test the phone line notification system was not set up. However, later in the day the phone line system was engaged to complete the notification system. The phone line - alarm notification system was later verified by NYSDEC on October 25, 2012. Also, on July 19, 2012 all of the alarms, switches and exhaust stacks associated with to the sub slab depressurization system were labeled to identify them as part of the sub slab depressurization system and verified by NYSDEC.

The RWP called for a pressure field extension test to be completed to demonstrate that a vacuum is being created beneath the entire basement slab. The extension testing included drilling small diameter holes (e.g., 3/8 inch) through the building

basement slab (refer to Figure 10) at locations shown on Revised Figure 9 and a digital micromanometer was used to measure the sub-slab vacuum. A minimum differential pressure of 0.004 inches of water between the building interior indoor and sub slab is generally considered acceptable.

Several sub slab field extension tests were conducted in August and September 2012. Some of these test results, over portions of the basement sub slab, did not meet the minimum differential pressure of 0.004 inches of water between the building interior indoor and basement sub slab. To ascertain if there was some impediment in the sub slab piping that was interfering with the test results a video camera inspection of the sub slab piping system was conducted. An obstruction was found in the horizontal piping approximately 10 feet from the basement sub slab vertical vent stack to the roof. The pipe had apparently collapsed to an approximate one inch opening, probably crushed during construction. In discussion with the system designers it was agreed that this collapsed pipe may be interfering with the depressurization of the basement sub slab and affecting the test results.

A Revision 1 to the Remedial Work Plan (RWP) was prepared and approved by NYSDEC to modify the SSDS so as to achieve acceptable differential pressure between the basement sub slab and the basement interior to meet the RWP requirements. The modification to the SSDS system included disconnecting the current vertical vent stack from the under slab piping system (basement only) and connecting it to a new approved suction pit located near the vertical stack. The installation involved cutting and removing a portion of the basement slab, to install a 4'-0" by 4'-0" suction pit per EPA guidelines. See as-built drawings (Appendix E) showing the location of the proposed suction pit (IB-51-01) and pit construction details (IB-51-02).

On October 19, 2012 the modified system was retested as witnessed by NYSDEC by conducting extension testing from the three probe holes (figure 9). Test results from all three probe holes exceeded the minimum required differential pressure requirement of 0.004 inches of water. Test results are provided on Table 11.

This activity was completed using the Health and Safety Plan included in the Remedial Investigation Work Plan. A specific QA/QC plan will not be required

for this activity. The micromanometer was calibrated and used in accordance with the manufacturers recommendations.

2 **- Execution and recording of an Environmental Easement** to restrict land use and prevent future exposure to any contamination remaining at the site. The executed Environmental Easement is provided in Appendix B.

3 **Development and implementation of a Site Management Plan** for long term management of remaining contamination as required by the Environmental Easement, which includes plans for: (1) Institutional and Engineering Controls, (2) monitoring, (3) operation and maintenance and (4) reporting.

4 **Maintenance of the existing soil cover system** to prevent human exposure to contaminated soil/fill remaining at the site. The soil cover system consists of the following: soil where the top 2-ft meets restricted residential SCOs; the building slab; concrete; and asphalt.

Remedial activities were completed at the site in October, 2012.

1.4.1 Removal of Contaminated Materials from the Site

See Section 1.4

1.4.2 Site-Related Treatment Systems

A sub slab depressurization system was installed with the new building and modified per Revision 1 to the RWP as discussed in Section 1.4 under Remedial Work Plan Actions. The system consists of a radon gas/soil vapor collection system installed around the new building foundation and beneath sections of the building floor slab as depicted on Revised Figure 9 and drawing IB-51-01 (Appendix E). The system has four depressurization stacks (one from the north wing, two from the south wing and one from the basement) with fans to withdraw air from the sub slab collection system to discharge above the building roof line. The system was designed and installed to meet EPA's Radon Prevention Guide.

As-built drawings of the system details are provided in Appendix E

1.4.3 Remaining Contamination

Figure 6 indicates primary locations of topsoil/landscaping and the approximate area where historic soil fill material remains that may, in some areas, exceed unrestricted SCOs. The topsoil in the landscaped areas meets Restricted Residential SCOs but exceeds Unrestricted Use SCOs. The depth of the fill in this area varies between 2 and 3 feet in depth and is primarily beneath the new development asphalt paved parking/driveways. There is an estimated 700 cubic yards of fill material in this area based on an estimated depth of 3 feet. The new pavement section above the fill is composed of 12 inches (parking) to 15 inches (driveways) of clean stone fill overlaid with 5 inches of asphalt.

Figure 4 provides the locations of all of the IRM and ISMP confirmation samples along with the location of the IRM supplemental investigation samples. The location of the four historic fill samples collected during the IRM supplemental investigation (SI-02, SI-03A, SI-03B and SI-04) are also shown on Figure 4. Figure 4 also denotes detected sample compounds that exceed Restricted Residential and/or Unrestricted SCOs.

Sample analytical results compared to Restricted Residential and/or Unrestricted SCOs as noted in the above figures are provided in the following Tables:

Table 3 – IRM Supplemental Investigation Soil Sample Analytical Results

Table 4 – ISMP Soil Sample Analytical Results

Table 5 – Site Remediation Confirmation Soil Sample Analytical Results

The confirmation sample results indicate that very little historic fill remains on site that does not meet Part 375 unrestricted SCOs. Any fill that remains on the property is covered by asphalt parking/driveways, concrete walkways and at least 2 feet of clean top soil/stone fill or soil meeting Restricted Residential SCOs.

Based on all of the confirmation sample analytical results and field observances there are no remaining nuisance or significantly impacted soils on site, but petroleum impacted soils from on-site sources remain off-site to the north in a limited area.

2.0 ENGINEERING AND INSTITUTIONAL CONTROL PLAN

2.1 INTRODUCTION

2.1.1 General

Since remaining contaminated soil and groundwater/soil vapor exists beneath the site, Engineering Controls and Institutional Controls (EC/ICs) are required to protect human health and the environment. This Engineering and Institutional Control Plan describes the procedures for the implementation and management of all EC/ICs at the site. The EC/IC Plan is one component of the SMP and is subject to revision by NYSDEC.

2.1.2 Purpose

This plan provides:

- A description of all EC/ICs on the site;
- The basic implementation and intended role of each EC/IC;
- A description of the key components of the ICs set forth in the Environmental Easement;
- A description of the features to be evaluated during each required inspection and periodic review;
- A description of plans and procedures to be followed for implementation of EC/ICs, such as the implementation of the Excavation Work Plan for the proper handling of remaining contamination that may be disturbed during maintenance or redevelopment work on the site; and
- Any other provisions necessary to identify or establish methods for implementing the EC/ICs required by the site remedy, as determined by the NYSDEC.

2.2 ENGINEERING CONTROLS

2.2.1 Engineering Control Systems

2.2.1.1 Soil Cover

Exposure to remaining contamination in soil/fill at the site is prevented by a soil cover system placed over the site. This cover system is comprised of a minimum of 24 inches of clean soil, asphalt pavement, concrete-covered sidewalks, and concrete building slabs. The Excavation Work Plan that appears in Appendix A outlines the procedures required to be implemented in the event the cover system is breached, penetrated or temporarily removed, and any underlying remaining contamination is disturbed. Procedures for the inspection and maintenance of this cover are provided in the Monitoring Plan included in Section 4 of this SMP.

2.2.1.2 Sub-slab Depressurization System

A sub slab depressurization system was installed with the new building consisting of a radon gas/soil vapor collection system installed around the new building foundation and beneath sections of the building floor slab as depicted on revised Figure 9 and drawing IB-51-01 (Appendix E). The system has four depressurization stacks (one from the north wing, two from the south wing and one from the basement) with fans to withdraw air from the sub slab collection system to discharge above the building roof line. The system was designed and installed to meet EPA's Radon Prevention Guide.

Procedures for operating and maintaining the sub-slab depressurization system are documented in the Operation and Maintenance Plan (Section 4 of this SMP). Procedures for monitoring the system are included in the Monitoring Plan (Section 3 of this SMP). The Monitoring Plan also addresses severe condition inspections in the event that a severe condition, which may affect controls at the site, occurs.

2.2.2 Criteria for Completion of Remediation/Termination of Remedial Systems

Generally, remedial processes are considered completed when effectiveness monitoring indicates that the remedy has achieved the remedial action objectives identified by the decision document. The framework for determining when remedial processes are complete is provided in Section 6.6 of NYSDEC DER-10.

2.2.2.1 Composite Cover System

The composite cover system is a permanent control and the quality and integrity of this system will be inspected at defined, regular intervals in perpetuity.

2.2.2.2 Sub-slab Depressurization System (SSDS)

The active SSD system will not be discontinued unless prior written approval is granted by the NYSDEC. In the event that monitoring data indicates that the SSD system is no longer required, a proposal to discontinue the SSD system will be submitted by the property owner to the NYSDEC and NYSDOH.

2.2.2.3 Groundwater Monitoring

Groundwater monitoring activities to assess attenuation and performance of the bioremediation activity implemented as part of the site remediation IRM will continue, as determined by the NYSDEC, until residual groundwater concentrations are found to be consistently below NYSDEC standards or have become asymptotic at an acceptable level over an extended period. Monitoring will continue until permission to discontinue is granted in writing by the NYSDEC. If groundwater contaminant levels become asymptotic at a level that is not acceptable to the NYSDEC, additional source removal, treatment and/or control measures will be evaluated.

2.3 INSTITUTIONAL CONTROLS

A series of Institutional Controls is required by the Decision Document to: (1) implement, maintain and monitor Engineering Control systems; (2) prevent future exposure to remaining contamination by controlling disturbances of the subsurface contamination; and, (3) limit the use and development of the site to Restricted Residential uses only. Adherence to these Institutional Controls on the site is required by the Environmental Easement and will be implemented under this Site Management Plan. These Institutional Controls are:

- Compliance with the Environmental Easement and this SMP by the Grantor and the Grantor's successors and assigns;
- All Engineering Controls must be operated and maintained as specified in this SMP;

- All Engineering Controls on the Controlled Property must be inspected at a frequency and in a manner defined in the SMP.
- Groundwater, soil vapor and other environmental or public health monitoring must be performed as defined in this SMP;
- Data and information pertinent to Site Management of the Controlled Property must be reported at the frequency and in a manner defined in this SMP;

Institutional Controls identified in the Environmental Easement may not be discontinued without an amendment to or extinguishment of the Environmental Easement.

The site has a series of Institutional Controls in the form of site restrictions. Adherence to these Institutional Controls is required by the Environmental Easement. Site restrictions that apply to the Controlled Property are:

- The property may only be used for restricted residential use provided that the long-term Engineering and Institutional Controls included in this SMP are employed.
- The property may not be used for a higher level of use, such as unrestricted or residential use without additional remediation and amendment of the Environmental Easement, as approved by the NYSDEC;
- All future activities on the property that will disturb remaining contaminated material must be conducted in accordance with this SMP;
- The use of the groundwater underlying the property is prohibited without treatment rendering it safe for intended use by the NYSDOH or County DOH;
- The potential for vapor intrusion must be evaluated for any additional buildings or extensions to the existing building developed within the environmental easement area noted on the easement ALTA/ACSM Land Title Survey Map (refer to Appendix B) , and any potential impacts that are identified must be monitored or mitigated;
- Vegetable gardens and farming on the property are prohibited, although community vegetable gardens may be considered with NYSDEC approval;

- The site owner or remedial party will submit to NYSDEC a written statement that certifies, under penalty of perjury, that: (1) controls employed at the Controlled Property are unchanged from the previous certification or that any changes to the controls were approved by the NYSDEC; and, (2) nothing has occurred that impairs the ability of the controls to protect public health and environment or that constitute a violation or failure to comply with the SMP. NYSDEC retains the right to access such Controlled Property at any time in order to evaluate the continued maintenance of any and all controls. This certification shall be submitted annually, or an alternate period of time that NYSDEC may allow and will be made by an expert that the NYSDEC finds acceptable. .

2.3.1 Excavation Work Plan

The site has been remediated for restricted residential use. Any future intrusive work that will penetrate the soil cover, or encounter or disturb the remaining contamination, including any modifications or repairs to the existing cover system will be performed in compliance with the Excavation Work Plan (EWP) that is attached as Appendix A to this SMP. Any work conducted pursuant to the EWP must also be conducted in accordance with the procedures defined in a Health and Safety Plan (HASP) and Community Air Monitoring Plan (CAMP) prepared for the site. A sample HASP is attached as Appendix C to this SMP that is in current compliance with DER-10, and 29 CFR 1910, 29 CFR 1926, and all other applicable Federal, State and local regulations. Based on future changes to State and federal health and safety requirements, and specific methods employed by future contractors, the HASP and CAMP will be updated and re-submitted with the notification provided in Section A-1 of the EWP. Any intrusive construction work will be performed in compliance with the EWP, HASP and CAMP, and will be included in the periodic inspection and certification reports submitted under the Site Management Reporting Plan (See Section 5).

The site owner and associated parties preparing the remedial documents submitted to the State, and parties performing this work, are completely responsible for the safe performance of all intrusive work, the structural integrity of excavations, proper disposal of excavation de-water, control of runoff from open excavations into remaining contamination, and for structures that may be affected by excavations (such as building foundations and bridge footings). The site owner will ensure that site development

activities will not interfere with, or otherwise impair or compromise, the engineering controls described in this SMP.

2.3.2 Soil Vapor Intrusion Evaluation

Prior to the construction of any enclosed structures located over areas that contain remaining contamination and the potential for soil vapor intrusion (SVI) has been identified (see Figure 8), an SVI evaluation will be performed to determine whether any mitigation measures are necessary to eliminate potential exposure to vapors in the proposed structure. Alternatively, an SVI mitigation system may be installed as an element of the building foundation without first conducting an investigation. This mitigation system will include a vapor barrier and passive sub-slab depressurization system that is capable of being converted to an active system.

Prior to conducting an SVI investigation or installing a mitigation system, a work plan will be developed and submitted to the NYSDEC and NYSDOH for approval. This work plan will be developed in accordance with the most recent NYSDOH "Guidance for Evaluating Vapor Intrusion in the State of New York". Measures to be employed to mitigate potential vapor intrusion will be evaluated, selected, designed, installed, and maintained based on the SVI evaluation, the NYSDOH guidance, and construction details of the proposed structure.

Preliminary (unvalidated) SVI sampling data will be forwarded to the NYSDEC and NYSDOH for initial review and interpretation. Upon validation, the final data will be transmitted to the agencies, along with a recommendation for follow-up action, such as mitigation. Validated SVI data will be transmitted to the property owner within 30 days of validation. If any indoor air test results exceed NYSDOH guidelines, relevant NYSDOH fact sheets will be provided to all tenants and occupants of the property within 15 days of receipt of validated data.

SVI sampling results, evaluations, and follow-up actions will also be summarized in the next Periodic Review Report.

2.4 INSPECTIONS AND NOTIFICATIONS

2.4.1 Inspections

Inspections of all remedial components installed at the site will be conducted at the frequency specified in the SMP Monitoring Plan schedule. A comprehensive site-

wide inspection will be conducted annually, regardless of the frequency of the Periodic Review Report. The inspections will determine and document the following:

- Whether Engineering Controls continue to perform as designed;
- If these controls continue to be protective of human health and the environment;
- Compliance with requirements of this SMP and the Environmental Easement;
- Achievement of remedial performance criteria;
- Sampling and analysis of appropriate media during monitoring events;
- If site records are complete and up to date; and
- Changes, or needed changes, to the remedial or monitoring system;

Inspections will be conducted in accordance with the procedures set forth in the Monitoring Plan of this SMP (Section 3). The reporting requirements are outlined in the Periodic Review Reporting section of this plan (Section 5).

If an emergency, such as a natural disaster or an unforeseen failure of any of the ECs occurs, an inspection of the site will be conducted within 5 days of the event to verify the effectiveness of the EC/ICs implemented at the site by a qualified environmental professional as determined by NYSDEC.

2.4.2 Notifications

Notifications will be submitted by the property owner to the NYSDEC as needed for the following reasons:

- 60-day advance notice of any proposed changes in site use that are required under the terms of the Brownfield Cleanup Agreement (BCA), 6NYCRR Part 375, and/or Environmental Conservation Law.
- 7-day advance notice of any proposed ground-intrusive activities pursuant to the Excavation Work Plan.
- Notice within 48-hours of any damage or defect to the foundations structures that reduces or has the potential to reduce the effectiveness of other Engineering Controls and likewise any action to be taken to mitigate the damage or defect.
- Verbal notice by noon of the following day of any emergency, such as a fire, flood, or earthquake that reduces or has the potential to reduce the effectiveness of Engineering Controls in place at the site, with written confirmation within 7 days

that includes a summary of actions taken, or to be taken, and the potential impact to the environment and the public.

- Follow-up status reports on actions taken to respond to any emergency event requiring ongoing responsive action shall be submitted to the NYSDEC within 45 days and shall describe and document actions taken to restore the effectiveness of the ECs.

Any change in the ownership of the site or the responsibility for implementing this SMP will include the following notifications:

- At least 60 days prior to the change, the NYSDEC will be notified in writing of the proposed change. This will include a certification that the prospective purchaser has been provided with a copy of the Brownfield Cleanup Agreement (BCA), and all approved work plans and reports, including this SMP
- Within 15 days after the transfer of all or part of the site, the new owner's name, contact representative, and contact information will be confirmed in writing.

2.5 CONTINGENCY PLAN

Emergencies may include injury to personnel, fire or explosion, environmental release, or serious weather conditions.

2.5.1 Emergency Telephone Numbers

In the event of any environmentally related situation or unplanned occurrence requiring assistance the Owner or Owner's representative(s) should contact the appropriate party from the contact list below. For emergencies, appropriate emergency response personnel should be contacted. Prompt contact should also be made to qualified environmental professional. These emergency contact lists must be maintained in an easily accessible location at the site.

Emergency Contact Numbers

Medical, Fire, and Police:	911
One Call Center:	(800) 272-4480

	(3 day notice required for utility markout)
Poison Control Center:	(800) 222-1222
Pollution Toxic Chemical Oil Spills:	(800) 424-8802
NYSDEC Spills Hotline	(800) 457-7362

Contact Numbers

Peter Gorton (Environmental Professional)	1-716-821-1650

* Note: Contact numbers subject to change and should be updated as necessary

2.5.2 Map and Directions to Nearest Health Facility

Site Location: 1630 Dewey Avenue-Rochester, NY

Nearest Hospital Name: Rochester General Hospital

Hospital Location: 1425 Portland Avenue-Rochester, NY

Hospital Telephone: 1-585-922-4000

Directions to the Hospital:

Hospital – Rochester General Hospital
1425 Portland Avenue
Rochester, NY 14621

Start out going NORTH on DEWEY AVE (From A on Map) toward STEKO AVE.	0.2 mi
Turn RIGHT onto W RIDGE RD/NY-104 E. Continue to follow	2.4 mi

NY-104 E.

Take the ramp toward CARTER ST/PORTLAND AVE.	0.1 mi
Stay STRAIGHT to go onto RT-104.	0.4 mi
Turn RIGHT onto PORTLAND AVE/CR-114.	0.2 mi

1425 PORTLAND AVE is on the RIGHT (B on Map)

See map to hospital in Appendix C – Health & safety Plan

2.5.3 Response Procedures

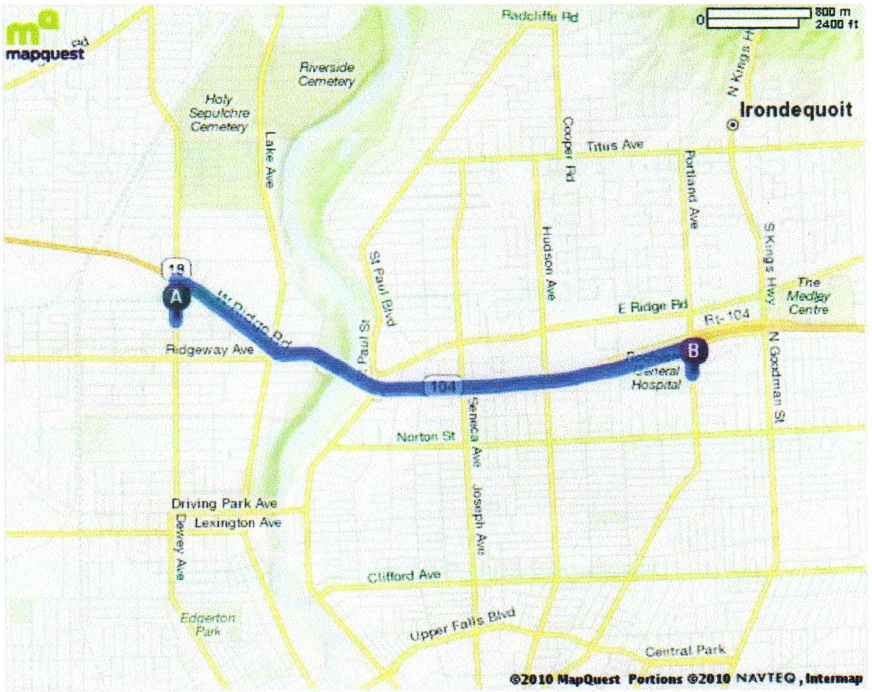
As appropriate, the fire department and other emergency response group will be notified immediately by telephone of the emergency. The emergency telephone number list is found at the beginning of this Contingency Plan. The list will also posted prominently at the site and made readily available to all personnel at all times.

The sample Health & Safety Plan provided in Appendix C describes procedures for spills, evacuation plans, etc.

Map Showing Route from the site to the Hospital:

Total Travel Estimate : 3.37 miles - about 6 minutes

Route Map Hide



3.0 SITE MONITORING PLAN

3.1 INTRODUCTION

3.1.1 General

The Monitoring Plan describes the measures for evaluating the performance and effectiveness of the remedy to reduce or mitigate contamination at the site, the soil cover system, and all affected site media identified below. Monitoring of other Engineering Controls is described in Chapter 4, Operation, Monitoring and Maintenance Plan. This Monitoring Plan may only be revised with the approval of NYSDEC.

3.1.2 Purpose and Schedule

This Monitoring Plan describes the methods to be used for:

- Sampling and analysis of all appropriate media (e.g., groundwater, indoor air, soil vapor, soils);
- Assessing compliance with applicable NYSDEC standards, criteria and guidance, particularly ambient groundwater standards and Part 375 SCOs for soil;
- Assessing achievement of the remedial performance criteria.
- Evaluating site information periodically to confirm that the remedy continues to be effective in protecting public health and the environment; and
- Preparing the necessary reports for the various monitoring activities.

To adequately address these issues, this Monitoring Plan provides information on:

- Sampling locations, protocol, and frequency;
- Information on all designed monitoring systems (e.g., well logs);
- Analytical sampling program requirements;
- Reporting requirements;
- Quality Assurance/Quality Control (QA/QC) requirements;
- Inspection and maintenance requirements for monitoring wells;
- Monitoring well decommissioning procedures; and

- Annual inspection and periodic certification.

Annual monitoring of the performance of the remedy and overall reduction in contamination on-site will be conducted for the first year after issuance of the COC. The frequency thereafter will be determined by NYSDEC. Trends in contaminant levels in air, soil, and/or groundwater in the affected areas, will be evaluated to determine if the remedy continues to be effective in achieving remedial goals. Monitoring programs are summarized in Table 2 and outlined in detail in Sections 3.2 and 3.3 below.

Table 2: Monitoring/Inspection Schedule

Monitoring Program	Frequency*	Matrix	Analysis
Soil Cover	Annually	Soil	None
Groundwater	Bi-Annually	Water	See Section 3.3.1
Condition Bi-annual Wells	Bi-Annually	Water	None
Condition non-network wells	Annually	Water	None

* The frequency of events will be conducted as specified until otherwise approved by NYSDEC and NYSDOH

3.2 SOIL COVER SYSTEM MONITORING

The Soil cover system will be inspected during the annual Site Wide Inspection (refer to Section 3.4). A walk over inspection will be conducted to assure that the soil cover system is intact and has not been disturbed.

3.3 MEDIA MONITORING PROGRAM

3.3.1 Groundwater Monitoring

Groundwater monitoring will be performed on a periodic basis to assess the performance of the remedy. A total of 13 monitoring wells were installed as part of the

RI program (refer to Section 1.3). Figure 8 depicts the location of the monitoring wells along with groundwater flow contours. The network of monitoring wells was installed to evaluate both up-gradient and down-gradient groundwater conditions at the site. The IRM work plan called for four quarterly rounds of groundwater sampling of select wells to assess the effects of the IRM groundwater bio-treatment of remediation Areas B and C (see Figure 6). The selected wells are discussed further below. Three of the four sampling rounds called for in the IRM work plan have been completed as of the preparation of this SMP. Groundwater sample analytical results for the selected wells are provided in Tables 6, 6A and 6B. One chlorinated solvent, Tetrachloroetene, was detected during round one sampling in Monitoring wells MW-RI-04 and 05 at a concentration above its TOGs groundwater standard. Both of these wells are downgradient of the bio-treated areas B and C. The two subsequent rounds of samples from these two wells indicate that the concentration levels for this compound have been significantly reduced. The concentration level of tetrachloroethene in MW-RI-05 has been reduced to below the TOGs standard and to slightly above the standard in MW-RI-04.

Several petroleum related compounds have been detected in several other monitoring wells at concentrations above TOGS groundwater standards that along with MW-RI-04 and 05 will be monitored under this SMP (see below).

The network of monitoring wells has been installed to monitor both up-gradient and down-gradient groundwater conditions at the site. The network of on-site wells has been designed based on COCs remaining at the site after the completion of the IRM and new site development activities include chemicals in the groundwater (VOCs and SVOCs), in the soil vapor (VOCs) and in remaining site historic fill material that may exceed at depth (2 plus feet) Part 375 Restricted Residential SCOs. Principal chemicals identified include: petroleum related compounds in several Groundwater monitoring wells; TCE in two north perimeter groundwater monitoring wells; a variety of VOCs in the north perimeter soil vapor probes; petroleum related compounds in soil along an isolated area of at the north perimeter property line and minor levels of PAHs in subsurface historic fill material.

The following wells will be sampled twice a year after issuance of the COC:

MW-RI-04A TCL VOCs + TICs

MW-RI-05	TCL VOCs + TICs
MW-RI-06	TCL VOCs + TICs
MW-RI-7A	TCL VOCs + TICs
MW-RI-08	TCL SVOCs + TICs
MW-RI-09	TCL VOCs/SVOCS +TICs
MW-RI-10	TCL VOCs + TICs
MW-RI-01	TCL VOCs + TICs

The groundwater analytical results will be reviewed with NYSDEC annually to evaluate attenuation trends in the results. Based on results, and with NYSDEC concurrence, select wells may be eliminated from, or added to, the next round of sampling. After the one year of sampling (2-rounds) attenuation trends will be evaluated for all wells and a determination made with NYSDEC concurrence if groundwater sampling can be terminated at some or all of the wells or if additional sampling rounds will be required.

Monitoring well construction logs are included in Appendix F.

The sampling frequency may be modified with the approval NYSDEC. The SMP will be modified to reflect changes in sampling plans approved by NYSDEC.

Deliverables for the groundwater monitoring program are specified below.

3.3.1.1 Sampling Protocol

All monitoring well sampling activities will be recorded in a field book and a groundwater-sampling log presented in Appendix F. Other observations (e.g., well integrity, etc.) will be noted on the well sampling log. The well sampling log will serve as the inspection form for the groundwater monitoring well network.

Sampling protocols are provided in Appendix G -Field Sampling Plan. Laboratory methodologies and quality assurance and quality controls are provided in Appendix D - Quality Assurance/Quality Control Plan.

Monitoring wells that are not part of the routine monitoring program will be inspected at least once a year as part of the Site Wide Inspection of Section 3.4.

3.3.1.2 Monitoring Well Repairs, Replacement and Decommissioning

If biofouling or silt accumulation occurs in the on-site and/or off-site monitoring wells, the wells will be physically agitated/surged and redeveloped. Additionally, monitoring wells will be properly decommissioned and replaced (as per the Monitoring Plan), if an event renders the wells unusable.

Repairs and/or replacement of wells in the monitoring well network will be performed based on assessments of structural integrity and overall performance.

The NYSDEC will be notified prior to any repair or decommissioning of monitoring wells for the purpose of replacement, and the repair or decommissioning and replacement process will be documented in the subsequent periodic report. Well decommissioning without replacement will be done only with the prior approval of NYSDEC. Well abandonment will be performed in accordance with NYSDEC's "Groundwater Monitoring Well Decommissioning Procedures." Monitoring wells that are decommissioned because they have been rendered unusable will be reinstalled in the nearest available location, unless otherwise approved by the NYSDEC.

Minor well repairs (e.g. replacing a surface cover or J-plug) will be completed as soon as possible an do not require advance notice to NYSDEC. Minor repairs will be documented and included in the Periodic Review Report.

Upon termination of the site monitoring program and with NYSDEC approval, all on-site monitoring wells will be properly decommissioned and other miscellaneous site restoration activities (such as asphalt patching) will be performed.

3.4 SITE-WIDE INSPECTION

Site-wide inspections will be performed on a regular schedule at a minimum of once a year. Site-wide inspections will also be performed after all severe weather conditions that may affect Engineering Controls or monitoring devices. During these inspections, an inspection form will be completed (Appendix H). The form will compile sufficient information to assess the following:

- Compliance with all ICs, including site usage;
- An evaluation of the condition and continued effectiveness of ECs;
- General site conditions at the time of the inspection;

- The site management activities being conducted including, where appropriate, confirmation sampling and a health and safety inspection;
- Compliance with permits and schedules included in the Operation and Maintenance Plan; and
- Confirm that site records are up to date.

3.5 MONITORING QUALITY ASSURANCE/QUALITY CONTROL

All sampling and analyses will be performed in accordance with the requirements of the Quality Assurance Project Plan (QAPP) prepared for the site (Appendix D). Main Components of the QAPP include:

- QA/QC Objectives for Data Measurement;
- Sampling Program:
    - Sample containers will be properly washed, decontaminated, and appropriate preservative will be added (if applicable) prior to their use by the analytical laboratory. Containers with preservative will be tagged as such.
    - Sample holding times will be in accordance with the NYSDEC ASP requirements.
    - Field QC samples (e.g., trip blanks, coded field duplicates, and matrix spike/matrix spike duplicates) will be collected as necessary.
- Sample Tracking and Custody;
- Calibration Procedures:
    - All field analytical equipment will be calibrated immediately prior to each day's use. Calibration procedures will conform to manufacturer's standard instructions.
    - The laboratory will follow all calibration procedures and schedules as specified in USEPA SW-846 and subsequent updates that apply to the instruments used for the analytical methods.
- Analytical Procedures;

- Preparation of a Data Usability Summary Report (DUSR), which will present the results of data validation, including a summary assessment of laboratory data packages, sample preservation and chain of custody procedures, and a summary assessment of precision, accuracy, representativeness, comparability, and completeness for each analytical method.
- Internal QC and Checks;
- QA Performance and System Audits;
- Preventative Maintenance Procedures and Schedules;
- Corrective Action Measures.

3.6 MONITORING REPORTING REQUIREMENTS

Forms and any other information generated during regular monitoring events and inspections will be kept on file on-site. All forms, and other relevant reporting formats used during the monitoring/inspection events, will be (1) subject to approval by NYSDEC and (2) submitted at the time of the Periodic Review Report, as specified in the Reporting Plan of this SMP.

All monitoring results will be reported to NYSDEC on a periodic basis in the Periodic Review Report. A letter report will also be prepared [if required by NYSDEC], subsequent to each sampling event. The report (or letter) will include, at a minimum:

- Date of event;
- Personnel conducting sampling;
- Description of the activities performed;
- Description and documentation of any monitoring well repairs, replacement or decommissioning activities;
- Description and documentation of waste management activities;
- Type of samples collected (e.g., sub-slab vapor, indoor air, outdoor air, etc.);
- Copies of all field forms completed (e.g., well sampling logs, chain-of-custody documentation, etc.);
- Sampling results in comparison to appropriate standards/criteria;
- A figure illustrating sample type and sampling locations;

- Copies of all laboratory data sheets and the required laboratory data deliverables required for all points sampled (o be submitted electronically in the NYSDEC-identified format);
- Any observations, conclusions, or recommendations; and
- A determination as to whether groundwater conditions have changed since the last reporting event.

Data will be reported in hard copy or digital format as determined by NYSDEC. A summary of the monitoring program deliverables are summarized in Table 3 below.

Table 3: Schedule of Monitoring/Inspection Reports

Task	Reporting Frequency*
Groundwater sampling (Electronic Data Deliverable for inclusion in NYSDEC's Environmental Information Management System)	Bi-Annually within 90-days of receipt of the analytical results
Periodic Review Report	Annually

* The frequency of events will be conducted as specified until otherwise approved by NYSDEC

4.0 OPERATION AND MAINTENANCE PLAN

4.1 INTRODUCTION

This Operation and Maintenance Plan describes the measures necessary to operate, monitor and maintain the mechanical components of the remedy selected for the site. This Operation and Maintenance Plan:

- Includes the steps necessary to allow individuals unfamiliar with the site to operate and maintain the sub-slab depressurization system;
- Includes an operation and maintenance contingency plan; and,
- Will be updated periodically to reflect changes in site conditions or the manner in which the sub-slab depressurization system is operated and maintained.

Information on non-mechanical Engineering Controls (i.e. soil cover system) is provided in Section 3 - Engineering and Institutional Control Plan. A copy of this Operation and Maintenance Plan, along with the complete SMP, will be kept at the site. This Operation and Maintenance Plan is not to be used as a stand-alone document, but as a component document of the SMP.

4.2 ENGINEERING CONTROL SYSTEM OPERATION AND MAINTENANCE

4.2.1 Sub-slab Depressurization System

The following sections discuss the operation and maintenance of the sub-slab depressurization system.

4.2.1.1 Scope

A sub slab depressurization system was installed with the new building consisting of a radon gas/soil vapor collection system installed around the new building foundation and beneath sections of the building floor slab as depicted on Figure 9 and drawing IB-51-01. The system has four depressurization stacks (one from the north wing, two from the south wing and one from the basement) with fans to withdraw air from the sub slab collection system to discharge above the building roof line. The system was designed and installed to meet EPA's Radon Prevention Guide.

The depressurization system has an alarm system that monitors an air flow switch at each fan to verify that the fan is in operation. If the fan is turned off or malfunctions, the monitor automatically calls a list of up to eight preprogrammed phone numbers over the telephone network, calling until it gets an acknowledgement.

The following are the names and telephone numbers programed into the network:

- Mr. Clint DeVries – Building Superintendent (585) 545-0098
- Ms. Kathleen Bartkowiak – Site Manager (585) 797-8934
- Ms. Robin T. Robado – District Manager (585) 427-7570

When a connection is made, the system reports the station identity and the specific alarm condition in the form of a digitally prerecorded voice message. An alarm is acknowledged simply by pressing a button on the called phone. The user can also call the system from any remote phone for a status report of all points being monitored. (information is maintained: on the monitor, located in the 2nd floor mechanical room; Site Manager's office (585) 797-8934; and Building Superintendent's office (585) 545-0098). The system will also send an alarm condition upon loss of power to the monitor. The system start up and testing is discussed in Section 4.2.1.2

The only mechanical/electrical equipment for the sub-slab depressurization system includes:

- Exhaust fans (4) -Radon Fan Model HP/FR by: Fantech
- Air flow pressure switches (4) -SW 141 Differential Static Airflow Switches by: Siemans
- Automated alarm system (1) – Guard-It Autodialer Alarm By: Raco Manufacturing and Engineering Co,, Inc.
- Electrical Switches for the fans (4)

The as-built drawing of the system id provided in Appendix E

4.2.1.2 System Start-Up and Testing

The alarm system for the radon/soil vapor mitigation system monitors an air flow switch at each fan to verify that the fan is in operation. If the fan is turned off or malfunctions, the monitor automatically calls a list of up to eight preprogrammed phone numbers over the telephone network, calling until it gets an acknowledgement. When a connection is made, the system reports the station identity and the specific alarm condition in the form

of a digitally prerecorded voice message. An alarm is acknowledged simply by pressing a button on the called phone. The user can also call the system from any remote phone for a status report of all points being monitored. The system will also send an alarm condition upon loss of power to the monitor.

On July 19, 2012 the alarm and pressure switches were set up and tested by the installation contractor with NYSDEC and NYSDOH representatives present. See Section 1.4 Summary of Remedial Actions – Remedial Work Plan Actions – 1. Sub Slab Depressurization System Inspection/Testing for details. The pressure switch for each fan was initially set to produce an alarm at 0.2’ w.c. below the initially measured pressure.

Equipment manufacture’s operating manuals/technical instructions are provided in Appendix I

A Revision 1 to the Remedial Work Plan (RWP) was prepared and approved by NYSDEC to modify the SSDS so as to achieve acceptable differential pressure between the basement sub slab and the basement interior to meet the RWP requirements. The modification to the SSDS system included disconnecting the current vertical vent stack from the under slab piping system (basement only) and connecting it to a new approved suction pit located near the vertical stack. The installation involved cutting and removing a portion of the basement slab, to install a 4'-0" by 4'-0" suction pit per EPA guidelines. See as-built drawings (Appendix E) showing the location of the proposed suction pit (IB-51-01) and pit construction details (IB-51-02).

On October 19, 2012 the modified system was retested as witnessed by NYSDEC by conducting extension testing from the three probe holes (figure 9). Test results from all three probe holes exceeded the minimum required differential pressure requirement of 0.004 inches of water. Test results are provided on Table 11.

The system testing described above will be conducted if, in the course of the sub slab depressurization systems lifetime, significant changes are made to the system, and the system must be restarted.

4.2.1.3 System Operation: Routine Operation Procedures

The fans are turned on and off using the wall switches located next to the Autodialer in Room 343. The fans should not be turned off except as needed for testing or maintenance.

Once the system is turned on it operates automatically and continuously. Equipment manufacture's manuals/instructions for operation, troubleshooting, repairs, etc. for the system mechanical/electrical equipment noted in Section 4.2.1.1 are provided in Appendix I.

The party responsible for routine maintenance is:

Landsman Management - Building Superintendent: Mr. Clint DeVries (585) 545-0098

4.2.1.4 System Operation: Routine Equipment Maintenance

Equipment manufacture's manuals/instructions for operation, maintenance, troubleshooting, repairs, etc. for the system mechanical/electrical equipment noted in Section 4.2.1.1 are provided in Appendix I.

The air flow switches and fans are closed units that do not require routine maintenance. The only maintenance item on the Guard-IT autodialer alarm system is the rechargeable battery. It should be replaced every three years, since it will eventually fail with old age in the same way that an automobile battery does.

Replacements for this battery must be ordered near the time of change-out, since long storage on a shelf without a charger will damage the battery. It may be ordered from Raco or from the manufacturer as printed on the battery.

4.2.1.5 System Operation: Non-Routine Equipment Maintenance

Non-routine maintenance may also be appropriate during the operation of a mitigation system. Examples of such situations include the following:

a. the building's owners or occupants report that the warning device or indicator indicates the mitigation system is not operating properly;

b. the mitigation system becomes damaged; or

c. the building has undergone renovations that may reduce the effectiveness of the mitigation system.

Activities conducted during non-routine maintenance visits will vary depending upon the reason for the visit. In general, building-related activities may include examining the building for structural or HVAC system changes, or other changes that may affect the performance of the depressurization system (e.g., new combustion appliances, deterioration of the concrete slab, or significant changes to any of the building factors listed in Table 1.2 of the NYSDOH document entitled "Guidance for Evaluating Soil Vapor Intrusion" dated October 2006 and any subsequent revisions and updates). Depressurization system-related activities may include examining the operation of the warning device or indicator and the vent fan, or the extent of sub-slab depressurization. Repairs or adjustments should be made to the system as appropriate.

Equipment manufacture's manuals/instructions for operation, maintenance, troubleshooting, repairs, etc. for the system mechanical/electrical equipment noted in Section 4.2.1.1 are provided in Appendix I.

The pressure switch is equipped with an adjustable set point. Initially, each switch was set to produce an alarm at 0.2: w.c. below the initial measured pressure. NYSDEC approval is needed prior to adjusting any of the set points. Changes to a set point will be documented in the Periodic Review Report and the updated SMP.

The party responsible for non-routine maintenance is:

Landsman Management - Building Superintendent: Mr. Clint DeVries (585) 545-0098

4.3 ENGINEERING CONTROL SYSTEM PERFORMANCE MONITORING

Sub-slab Depressurization Performance Monitoring

The sub-slab depressurization system will be monitored (visual inspection and alarm testing) annually. The first monitoring event will be conducted within 18 months after the Certificate of Completion is issued.

Sub-slab vacuum monitoring will be performed on a routine basis, but will be conducted upon NYSEDC's request.

Air monitoring (sub-slab vapor, indoor air and ambient air) will not be performed on a routine basis. Procedures for indoor and ambient air sample collection and analysis are discussed in Section 4.3.4. Locations for sampling are to be determined. Vapor intrusion samples (sub-slab vapor, indoor air and ambient air) will be collected prior to shutting down the sub-slab depressurization system or upon the NYSDEC's request

All future air sampling will be in accordance with NYSDOH –Guidance for Evaluating Soil Vapor Intrusion in the State of New York-October 2006 and the Appendix G Field Sampling Plan.

4.3.1 Monitoring Schedule

See Section 4.3 above.

Inspection frequency is subject to change with the approval of the NYSDEC. Unscheduled inspections and/or sampling may take place when a suspected failure of the sub-slab depressurization system has been reported or an emergency occurs that is deemed likely to affect the operation of the system. Monitoring deliverables for the sub-slab depressurization system are specified later in this Plan.

4.3.2 General Equipment Monitoring

A visual inspection of the complete system will be conducted during the monitoring event. Sub-slab depressurization system components to be monitored include, but are not limited to, the following:

a. A visual inspection of the complete system (e.g., vent fan, piping, pressure switches, autodialer, labeling on systems, vacuum monitoring points, etc.)

b. Identification and repair of leaks, and

c. Inspection of the exhaust or discharge point to verify no air intakes have been located nearby.

If any equipment readings are not within their typical range, any equipment is observed to be malfunctioning, or the system is not performing within specifications, maintenance and repair as per the Operation and Maintenance Plan are required immediately, and the sub-slab depressurization system restarted.

4.3.3 System Monitoring Devices and Alarms

The sub-slab depressurization system has a warning device (automated alarm system, refer to Section 4.2.1.1) to indicate that the system is not operating properly. In the event that the warning device is activated, applicable maintenance and repairs will be conducted, as specified in the Operation and Maintenance Plan, and the sub-slab

depressurization system restarted. Operational problems will be noted in the subsequent Periodic Review Report.

The alarm system and pressure switches will be tested during each monitoring event by disconnecting the tubing from each pressure switch and verify that an alarm is activated and the autodialer calls the correct phone.

4.3.4 Sampling Event Protocol

Protocols for sub-slab soil vapor, indoor air and ambient air sampling will include the following.

Sub-slab soil vapor, indoor and ambient air samples will be collected using summa canisters pre-targeted for 8-hours and the canisters turned off when the residual vacuum in the canisters had reached approximately minus 3 inches of mercury.

Summa Canister Data Sheets will be used to record the sampling time, Summa canister and flow controller serial numbers, etc. All air samples will be submitted to a ELAP certified laboratory, and analyzed for TCL VOCs by EPA method TO-15

Specific field sampling protocols for air sampling are provided in the Appendix G - Field Sampling Plan.

4.4 MAINTENANCE AND PERFORMANCE MONITORING REPORTING REQUIREMENTS

Sub-Slab Depressurization Monitoring Reporting

Maintenance reports and any other information, including a log of alarm events, generated during regular operations at the site will be kept on-file on-site. All reports, forms, and other relevant information generated will be available upon request to the NYSDEC and submitted as part of the Periodic Review Report, as specified in the Section 5 of this SMP.

4.4.1 Routine Maintenance Reports

Checklists or forms (see Appendix H) will be completed during each routine maintenance event. Checklists/forms will include, but not be limited to the following information:

- Date;

- Name, company, and position of person(s) conducting maintenance activities;
- Maintenance activities conducted;
- Any modifications to the system;
- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents noted (included either on the checklist/form or on an attached sheet); and,
- Other documentation such as copies of invoices for maintenance work, receipts for replacement equipment, etc., (attached to the checklist/form).

4.4.2 Non-Routine Maintenance Reports

During each non-routine maintenance event, a form will be completed which will include, but not be limited to, the following information:

- Date;
- Name, company, and position of person(s) conducting non-routine maintenance/repair activities;
- Presence of leaks;
- Date of leak repair;
- Other repairs or adjustments made to the system;
- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents (included either on the form or on an attached sheet); and,
- Other documentation such as copies of invoices for repair work, receipts for replacement equipment, etc. (attached to the checklist/form).

5. INSPECTIONS, REPORTING AND CERTIFICATIONS

5.1 SITE INSPECTIONS

5.1.1 Inspection Frequency

All inspections will be conducted at the frequency specified in the schedules provided in Section 3 Monitoring Plan and Section 4 Operation and Maintenance Plan of this SMP. At a minimum, a site-wide inspection will be conducted annually. Inspections of remedial components will also be conducted when a breakdown of any treatment system component has occurred or whenever a severe condition has taken place, such as an erosion or flooding event that may affect the ECs.

5.1.2 Inspection Forms, Sampling Data, and Maintenance Reports

All inspections and monitoring events will be recorded on the appropriate forms for their respective system which are contained in Appendices F. Additionally, a general site-wide inspection form will be completed during the site-wide inspection (see Appendix H). These forms are subject to NYSDEC revision.

All applicable inspection forms and other records, including all media sampling data and system maintenance reports, generated for the site during the reporting period will be provided in electronic format in the Periodic Review Report. Media sampling data will also be submitted in an acceptable electronic data deliverable format.

5.1.3 Evaluation of Records and Reporting

The results of the inspection and site monitoring data will be evaluated as part of the EC/IC certification to confirm that the:

- EC/ICs are in place, are performing properly, and remain effective;
- The Monitoring Plan is being implemented;
- Operation and maintenance activities are being conducted properly; and, based on the above items,
- The site remedy continues to be protective of public health and the environment and is performing as designed in the RAWP and FER.

5.2 CERTIFICATION OF ENGINEERING AND INSTITUTIONAL CONTROLS

After the last inspection of the reporting period, a qualified Professional Engineer licensed to practice in New York State will prepare the following certification:

For each institutional or engineering control identified for the site, I certify that all of the following statements are true:

- The inspection of the site to confirm the effectiveness of the institutional and engineering controls required by the remedial program was performed under my direction;
- The institutional control and/or engineering control employed at this site is unchanged from the date the control was put in place, or last approved by the Department;
- Nothing has occurred that would impair the ability of the control to protect the public health and environment;
- Nothing has occurred that would constitute a violation or failure to comply with any site management plan for this control;
- Access to the site will continue to be provided to the Department to evaluate the remedy, including access to evaluate the continued maintenance of this control;
- If a financial assurance mechanism is required under the oversight document for the site, the mechanism remains valid and sufficient for the intended purpose under the document;
- Use of the site is compliant with the environmental easement;
- The engineering control systems are performing as designed and are effective;
- To the best of my knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the site remedial program and generally accepted engineering practices; and
- The information presented in this report is accurate and complete.
- I certify that all information and statements in this certification form are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law. I, [name], of [business address], am certifying as [Owner or Owner's Designated Site

Representative] (and if the site consists of multiple properties): [I have been authorized and designated by all site owners to sign this certification] for the site.

The signed certification will be included in the Periodic Review Report described below.

5.3 PERIODIC REVIEW REPORT

A Periodic Review Report will be submitted to the Department every year unless an alternate frequency is approved by the NYSDEC, beginning eighteen months after the Certificate of Completion is issued. In the event that the site is subdivided into separate parcels with different ownership, a single Periodic Review Report will be prepared that addresses the site described in Appendix B (Metes and Bounds). The report will be prepared in accordance with NYSDEC DER-10 and submitted within 45 days of the end of each certification period. Media sampling results will also incorporated into the Periodic Review Report. The report will include:

- Identification, assessment and certification of all ECs/ICs required by the remedy for the site;
- Results of the required annual site inspections and severe condition inspections, if applicable;
- All applicable inspection forms and other records generated for the site during the reporting period in electronic format;
- A summary of any waste characterization data, disposal documentation and/or information generated during the reporting period with comments and conclusions;
- A summary of maintenance, repairs, replacements, or decommissioning activities performed during the reporting period;
- Data summary tables and graphical representations of contaminants of concern by media (groundwater, soil vapor), which include a listing of all compounds analyzed, along with the applicable standards, with all exceedences highlighted. These will include a presentation of past data as part of an evaluation of contaminant concentration trends;

- Results of all analyses, copies of all laboratory data sheets, and the required laboratory data deliverables for all samples collected during the reporting period will be submitted electronically in a NYSDEC-approved format;
- A site evaluation, which includes the following:
    - The compliance of the remedy with the requirements of the site-specific RAWP, ROD or Decision Document;
    - The operation and the effectiveness of all treatment units, etc., including identification of any needed repairs or modifications;
    - Any new conclusions or observations regarding site contamination based on inspections or data generated by the Monitoring Plan for the media being monitored;
    - Recommendations regarding any necessary changes to the remedy and/or Monitoring Plan; and
    - The overall performance and effectiveness of the remedy.
- A performance summary for the sub-slab depressurization system at the site during the reporting period including information such as:
    - The number of days the system was operating during the reporting period
    - A description of alarms, breakdowns and repairs along with an explanation of any significant downtime;
    - A description of the resolution of performance problems;
    - A summary of performance and/or effectiveness monitoring (inspections, alarm tests, sub-slab vacuum tests if performed, vapor intrusion sampling if performed, etc.; and
    - Comments, conclusions and recommendations based on data evaluated.
- A performance summary for the groundwater monitoring at the site during the reporting period, including information such as:
    - A description of well repairs, replacement, and decommissioning activities;
    - A description of the resolution of performance problems;
    - A summary of the performance and/or effectiveness monitoring;
    - A summary of waste management activities; and
    - Comments and conclusions, and recommendations based on data evaluated.

The Periodic Review Report will be submitted, in hard-copy format, to the NYSDEC Central Office and Regional Office in which the site is located, and in

electronic format to NYSDEC Central Office, Regional Office and the NYSDOH Bureau of Environmental Exposure Investigation.

5.4 CORRECTIVE MEASURES PLAN

If any component of the remedy is found to have failed, or if the periodic certification cannot be provided due to the failure of an institutional or engineering control, a corrective measures plan will be submitted to the NYSDEC for approval. This plan will explain the failure and provide the details and schedule for performing work necessary to correct the failure. Unless an emergency condition exists, no work will be performed pursuant to the corrective measures plan until it is approved by the NYSDEC.

APPENDIX A – EXCAVATION WORK PLAN

.

A-1 NOTIFICATION

At least 15 days prior to the start of any activity that is anticipated to encounter remaining contamination, the site owner or their representative will notify the Department. Currently, this notification will be made to:

Mr. Frank Sowers, P.E.

Regional Hazardous Waste Remediation Engineer

NYSDEC
Division of Environmental Remediation, Region 8
6274 East Avon-Lima Road
Avon, New York 14414-9519

This notification will include:

- A detailed description of the work to be performed, including the location and areal extent, plans for site re-grading, intrusive elements or utilities to be installed below the soil cover, estimated volumes of contaminated soil to be excavated and any work that may impact an engineering control,
- A summary of environmental conditions anticipated in the work areas, including the nature and concentration levels of contaminants of concern, potential presence of grossly contaminated media, and plans for any pre-construction sampling;
- A schedule for the work, detailing the start and completion of all intrusive work,
- A summary of the applicable components of this EWP,
- A statement that the work will be performed in compliance with this EWP and 29 CFR 1910.120,
- A copy of the contractor's health and safety plan, in electronic format, if it differs from the HASP provided in Appendix C of this document,
- Identification of disposal facilities for potential waste streams,
- Identification of sources of any anticipated backfill, along with all required chemical testing results.

A-2 SOIL SCREENING METHODS

Visual, olfactory and instrument-based soil screening will be performed by a qualified environmental professional during all remedial and development excavations into known or potentially contaminated material (remaining contamination). Soil screening will be performed regardless of when the invasive work is done and will include all excavation and invasive work performed during development, such as excavations for foundations and utility work, after issuance of the COC.

Soils will be segregated based on previous environmental data and screening results into material that requires off-site disposal, material that requires testing, material that can be returned to the subsurface, and material that can be used as cover soil.

A-3 STOCKPILE METHODS

Soil stockpiles will be continuously encircled with a berm and/or silt fence. Hay bales will be used as needed near catch basins, surface waters and other discharge points.

Stockpiles will be kept covered at all times with appropriately anchored tarps. Stockpiles will be routinely inspected and damaged tarp covers will be promptly replaced.

Stockpiles will be inspected at a minimum once each week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the site and available for inspection by NYSDEC.

A-4 MATERIALS EXCAVATION AND LOAD OUT

A qualified environmental professional or person under their supervision will oversee all invasive work and the excavation and load-out of all excavated material.

The owner of the property and its contractors are solely responsible for safe execution of all invasive and other work performed under this Plan.

The presence of utilities and easements on the site will be investigated by the qualified environmental professional. It will be determined whether a risk or impediment to the planned work under this SMP is posed by utilities or easements on the site.

Loaded vehicles leaving the site will be appropriately lined, tarped, securely covered, manifested, and placarded in accordance with appropriate Federal, State, local, and NYSDOT requirements (and all other applicable transportation requirements).

A truck wash will be operated on-site. The qualified environmental professional will be responsible for ensuring that all outbound trucks will be washed at the truck wash before leaving the site until the activities performed under this section are complete.

Locations where vehicles enter or exit the site shall be inspected daily for evidence of off-site soil tracking.

The qualified environmental professional will be responsible for ensuring that all egress points for truck and equipment transport from the site are clean of dirt and other materials derived from the site during intrusive excavation activities. Cleaning of the adjacent streets will be performed as needed to maintain a clean condition with respect to site-derived materials.

A-5 MATERIALS TRANSPORT OFF-SITE

All transport of materials will be performed by licensed haulers in accordance with appropriate local, State, and Federal regulations, including 6 NYCRR Part 364. Haulers will be appropriately licensed and trucks properly placarded.

Material transported by trucks exiting the site will be secured with tight-fitting covers. Loose-fitting canvas-type truck covers will be prohibited. If loads contain wet material capable of producing free liquid, truck liners will be used.

All trucks will be washed prior to leaving the site. Truck wash waters will be collected and disposed of off-site in an appropriate manner.

Truck transport routes are as follows: [To be determined]. All trucks loaded with site materials will exit the vicinity of the site using only these approved truck routes. This is the most appropriate route and takes into account: (a) limiting transport through residential areas and past sensitive sites; (b) use of city mapped truck routes; (c) prohibiting off-site queuing of trucks entering the facility; (d) limiting total distance to major highways; (e) promoting safety in access to highways; and (f) overall safety in transport; [(g) community input [where necessary]]

Trucks will be prohibited from stopping and idling in the neighborhood outside the project site.

Egress points for truck and equipment transport from the site will be kept clean of dirt and other materials during site remediation and development.

Queuing of trucks will be performed on-site in order to minimize off-site disturbance. Off-site queuing will be prohibited.

A-6 MATERIALS DISPOSAL OFF-SITE

All soil/fill/solid waste excavated and removed from the site will be treated as contaminated and regulated material and will be transported and disposed in accordance with all local, State (including 6NYCRR Part 360) and Federal regulations. If disposal of soil/fill from this site is proposed for unregulated off-site disposal (i.e. clean soil removed for development purposes), a formal request with an associated plan will be made to the NYSDEC. Unregulated off-site management of materials from this site will not occur without formal NYSDEC approval.

Off-site disposal locations for excavated soils will be identified in the pre-excavation notification. This will include estimated quantities and a breakdown by class of disposal facility if appropriate, i.e. hazardous waste disposal facility, solid waste landfill, petroleum treatment facility, C/D recycling facility, etc. Actual disposal quantities and associated documentation will be reported to the NYSDEC in the Periodic Review Report. This documentation will include: waste profiles, test results, facility acceptance letters, manifests, bills of lading and facility receipts.

Non-hazardous historic fill and contaminated soils taken off-site will be handled, at minimum, as a Municipal Solid Waste per 6NYCRR Part 360-1.2. Material that does not meet Track 1 unrestricted SCOs is prohibited from being taken to a New York State recycling facility (6NYCRR Part 360-16 Registration Facility).

A-7 MATERIALS REUSE ON-SITE

Chemical criteria for on-site reuse of material have been approved by NYSDEC and are listed in DER-10 Appendix 5 Restricted Residential Use. The qualified environmental professional will ensure that procedures defined for materials reuse in this SMP are followed and that unacceptable material does not remain on-site. Contaminated on-site material, including historic fill and contaminated soil, that is acceptable for re-use on-site will be placed below the demarcation layer or impervious surface, and will not be reused within a cover soil layer, within landscaping berms, or as backfill for subsurface utility lines.

Any demolition material proposed for reuse on-site will be sampled for asbestos and the results will be reported to the NYSDEC for acceptance. Concrete crushing or processing on-site will not be performed without prior NYSDEC approval. Organic matter (wood, roots, stumps, etc.) or other solid waste derived from clearing and grubbing of the site will not be reused on-site.

A-8 FLUIDS MANAGEMENT

All liquids to be removed from the site, including excavation dewatering and groundwater monitoring well purge and development waters, will be handled, transported and disposed in accordance with applicable local, State, and Federal regulations. Dewatering, purge and development fluids will not be recharged back to the land surface or subsurface of the site, but will be managed off-site.

Discharge of water generated during large-scale construction activities to surface waters (i.e. a local pond, stream or river) will be performed under a SPDES permit.

A-9 COVER SYSTEM RESTORATION

After the completion of soil removal and any other invasive activities the cover system will be restored in a manner that complies with the decision document. The demarcation layer, consisting of orange snow fencing material or equivalent material will be replaced to provide a visual reference to the top of the 'Remaining Contamination Zone', the zone that requires adherence to special conditions for disturbance of remaining contaminated soils defined in this Site Management Plan. If the type of cover system changes from that which exists prior to the excavation (i.e., a soil cover is replaced by asphalt), this will constitute a modification of the cover element of the remedy and the upper surface of the 'Remaining Contamination. A figure showing the modified surface will be included in the subsequent Periodic Review Report and in any updates to the Site Management Plan.

A-10 BACKFILL FROM OFF-SITE SOURCES

All materials proposed for import onto the site will be approved by the qualified environmental professional and will be in compliance with provisions in this SMP prior to receipt at the site.

Material from industrial sites, spill sites, or other environmental remediation sites or potentially contaminated sites will not be imported to the site.

All imported soils will meet the backfill and cover soil quality standards established in 6NYCRR 375-6.7(d). Soils that meet 'exempt' fill requirements under 6 NYCRR Part 360, but do not meet backfill or cover soil objectives for this site, will not be imported onto the site without prior approval by NYSDEC. Solid waste will not be imported onto the site.

Trucks entering the site with imported soils will be securely covered with tight fitting covers. Imported soils will be stockpiled separately from excavated materials and covered to prevent dust releases.

A-11 STORMWATER POLLUTION PREVENTION

Barriers and hay bale checks will be installed and inspected once a week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the site and available for inspection by NYSDEC. All necessary repairs shall be made immediately.

Accumulated sediments will be removed as required to keep the barrier and hay bale check functional.

All undercutting or erosion of the silt fence toe anchor shall be repaired immediately with appropriate backfill materials.

Manufacturer's recommendations will be followed for replacing silt fencing damaged due to weathering.

Erosion and sediment control measures identified in the SMP shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters

Silt fencing or hay bales will be installed around the entire perimeter of the construction area.

A-12 CONTINGENCY PLAN

If underground tanks or other previously unidentified contaminant sources are found during post-remedial subsurface excavations or development related construction, excavation activities will be suspended until sufficient equipment is mobilized to address the condition.

Sampling will be performed on product, sediment and surrounding soils, etc. as necessary to determine the nature of the material and proper disposal method. Chemical analysis will be performed for full a full list of analytes (TAL metals; TCL volatiles and semi-volatiles, TCL pesticides and PCBs), unless the site history and previous sampling results provide a sufficient justification to limit the list of analytes. In this case, a reduced list of analytes will be proposed to the NYSDEC for approval prior to sampling.

Identification of unknown or unexpected contaminated media identified by screening during invasive site work will be promptly communicated by phone to NYSDEC's Project Manager. Reportable quantities of petroleum product will also be reported to the NYSDEC spills hotline. These findings will be also included in the periodic reports prepared pursuant to Section 5 of the SMP.

A-13 COMMUNITY AIR MONITORING PLAN

A Community Air Monitoring Plan (CAMP) will be required for all on-site soil excavation work and will require real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the upwind and downwind perimeter of each designated work area when soil excavation activities are in progress at contaminated. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers and residents not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative, remedial work and on-site soil excavation activities.

The generic CAMP presented in Attachment 4 to the Health and Safety Plan provided in Appendix C from *NYSDEC DER-10* titled *Appendix 1A-New York State Department of Health Generic Community Air Monitoring Plan* will be followed and adhered to for excavation work covered by this EWP.

A program for suppressing fugitive dust and particulate matter monitoring will also be conducted in accordance *NYSDEC DER-10* titled *Appendix 1B Fugitive Dust and Particulate Monitoring* which is also provided in Attachment 4. The fugitive dust suppression and particulate monitoring program will be employed at the site during all intrusive activities which warrant its use under this EWP.

A figure will be provided prior to any intrusive activities under this EWP showing the location of air sampling stations based on generally prevailing wind conditions and locations of the intrusive work. These locations will be adjusted on a daily or more frequent basis based on actual wind directions to provide an upwind and at least two downwind monitoring stations.

Exceedances of action levels listed in the CAMP will be reported to NYSDEC and NYSDOH Project Managers.

A-14 ODOR CONTROL PLAN

This odor control plan is capable of controlling emissions of nuisance odors off-site and on-site. Specific odor control methods to be used on a routine basis will include:

- Covering working areas of exposed impacted soils, trucks loaded with impacted soils, or stockpiles of impacted soils with tarpaulin covers, vapor reducing foam, or other vapor control agents.
- Reduce the production rate or change the sequence of work activities.
- Change the work methods or equipment to alternatives that reduce the potential to create dust or release contaminants into the air.
- Using specialized odor suppressing foams to cover the contaminated soils. The foam is a product which reduces the ability of vapors and dust to enter the air.
- Misting water onto soil in order to prevent dust that may carry odors.

If nuisance odors are identified at the site boundary, or if odor complaints are received, work will be halted and the source of odors will be identified and corrected. Work will not resume until all nuisance odors have been abated. NYSDEC and NYSDOH will be notified of all odor events and of any other complaints about the project. Implementation of all odor controls, including the halt of work, is the responsibility of the property owner's Remediation Engineer, and any measures that are implemented will be discussed in the Periodic Review Report.

All necessary means will be employed to prevent on- and off-site nuisances. At a minimum, these measures will include: (a) limiting the area of open excavations and size of soil stockpiles; (b) shrouding open excavations with tarps and other covers; and (c) using foams to cover exposed odorous soils; If odors develop and cannot be otherwise controlled, additional means to eliminate odor nuisances will include: (d) direct load-out of soils to trucks for off-site disposal; (e) use of chemical odorants in spray or misting systems; and, (f) use of staff to monitor odors in surrounding neighborhoods.

If nuisance odors develop during intrusive work that cannot be corrected, or where the control of nuisance odors cannot otherwise be achieved due to on-site conditions or close proximity to sensitive receptors, odor control will be achieved by

sheltering the excavation and handling areas in a temporary containment structure equipped with appropriate air venting/filtering systems.

A-15 DUST CONTROL PLAN

A dust suppression plan that addresses dust management during invasive on-site work will include, at a minimum, the items listed below:

- Dust suppression will be achieved through the use of a dedicated on-site water truck for road wetting. The truck will be equipped with a water cannon capable of spraying water directly onto off-road areas including excavations and stockpiles.
- Clearing and grubbing of larger sites will be done in stages to limit the area of exposed, unvegetated soils vulnerable to dust production.
- Gravel will be used on roadways to provide a clean and dust-free road surface.
- On-site roads will be limited in total area to minimize the area required for water truck sprinkling.

A-16 OTHER NUISANCES

A plan for rodent control will be developed and utilized by the contractor prior to and during site clearing and site grubbing, and during all remedial work.

A plan will be developed and utilized by the contractor for all remedial work to ensure compliance with local noise control ordinances.

TABLE 3 - Dewey Supplemental Investigation Soil Sample Analytical Results 1 of 2												
Sample Number	**SI-01A**	**SI-01B**	**SI-02**	**SI-03A**	**SI-03B**	**SI-04**	**SI-A**	**SI-B**	**SI-C**	**SI-D**	**NYSDEC**	**NYSDEC**
Sample Date	**4/14/2011**	**4/14/2011**	**4/14/2011**	**4/14/2011**	**4/14/2011**	**4/14/2011**	**4/18/2011**	**4-14-201**	**4-14-201**	**4/19/2011**	**PART 375**	**PART 375**
Sample depth (bgs)	**1'**	**5'**	**2'**	**1.5'**	**2.5'**	**2'**	**5'**	**7'**	**5'**	**5'**	**Unrestricted**	**Restrict-Res**
Compounds	**ppm**	**ppm**	**ppm**	**ppm**	**ppm**	**ppm**	**ppm**	**ppm**	**ppm**	**ppm**	**(a) ppm**	**(b) ppm**
Metals												
Aluminum	3450	6140	10000	4730	4940	5610	5960 D	4120	6050	4890	N/A	N/A
Arsenic	2.24	2.24	7,7	7.28	1.75	2.5	2.31 DM	1.8 D,M	2.46	1.49 DM	13	16
Barium	42.8	34.5	149	76.3	42.5	46.6	56 DM	29.3 D,M	40.9	44.9 M	350	400
Beryllium	0.30 J	0.28 J	0.47 J	0.53	0.25 J	0.27 J	0.27 JM	0.25 D,M,J	0.31 J	0.23 JM	7.2	72
Cadmium	ND	ND	0.94	1.73	ND	ND	ND	ND	ND	ND	2.5	4.3
Calcium	1280	10100	4500	34600	22500	22200	19700 D	24700	28100	28000	N/A	N/A
Chromium	9.41	11.7	16.2	14.9	8.33	9.05	9.52 DM	9.58 D,M	9.92	8.24 M	30 (1)	110
Cobalt	5.02	6.27	5.7	4.89	5.16	5.42	4.91 M	4.9 M	5.93	4.92 M	N/A	N/A
Copper	5.74	7.26	25.2	33.3	6.04	9.07	11.5 DM	5.88 D,M	8.35	7.69 DM	50	270
Cyanide Total	ND	ND	ND	0.001 J	ND	ND	ND	ND	ND	ND	27	27
Iron	1150	13300	13300	16700	11300	13100	11800	10700	13200	11500	N/A	N/A
Lead	1.89	1.49	**197 (a)**	**179 (a)**	1.43	2.43	**69.6 DM(a)**	2.77 D,M	14.3	2.79 DM	63	400
Magnesium	1530	3740	2310	15000	4830	5100	5360 M	5090 D,M	5820	7810 DM	N/A	N/A
Manganese	321	234	344	185	373	388	280 DM	317 D,M	336	336 DM	1600	2000
Mercury	0.03 J	0.006 J	**0.37 J (a)**	0.1 J	0.007 J	0.004 J	0.02 D	0.02 D,MJ	0.02 J	ND	0.18	0.81
Nickel	6.72	11.8	14	12	8.85	9.67	8.66 M	8.74 D,M	10.7	8.38 M	30	310
Selenium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.9	180
Potassium	604	1030	924	1790	915	967	854	705	1120	893	N/A	N/A
Silver	ND	ND	**2.59 (a)**	**2.4 (a)**	ND	ND	ND	ND	ND	ND	2	180
Sodium	266	264	354	ND	ND	ND	ND	ND	215	ND	N/A	N/A
Vanadium	18.6	18.2	22.8	15.1	15.4	17.6	18.4 M	14.4 D,M	18.4	15.9 M	N/A	N/A
Zinc	21.9	27.1	**135 (a)**	106	22	31.5	62.3 DM	21.2 M	37.1	24.4 DM	109	10000
SVOCs												
2-Methynaphthalene	ND	ND	ND	ND	ND	ND	N/A	N/A	N/A	N/A	N/A	N/A
Acenaphthene	ND	ND	ND	ND	ND	ND	N/A	N/A	N/A	N/A	100	100
Anthracene	ND	ND	ND	0.002 J	ND	ND	N/A	N/A	N/A	N/A	100	100
Benzo(a)anthracene	ND	ND	0.4	**1 (a)(b)**	ND	ND	N/A	N/A	N/A	N/A	1	1
Benzo(a)pyrene	ND	ND	0.4	**1.1 (a)(b)**	ND	ND	N/A	N/A	N/A	N/A	1	1
Benzo(b)fluoranthene	ND	ND	0.5	**1.1 (a)(b)**	ND	ND	N/A	N/A	N/A	N/A	1	1
Benzo(g,h,I)perylene	ND	ND	0.2 J	1	ND	ND	N/A	N/A	N/A	N/A	100	100
Benzo(k)fluoranthene	ND	ND	0.4	**0.9 (a)**	ND	ND	N/A	N/A	N/A	N/A	0.8	3.9
Carbazole	ND	ND	ND	ND	ND	ND	N/A	N/A	N/A	N/A	N/A	N/A
Chrysene	ND	ND	0.05	**1.2 (a)**	ND	ND	N/A	N/A	N/A	N/A	1	3.9
Dibenz(a,h)anthracene	ND	ND	ND	0.3 J	ND	ND	N/A	N/A	N/A	N/A	0.33	0.33
Dibenzofuran	ND	ND	ND	0.2 J	ND	ND	N/A	N/A	N/A	N/A	7	59
Fluoranthene	ND	ND	0.9	1.8	ND	ND	N/A	N/A	N/A	N/A	100	100
Flourene	ND	ND	ND	ND	ND	ND	N/A	N/A	N/A	N/A	30	100
Indeno(1,2,3-cd)pyrene	ND	ND	0.3 J	**0.7 (a)(b)**	ND	ND	N/A	N/A	N/A	N/A	0.5	0.5
Naphthalene	ND	ND	ND	0.4	ND	ND	N/A	N/A	N/A	N/A	12	100
Phenanthrene	ND	ND	0.6	1.2	ND	ND	N/A	N/A	N/A	N/A	100	100
Pyrene	ND	ND	0.7	1.9	ND	ND	N/A	N/A	N/A	N/A	100	100
TICs Total	0.002	384	146	135.5	0.4	0.4	N/A	N/A	N/A	N/A		
PCBs												
Aroclor 1260	ND	ND	ND	ND	ND	ND	**0.7 (a)**	ND	ND	ND	0.1	1

TABLE 3 - Dewey Supplemental Investigation Soil Sample Analytical Results 2 of 2

Sample Number	SI-01A	SI-01B	SI-02	SI-03A	SI-03B	SI-04	SI-A	SI-B	SI-C	SI-D	NYSDEC	NYSDEC
Sample Date	4/14/2011	4/14/2011	4/14/2011	4/14/2011	4/14/2011	4/14/2011	4/18/2011	4-14-201	4-14-201	4/19/2011	PART 375	PART 375
Sample depth (bgs)	1'	5'	2'	1.5'	2.5'	2'	5'	7'	5'	5'	Unrestricted	Restrict-Res
Compounds	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	(a) ppm	(b) ppm
Pesticides												
Aldrin	ND	ND	ND	0.002 J	ND	ND	ND	ND	ND	ND	0.005	0.097
Alpha-BHC	ND	ND	ND	0.007	ND	ND	ND	ND	ND	ND	0.02	0.48
beta-BHC	ND	ND	ND	ND	ND	ND	ND	0.009 JN	ND	ND	0.036	0.36
delta-BHC	ND	ND	ND	0.003 JN	ND	ND	ND	0.003 J	ND	ND	0.04	100
gamma-BHC	ND	ND	ND	ND	ND	ND	ND	0.002 JN	ND	ND	N/A	N/A
4,4'-DDD	ND	ND	**0.015 J (a)**	**0.029 JN(a)**	ND	ND	**0.01(a)**	0.016 JN	ND	ND	0.0033	13
4,4'-DDE	ND	ND	**0.006 (a)**	**0.004 JN(a)**	ND	ND	**0.01 (a)**	0.003 J	ND	ND	0.0033	8.9
4,4'-DDT	ND	ND	**0.004 (a)**	**0.015 JN(a)**	ND	ND	**0.05 (a)**	ND	ND	ND	0.0033	7.9
Dieldrin	ND	ND	**0.004 J (a)**	**0.006 JN(a)**	ND	ND	0.003 J	ND	ND	ND	0.005	0.2
Endrin	ND	ND	ND	ND	ND	ND	0.004	ND	ND	ND	0.014	11
Endosulfan Sulfate	ND	ND	ND	0.005 JN	ND	ND	ND	ND	ND	ND	2.4	24
Endrin Aldehyde	ND	ND	ND	0.027 JN	ND	ND	0.004	ND	ND	ND	N/A	N/A
Endrin Ketone	ND	ND	ND	0.012 J	ND	ND	ND	ND	ND	ND	N/A	N/A
Methoxychlor	ND	ND	0.002 JN	0.043 JN	ND	ND	ND	0.002 JN	ND	ND	N/A	N/A
Volitile Organics												
Acetone	ND	0.06 B	**0.74 (a)**	ND	ND	ND	N/A	N/A	N/A	N/A	0.05	100
Methylene Chloride	ND	0.014	0.012	ND	ND	ND	N/A	N/A	N/A	N/A	0.05	100
2-Butanone	ND	ND	0.16 J	ND	ND	ND	N/A	N/A	N/A	N/A	N/A	N/A
n-Butylbenzene	ND	0.077	ND	ND	ND	ND	N/A	ND	ND	N/A	12	100
sec-Butylbenzene	ND	0.03	ND	ND	ND	ND	N/A	ND	ND	N/A	11	100
Carbon Disulfide	ND	0.004 J	0.008	ND	ND	ND	N/A	N/A	N/A	N/A	N/A	N/A
cis-1,2-Dicichloroethene	ND	ND	0.032	ND	ND	ND	N/A	N/A	N/A	N/A	0.25	100
Toluene	ND	ND	0.01	ND	ND	ND	N/A	N/A	N/A	N/A	0.7	100
Tetrachloroethene	0.007	0.022	ND	ND	ND	ND	N/A	N/A	N/A	N/A	1.3	19
Trichloroethene	ND	0.002 J	0.007	ND	ND	ND	N/A	N/A	N/A	N/A	0.47	21
1,2,4-trimethylbenzene	ND	0.002 J	ND	ND	ND	ND	N/A	N/A	N/A	N/A	3.6	52
1,3,5-trimethylbenzene	ND	ND	ND	ND	ND	ND	N/A	N/A	N/A	N/A	8.4	52
m'p-Xylene	ND	ND	0.008	ND	ND	ND	N/A	N/A	N/A	N/A	0.26	100
TICs Total	0.017	ND	ND	ND	ND	ND	N/A	N/A	N/A	N/A		

NOTE: Data Validation Completed

N/A - Not Applicable ND - Non-detect

bgs - below ground surface TICs - Tentitively Identified Compounds

Shading - Results above NYSDEC Cleanup Objectives

E" = Result has been estimated, calibration limit exceeded.

"D" = Duplicate results outside QC limits. May indicate a non-homogenous matrix.

"M" = Matrix spike recoveries outside QC limits. Matrix bias indicated.

"B" = Method blank contained trace levels of analyte. Refer to included method blank report.

"V" = Sample concentration is >10 times the spike. No meaningful Spike Recovery can be calculated.

"J" = Any hits present between the Quantitation limit and half the Quantitation limit.

"N"=The analysis indicates the presence of an analyte for which there is evidence to make a tentitive ID

Notes: Samples SI-A through D and SI-1 collected from known impacted areas to characterize nature of contamination prior to excavation under the IRM. Samples SI-2 through 4 were collected to charactreize the nature and extent of contaminates in the historic fill area.

TABLE 4 - Dewey ISMP Soil Sample Analytical Results Page 1											
Sample Number	**ISMP-1**	**ISMP-2**	**ISMP-3**	**ISMP-4**	**ISMP-5**	**ISMP-6**	**ISMP-7**	**ISMP-8**	**NYSDEC**	**NYSDEC**	**NYSDEC**
Sample Date	**4/18/2011**	**4/18/2011**	**4/18/2011**	**4/18/2011**	**4/18/2011**	**5/27/2011**	**5/27/2011**	**5/27/2011**	**PART 375**	**PART 375**	**PART 375**
Sample depth	**1'**	**7'**	**9'**	**9'**	**1'**	**Stockpile**	**Stockpile**	**Stockpile**	**Unrestricted**	**Restrict-Res**	**Residential**
Compounds	**ppm**	**ppm**	**ppm**	**ppm**	**ppm**	**ppm**	**ppm**	**ppm**	**(a) ppm**	**(b) ppm**	**(c) ppm**
Metals											
Aluminum	6230	5330	4070	4270	6390	6500	5880	5780	N/A	N/A	N/A
Arsenic	2.37	2.48	1.36	2.1	1.89	1.95	2.44	1.93	13	16	16
Barium	51.7	54.2	33.6	43.4	56.3	47.4	46.7	46.5	350	400	350
Beryllium	0.3 J	0.28 J	0.2 J	0.22 J	0.3 J	0.32 J	0.31 J	0.28 J	7.2	72	14
Cadmium	ND	ND	ND	ND	ND	ND	ND	ND	2.5	4.3	2.5
Calcium	16400	62900	16300	46700	15400	31100	28300	22800	N/A	N/A	N/A
Chromium (Total)	9.83 J	9 J	7.29 J	7.06 J	10.6 J	11.5	9.35	9.8	30 (1)	110	22
Cobalt	5.74	4.59	4.51	4.87	5.69	6.56	5.56	5.66	N/A	N/A	N/A
Copper	22	10.1	6.84	9.73	7.81	8.18	8.12	7.79	50	270	270
Cyanide Total	ND	ND	ND	ND	ND	ND	ND	ND	27	27	27
Iron	13600	11600	10600	11700	13200	13700	12500	12600	N/A	N/A	N/A
Lead	18.7 J	7.98 J	2.06 J	1.83 J	5.43 J	5.9	4.1	2.94	63	400	400
Magnesium	4170	5080	3970	6330	4540	8810	6180	5140	N/A	N/A	N/A
Manganese	435	332	307	336	408	341	343	322	1600	2000	2000
Mercury	0.04	0.1	ND	ND	0.08	0.01	0.005 J	0.008 J	0.18	0.81	0.81
Nickel	35	8.7	7.53	7.33	9.55	12.1	10.2	9.71	30	310	140
Selenium	ND	ND	ND	ND	ND	ND	ND	ND	3.9	180	36
Potassium	952	1030	620	911	885	1460	1120	1100	N/A	N/A	N/A
Sodium	ND	294	ND	ND	ND	267	243 J	202 J	N/A	N/A	N/A
Vanadium	16.9	15.5	14.6	15.5	18.3	21.5	17.9	19.6	N/A	N/A	N/A
Zinc	34.4 J	33.2 J	20.6 J	26.4 J	28.5 J	32.1	23.5	25.2	109	10000	2200
SVOCs											
Acenaphthene	ND	ND	ND	ND	ND	ND	ND	ND	100	100	100
Anthracene	0.2 J	0.5	ND	ND	ND	ND	ND	ND	100	100	100
Benzo(a)anthracene	0.4	**1.2 (a)-(c)**	ND	ND	ND	ND	ND	ND	1	1	1
Benzo(a)pyrene	0.3 J	0.95	ND	ND	ND	ND	ND	ND	1	1	1
Benzo(b)fluoranthene	0.3	**1.2 (a)-(c)**	ND	ND	ND	ND	ND	ND	1	1	1
Benzo(g,h,I)perylene	ND	0.5	ND	ND	ND	ND	ND	ND	100	100	100
Benzo(k)fluoranthene	0.3 J	0.8	ND	ND	ND	ND	ND	ND	0.8	3.9	1
Carbazole	ND	0.2 J	ND	ND	ND	ND	ND	ND	N/A	N/A	N/A
Chrysene	0.4	**1.2 (a)-(c)**	ND	ND	ND	ND	ND	ND	1	3.9	1
Dibenz(a,h)anthracene	ND	ND	ND	ND	ND	ND	ND	ND	0.33	0.33	0.33
Dibenzofuran	ND	ND	ND	ND	ND	ND	ND	ND	7	59	14
Fluoranthene	0.8	2.6	ND	ND	0.3 J	ND	ND	ND	100	100	100
Flourene	ND	0.2 J	ND	ND	ND	ND	ND	ND	30	100	100
Indeno(1,2,3-cd)pyrene	ND	0.46	ND	ND	ND	ND	ND	ND	0.5	0.5	0.5
Naphthalene	ND	ND	ND	ND	ND	ND	ND	ND	12	100	100
Phenanthrene	0.7	2.1	ND	ND	0.2 J	ND	ND	ND	100	100	100
Pyrene	0.7	2.4	ND	JN	0.3 J	ND	ND	ND	100	100	100
TICs Total	0.8	12.6	0.2	0.2	1.2	ND	ND	ND	N/A	N/A	N/A
PCBs											
Aroclor 1254	ND	ND	ND	ND	ND	ND	ND	ND	0.1	1	1
Aroclor 1260	ND	ND	ND	ND	ND	ND	ND	ND	0.1	1	1
Pesticides											
Aldrin	ND	0.003	ND	ND	ND	ND	ND	ND	0.005	0.097	0.019
alpha-BHC	ND	ND	ND	ND	ND	0.002 J	ND	ND	0.02	0.48	0.097
Beta-BHC	ND	ND	ND	ND	ND	ND	0.002 J	0.011 JN	0.036	0.36	0.072
4,4' DDD	ND	ND	ND	ND	ND	**0.004 JN(a)**	ND	ND	0.0033	13	2.6
4,4' DDT	ND	ND	ND	ND	ND	**0.008 (a)**	ND	ND	0.0033	7.9	1.7
Dieldrin	ND	0.002 J,R	ND	ND	ND	ND	ND	ND	0.005	0.2	0.039
Endrin Ketone	ND	ND	ND	ND	ND	ND	ND	0.007 JN	NA	NA	N/A
Endosulfan Sulfate	ND	0.003 J,R	ND	ND	ND	ND	ND	ND	2.4	24	4.8
Methoxychlor	ND	0.038	ND	ND	ND	ND	ND	0.002 J	N/A	N/A	N/A
Volitile Organics											
Methylene Chloride	ND	0.002	0.001	0.007	0.008	ND	ND	ND	0.05	100	51
Tetrachloroethene	0.019	ND	ND	ND	ND	ND	ND	ND	1.3	19	5.5
TICs Total	ND	ND	ND	ND	ND	ND	ND	ND	N/A	N/A	N/A

TABLE 4 - Dewey ISMP Soil Sample Analytical Results Page 2											
Sample Number	**ISMP-9**	**ISMP-10**	**ISMP-11**	**ISMP-12**	**ISMP-13**	**ISMP-14**	**ISMP-15**	**ISMP-16**	**NYSDEC**	**NYSDEC**	**NYSDEC**
Sample Date	**5/27/2011**	**5/27/2011**	**5/27/2011**	**5/27/2011**	**5/27/2011**	**6/16/2011**	**6/16/2011**	**6/16/2011**	**PART 375**	**PART 375**	**PART 375**
Sample depth	**Stockpile**	**Stockpile**	**Stockpile**	**Stockpile**	**Stockpile**	**Stockpile**	**Stockpile**	**Stockpile**	**Unrestricted**	**Restrict-Res**	**Residential**
Compounds	**ppm**	**ppm**	**ppm**	**ppm**	**ppm**	**ppm**	**ppm**	**ppm**	**(a) ppm**	**(b) ppm**	**(c) ppm**
Metals											
Aluminum	6790	5310	5920	6920	6500	5790 D	5720	6050	N/A	N/A	N/A
Arsenic	2	2.18	2.43	2.1	2.05	1.89 DM	2.3	2.04	13	16	16
Barium	59.6	50.1	49.4	49.9	53	42.2 DM	47	47.2	350	400	350
Beryllium	0.26 J	0.26 J	0.09 J	0.33 J	0.31 J	0.32 DMJ	0.31 J	0.3 J	7.2	72	14
Cadmium	ND	ND	ND	ND	ND	ND	ND	ND	2.5	4.3	2.5
Calcium	26100	28100	24300	31300	30600	24500 DJ	26600J	14000J	N/A	N/A	N/A
Chromium (Total)	10.8	9.3	9.94	11.6	10.5	9.01 DM	9.41	8.77	30 (1)	110	22
Cobalt	6.66	5.72	5.74	6.74	6.34	5.58	5.56	5.22	N/A	N/A	N/A
Copper	7.69	6.82	7.82	7.07	7.69	8.78	9.65	8.7	50	270	270
Cyanide Total	ND	ND	ND	ND	ND	ND	ND	ND	27	27	27
Iron	13800	12000	13200	14500	13700	12400 D	12500	11700	N/A	N/A	N/A
Lead	2.05	2.09	3.31	3.3	3.91	5.41 DMJ	7.18J	3.59J	63	400	400
Magnesium	6900	6720	6030	8240	6360	5510 DMJ	6670	4290	N/A	N/A	N/A
Manganese	330	319	**331**	345	370	318	333	468	1600	2000	2000
Mercury	ND	0.005 J	0.01	0.008	ND	0.013 DJ	0.047 J	0.02 J	0.18	0.81	0.81
Nickel	15	9.92	10.7	12.8	11.6	10.6 DM	10.5	9.53	30	310	140
Selenium	ND	ND	ND	ND	ND	ND	ND	ND	3.9	180	36
Potassium	1490	1100	1020	1600	1350	1130	1180	975	N/A	N/A	N/A
Silver	ND	ND	ND	ND	ND	ND	ND	ND	2	180	36
Sodium	226 J	190 J	201 J	210 J	203 J	255 J	269	178	N/A	N/A	N/A
Vanadium	19.2	17.3	18.6	19.2	18.8	17.5 DM	18.3	17.3	N/A	N/A	N/A
Zinc	26.9	22.7	25.2	28.6	26.7	24.8 M	28.1	24	109	10000	2200
SVOCs											
2-Methynaphthalene	ND	ND	ND	ND	ND	ND	ND	ND	N/A	N/A	N/A
Acenaphthene	ND	ND	ND	ND	ND	ND	ND	ND	100	100	100
Anthracene	ND	ND	ND	ND	ND	ND	ND	ND	100	100	100
Benzo(a)anthracene	ND	ND	ND	ND	ND	ND	ND	0.16 J	1	1	1
Benzo(a)pyrene	ND	ND	ND	ND	ND	ND	ND	ND	1	1	1
Benzo(b)fluoranthene	ND	ND	ND	ND	ND	ND	ND	ND	1	1	1
Benzo(g,h,I)perylene	ND	ND	ND	ND	ND	ND	ND	ND	100	100	100
Benzo(k)fluoranthene	ND	ND	ND	ND	ND	ND	ND	ND	0.8	3.9	1
Carbazole	ND	ND	ND	ND	ND	ND	ND	ND	N/A	N/A	N/A
Chrysene	ND	ND	ND	ND	ND	ND	ND	0.162 J	1	3.9	1
Dibenz(a,h)anthracene	ND	ND	ND	ND	ND	ND	ND	ND	0.33	0.33	0.33
Dibenzofuran	ND	ND	ND	ND	ND	ND	ND	ND	7	59	14
Fluoranthene	ND	ND	ND	ND	ND	ND	0.156 J	0.378	100	100	100
Flourene	ND	ND	ND	ND	ND	ND	ND	ND	30	100	100
Indeno(1,2,3-cd)pyrene	ND	ND	ND	ND	ND	ND	ND	ND	0.5	0.5	0.5
Naphthalene	ND	ND	ND	ND	ND	ND	ND	ND	12	100	100
Phenanthrene	ND	ND	ND	ND	ND	ND	ND	0.496	100	100	100
Pyrene	ND	ND	ND	ND	ND	ND	ND	0.363	100	100	100
TICs Total	ND	ND	ND	ND	ND	ND	0.223	0.42	N/A	N/A	N/A
PCBs											
Aroclor 1254	ND	ND	ND	ND	ND	ND	ND	ND	0.1	1	1
Aroclor 1260	ND	ND	ND	ND	ND	ND	ND	ND	0.1	1	1
Pesticides											
Aldrin	ND	ND	ND	ND	ND	ND	ND	ND	0.005	0.097	0.019
Beta-BHC	0.003	ND	ND	0.0043 J (a)	ND	ND	ND	ND	0.036	0.36	0.072
Delta-BHC	ND	0.002 J	ND	0.003 J	0.002 JN	ND	ND	ND	0.04	100	100
4,4' DDT	ND	0.002 J	ND	0.002	ND	ND	ND	ND	0.0033	7.9	1.7
Dieldrin	ND	ND	ND	ND	ND	ND	ND	ND	0.005	0.2	0.39
Endrin	ND	ND	ND	ND	ND	ND	ND	ND	0.014	11	2.2
Endosulfan Sulfate	ND	ND	ND	ND	ND	ND	ND	ND	2.4	24	4.8
Methoxychlor	0.002 J	ND	0.003 J	ND	0.004 J	ND	ND	ND	N/A	N/A	N/A
Volitile Organics											
Methylene Chloride	ND	ND	ND	ND	ND	ND	ND	ND	0.05	100	51
m,p-Xylene	ND	ND	ND	ND	ND	ND	ND	ND	0.26	100	100
Tetrachloroethene	ND	ND	ND	ND	ND	ND	ND	ND	1.3	19	5.5
TICs Total	ND	ND	ND	ND	ND	ND	ND	ND	N/A	N/A	N/A

TABLE 4 - Dewey ISMP Soil Sample Analytical Results Page 3

Sample Number	ISMP-17	ISMP-18	ISMP-19	ISMP-20					NYSDEC	NYSDEC	NYSDEC
Sample Date	6/16/2011	6/22/2011	7/12/2011	10/21/2011					PART 375	PART 375	PART 375
Sample depth	Stockpile	1'-2'	C&D Stock	8"-12"					Unrestricted	Restrict-Res	Residential
Compounds	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	(a) ppm	(b) ppm	(c) ppm
Metals											
Aluminum	5580	5160	4380 D	8630 D					N/A	N/A	N/A
Arsenic	1.66	1.83	2.67 D	2.99 DM					13	16	16
Barium	37.7	47.8 M	59.4 DM	62.7 DM					350	400	350
Beryllium	0.27 J	0.25 JM	0.27 DMJ	0.32 DMj					7.2	72	14
Cadmium	ND	ND	1.09 M	ND					2.5	4.3	2.5
Calcium	14200 J	21600	36500 DJ	2040 DJ					N/A	N/A	N/A
Chromium (Total)	9.14	7.96 M	8.31 D	9.34 M					30 (1)	110	22
Cobalt	4.97 J	4.32 DMJ	3.45 DJ	5.61 DM					N/A	N/A	N/A
Copper	8.22	6.93 M	19.7 DJ	5.27 DM					50	270	270
Cyanide Total	ND	ND	ND	ND					27	27	27
Iron	12000	11000	11100 D	12100 D					N/A	N/A	N/A
Lead	2.68 J	10.7 DMJ	**91.9 D (a)**	8.64 DMJ					63	400	400
Magnesium	3830 J	4790 DMJ	10800 DJ	2150 DM					N/A	N/A	N/A
Manganese	298	298 M	226	429 DMJ					1600	2000	2000
Mercury	0.008 J	0.035	**0.202 (a)**	0.025					0.18	0.81	0.81
Nickel	8.82	7.88 M	8.07	9.4 DM					30	310	140
Selenium	ND	ND	ND	0.57 Mj					3.9	180	36
Potassium	960	911	781	527 D					N/A	N/A	N/A
Silver	ND	0.64 MJ	1.22 D	ND					2	180	36
Sodium	217 J	149 J	ND	170 j					N/A	N/A	N/A
Vanadium	18.8	17.6 DM	13.4 D	16.7 M					N/A	N/A	N/A
Zinc	21.8	26.9 M	77.8 D	28.6 D					109	10000	2200
SVOCs											
2-Methynaphthalene	ND	ND	ND	ND					N/A	N/A	N/A
Acenaphthene	ND	ND	ND	ND					100	100	100
Anthracene	ND	ND	0.27 J	ND					100	100	100
Benzo(a)anthracene	ND	ND	**2 J (a)-(c)**	ND					1	1	1
Benzo(a)pyrene	ND	ND	**2.2J (a)-(c)**	ND					1	1	1
Benzo(b)fluoranthene	ND	ND	**2.34J (a)-(c)**	ND					1	1	1
Benzo(g,h,I)perylene	ND	ND	1.49 J	ND					100	100	100
Benzo(k)fluoranthene	ND	ND	**1.67 J(a)(c)**	ND					0.8	3.9	1
Carbazole	ND	ND	ND	ND					N/A	N/A	N/A
Chrysene	ND	ND	**2.05 J(a)(c)**	ND					1	3.9	1
Dibenz(a,h)anthracene	ND	ND	0.27 J	ND					0.33	0.33	0.33
Dibenzofuran	ND	ND	ND	ND					7	59	14
Fluoranthene	ND	ND	3.87 J	ND					100	100	100
Fluorene	ND	ND	ND	ND					30	100	100
Indeno(1,2,3-cd)pyrene	ND	ND	**1.12 J (a)-(c)**	ND					0.5	0.5	0.5
Naphthalene	ND	ND	ND	ND					12	100	100
Phenanthrene	ND	ND	1.31	ND					100	100	100
Pyrene	ND	ND	3.62 J	ND					100	100	100
TICs Total	ND	1.1	49.2	ND					N/A	N/A	N/A
PCBs											
Aroclor 1254	ND	ND	0.03	ND					0.1	1	1
Aroclor 1260	ND	ND	ND	ND					0.1	1	1
Pesticides											
Aldrin	ND	ND	ND	ND					0.005	0.097	0.019
Beta-BHC	ND	ND	0.002 J	ND					0.036	0.36	0.072
Delta-BHC	ND	0.003 JC	ND	ND					0.04	100	100
4,4' DDE	ND	0.0032	**0.0034 (a)**	ND					0.0033	8.9	1.8
4,4' DDT	ND	0.0029 JC	**0.007 (a)**	ND					0.0033	7.9	1.7
4,4 DDD	ND	ND	**0.0037 (a)**	ND					0.0033	13	2.6
Dieldrin	ND	ND	0.002 JN	ND					0.005	0.2	0.039
Endrin	ND	ND	ND	ND					0.014	11	2.2
Methoxychlor	ND	ND	0.003 JN	ND					N/A	N/A	N/A
Volitile Organics											
Methylene Chloride	ND	ND	0.014 J	ND					0.05	100	51
Acetone	ND	ND	ND	ND					0.05	100	100
m,p-Xylene	ND	ND	ND	ND					0.26	100	100
Tetrachloroethene	ND	ND	ND	ND					1.3	19	5.5
TICs Total	ND	ND	ND	ND					N/A	N/A	N/A

Samples ISMP-1 through ISMP-20 reflect validated results

N/A - Not Applicable ND - Non-detect

bgs - below ground surface TICs - Tentitively Identified Compounds

Shading - Results above NYSDEC Cleanup Objectives

"D" = Duplicate results outside QC limits. May indicate a non-homogenous matrix.

"M" = Matrix spike recoveries outside QC limits. Matrix bias indicated.

"B" = Method blank contained trace levels of analyte. Refer to included method blank report.

"J" = Any hits present between the Quantitation limit and half the Quantitation limit.

(1) - Total Chromium value in table. Part 375 Unrestricted Cr hexavalent = 1 ppm and trivalent = 30 ppm
Cr hexavalent requires separate analyses and is usually a much smaller value than tot Cr.

R The sample result is rejected (i.e., is unusable) due to deficiencies in the ability to analyze the sample and meet quality control criteria.
The presence or absence of the analyte cannot be verified.

JN - The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

TABLE 5 - Dewey Site Rem Confirmation Soil Sample Analytical Results Summary 1 of 6

Sample Number	DP-BTA-01	DP-WA-01	DP-NA-01	DP-SA-01	DP-EA-01	DP-BTB-01	DP-BTB-02	DP-BTB-03	DP-BTB-04	DP-BTB-05	NYSDEC	NYSDEC
Sample Date	5/4/2011	5/4/2011	5/4/2011	5/4/2011	5/4/2011	4/22/2011	4/22/2011	4/22/2011	4/22/2011	4/22/2011	PART 375	PART 375
Location (1)	Area A	Area A	Area A	Area A	Area A	Area B	Area B	Area B	Area B	Area B	Unrestricted	Restrict-Res
Compounds	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	(a) ppm	(b) ppm
SVOCs												
2-Methynaphthalene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	N/A	N/A
Acenaphthene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	100	100
Anthracene	ND	ND	0.18 J	ND	ND	ND	ND	ND	ND	ND	100	100
Benzo(a)anthracene	ND	ND	0.29 J	ND	ND	ND	ND	ND	ND	ND	1	1
Benzo(a)pyrene	ND	ND	0.22 J	ND	ND	ND	ND	ND	ND	ND	1	1
Benzo(b)fluoranthene	ND	ND	0.22 J	ND	ND	ND	ND	ND	ND	ND	1	1
Benzo(g,h,I)perylene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	100	100
Benzo(k)fluoranthene	ND	ND	0.19 J	ND	ND	ND	ND	ND	ND	ND	0.8	3.9
Carbazole	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	N/A	N/A
Chrysene	ND	ND	0.27 J	ND	ND	ND	ND	ND	ND	ND	1	3.9
Dibenz(a,h)anthracene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.33	0.33
Dibenzofuran	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	7	59
Fluoranthene	ND	ND	0.66	ND	ND	0.35 J	0.28 J	ND	ND	ND	100	100
Flourene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	30	100
Indeno(1,2,3-cd)pyrene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.5	0.5
Naphthalene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	12	100
Phenanthrene	ND	ND	0.69	ND	ND	0.24 J	0.18 J	ND	ND	ND	100	100
Pyrene	ND	ND	0.56	ND	ND	0.32 J	0,27 J	ND	ND	ND	100	100
TICs	0.001	ND	0.43	ND	ND	0.67	1.3	ND	ND	ND		
PCBs												
Aroclor 1254	N/A	N/A	N/A	N/A	N/A	ND	ND	ND	ND	ND	0.1	1
Aroclor 1260	N/A	N/A	N/A	N/A	N/A	ND	ND	ND	ND	ND	0.1	1
Volitile Organics												
Methylene Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.05	100
m,p-Xylene	0.004 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.26	100
Tetrachloroethene	ND	ND	ND	ND	ND	0.002 J	0.003 J	ND	ND	ND	1.3	19
1,2,4-trimethylbenzene	ND	ND	ND	ND	ND	0.005 J	0.003 J	ND	ND	ND	3.6	52
1,3,5-trimethylbenzene	ND	ND	ND	ND	ND	0.006 J	0.004 J	ND	ND	ND	8.4	52
Toluene	0.028	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.7	100
Acetone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.05	100
TICs	ND	ND	ND	ND	ND	0.24 J	0.24 J	ND	ND	ND		

(1) - All sample locations were in accordance with DER-10 5.4 (b) and approved by the NYSDEC site representative. Specific side wall sample depths were not recorded.

N/A - Not Applicable ND - Non-detect

bgs - below ground surface TICs - Tentitively Identified Compounds

Shading - Results above NYSDEC Cleanup Objectives

E" = Result has been estimated, calibration limit exceeded.

"D" = Duplicate results outside QC limits. May indicate a non-homogenous matrix.

"M" = Matrix spike recoveries outside QC limits. Matrix bias indicated.

"B" = Method blank contained trace levels of analyte. Refer to included method blank report.

"V" = Sample concentration is >10 times the spike. No meaningful Spike Recovery can be calculated.

"J" = Any hits present between the Quantitation limit and half the Quantitation limit.

Typical Sample Nominclature:

Area A Sample DP-BTA-01

DP - Dewey Palm

BTA - Bottom area A

01 - One location on bottom if 02 two locations on bottom

WA-01 - West wall Area A - one location

NA-01 -North wall Area A - one location

SA-01 - South Wall Area A -0ne location

EA-01 - East Wall Area A - one location

TABLE 5 - Dewey Site Rem Confirmation Soil Sample Analytical Results Summary 2 of 6

Sample Number	DP-BTB-06	DP-BTB-07	DP-SB-01	DP-SB-01	DP-WB-01	DP-WB-02	DP-WB-03	DP-WB-04	DP-WB-05	DP-WB-06	NYSDEC	NYSDEC
Sample Date	4/22/2011	4/22/2011	4/22/2011	4/22/2011	4/22/2011	4/22/2011	4/22/2011	4/22/2011	4/22/2011	4/22/2011	PART 375	PART 375
Location (1)	Area B	Area B	Area B	Area B	Area B	Area B	Area B	Area B	Area B	Area B	Unrestricted	Restrict-Res
Compounds	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	(a) ppm	(b) ppm
SVOCs												
2-Methynaphthalene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	N/A	N/A
Acenaphthene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	100	100
Anthracene	ND	ND	ND	ND	0.26 J	0.61 J	ND	ND	ND	ND	100	100
Benzo(a)anthracene	ND	ND	ND	ND	0.74 J	0.82 J	ND	ND	ND	ND	1	1
Benzo(a)pyrene	ND	ND	ND	ND	0.4 J	0.56 J	ND	ND	ND	ND	1	1
Benzo(b)fluoranthene	ND	ND	ND	ND	0.48 J	0.54 J	ND	ND	ND	ND	1	1
Benzo(g,h,I)perylene	ND	ND	ND	ND	0.19 J	0.26 J	ND	ND	ND	ND	100	100
Benzo(k)fluoranthene	ND	ND	ND	ND	0.42 J	0.43 J	ND	ND	ND	ND	0.8	3.9
Carbazole	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	N/A	N/A
Chrysene	ND	ND	ND	ND	0.74 J	0.73 J	ND	ND	ND	ND	1	3.9
Dibenz(a,h)anthracene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.33	0.33
Dibenzofuran	ND	ND	ND	ND	ND	0.23 J	ND	ND	ND	ND	7	59
Fluoranthene	ND	ND	ND	ND	2.1 J	1.9 J	ND	ND	ND	ND	100	100
Flourene	ND	ND	ND	ND	ND	0.26 J	ND	ND	ND	ND	30	100
Indeno(1,2,3-cd)pyrene	ND	ND	ND	ND	0.2 J	0.3 J	ND	ND	ND	ND	0.5	0.5
Naphthalene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	12	100
Phenanthrene	ND	ND	ND	ND	1.5 J	2.2 J	ND	ND	ND	ND	100	100
Pyrene	ND	ND	ND	ND	1.8 J	1,7 J	ND	ND	ND	ND	100	100
TICs	ND	ND	5.6	5.6	3.8	2,67	ND	ND	ND	ND		
PCBs												
Aroclor 1254	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.1	1
Aroclor 1260	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.1	1
Volitile Organics												
Methylene Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.05	100
m,p-Xylene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.26	100
Tetrachloroethene	0.003 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.3	19
1,2,4-trimethylbenzene	ND	ND	0.003 J	0.003 J	ND	ND	ND	ND	ND	ND	3.6	52
1,3,5-trimethylbenzene	ND	ND	ND	ND	0.006	ND	ND	ND	ND	ND	8.4	52
N-Butylbenzene	ND	ND	0.002 J	0.002 J	ND	ND	ND	ND	ND	ND	12	100
Sec-Butylbenzene	ND	ND	0.005 J	ND	ND	ND	ND	ND	ND	ND	11	100
Naphthalene	ND	ND	ND	ND	ND	0.011	ND	ND	ND	ND	12	100
Acetone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.05	100
TICs	ND	ND	0.66 J	0.66 J	0.014	ND	ND	0.014	ND	ND		

(1) - All sample locations were in accordance with DER-10 5.4 (b) and approved by the NYSDEC site representative. Specific side wall sample depths were not recorded.

N/A - Not Applicable ND - Non-detect TICs - Tentitively Identified Compounds
bgs - below ground surface
Shading - Results above NYSDEC Cleanup Objectives
E" = Result has been estimated, calibration limit exceeded.
"D" = Duplicate results outside QC limits. May indicate a non-homogenous matrix.
"M" = Matrix spike recoveries outside QC limits. Matrix bias indicated.
"B" = Method blank contained trace levels of analyte. Refer to included method blank report.
"V" = Sample concentration is >10 times the spike. No meaningful Spike Recovery can be calculated.
"J" = Any hits present between the Quantitation limit and half the Quantitation limit.

Typical Sample Nominclature:
Area A Sample DP-BTA-01
DP - Dewey Palm
BTA - Bottom area A
01 - One location on bottom if 02 two locations on bottom
WA-01 - West wall Area A - one location
NA-01 -North wall Area A - one location
SA-01 - South Wall Area A -0ne location
EA-01 - East Wall Area A - one location

TABLE 5 - Dewey Site Rem Confirmation Soil Sample Analytical Results Summary 3 of 6

Sample Number	DP-WB-07	DP-EB-01	DP-EB-02	DP-EB-03	DP-EB-04	DP-EB-05	DP-EB-06	DP-EB-07	DP-NB-01	DP-NB-02	NYSDEC	NYSDEC
Sample Date	4/22/2011	4/22/2011	4/22/2011	4/22/2011	4/22/2011	4/22/2011	4/22/2011	4/22/2011	5/2/2011	5/2/2011	PART 375	PART 375
Location (1)	Area B	Area B	Area B	Area B	Area B	Area B	Area B	Area B	Area B	Area B	Unrestricted	Restrict-Res
Compounds	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	(a) ppm	(b) ppm
SVOCs												
2-Methynaphthalene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	N/A	N/A
Acenaphthene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	100	100
Anthracene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	100	100
Benzo(a)anthracene	ND	0.27 J	ND	ND	ND	ND	ND	ND	ND	ND	1	1
Benzo(a)pyrene	ND	0.21 J	ND	ND	ND	ND	ND	ND	ND	ND	1	1
Benzo(b)fluoranthene	ND	0.26 J	ND	ND	ND	ND	ND	ND	ND	ND	1	1
Benzo(g,h,I)perylene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	100	100
Benzo(k)fluoranthene	ND	0.17 J	ND	ND	ND	ND	ND	ND	ND	ND	0.8	3.9
Carbazole	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	N/A	N/A
Chrysene	ND	0.28 J	ND	ND	ND	ND	ND	ND	ND	ND	1	3.9
Dibenz(a,h)anthracene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.33	0.33
Dibenzofuran	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	7	59
Fluoranthene	ND	0.62 J	ND	ND	ND	ND	ND	ND	ND	ND	100	100
Flourene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	30	100
Indeno(1,2,3-cd)pyrene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.5	0.5
Naphthalene	ND	ND	ND	ND	ND	ND	ND	ND	0.34	ND	12	100
Phenanthrene	ND	0.39 J	ND	ND	ND	ND	ND	ND	ND	ND	100	100
Pyrene	ND	0.57 J	ND	ND	ND	ND	ND	ND	ND	ND	100	100
TIC s	ND	3.54	ND	ND	ND	ND	ND	ND	76.2	20.6		
PCBs												
Aroclor 1254	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.1	1
Aroclor 1260	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.1	1
Volitile Organics												
Methylene Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND		0.05	100
m,p-Xylene	ND	ND	ND	ND	ND	ND	ND	ND	**0.6 (a)**	0.25	0.26	100
Tetrachloroethene	ND	ND	ND	ND	ND	ND	ND	0.003 J	ND		1.3	19
1,2,4-trimethylbenzene	ND	0.003 J	ND	ND	ND	ND	ND	ND	**67.5(a)(b)**	0.31	3.6	52
1,3,5-trimethylbenzene	ND	0.002 J	ND	ND	ND	ND	ND	ND	**22.7 (a)**	0.78	8.4	52
N-Butylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	7.2	0.98	12	100
N-Propylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.93	3.9	100
Sec-Butylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	4.8	1.1	11	100
Naphthalene	ND	ND	ND	ND	ND	ND	ND	ND	1.2 J	0.16	12	100
Acetone	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.25 B (a)**	0.05	100
Ethylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.046	1	41
TICs	ND	ND	ND	ND	ND	ND	ND	ND	349.7	66.7		

(1) - All sample locations were in accordance with DER-10 5.4 (b) and approved by the NYSDEC site representative. Specific side wall sample depths were not recorded.

N/A - Not Applicable ND - Non-detect

bgs - below ground surface TICs - Tentitively Identified Compounds

Shading - Results above NYSDEC Cleanup Objectives

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"M" = Matrix spike recoveries outside QC limits. Matrix bias indicated.

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SA-01 - South Wall Area A -0ne location

EA-01 - East Wall Area A - one location

TABLE 5 - Dewey Site Rem Confirmation Soil Sample Analytical Results Summary 4 of 6

Sample Number	DP-NB-03	DP-NB-04	DP-SNB-01	DP-WNB-01	DP-NBTB-01	DP-NBTB-02	DP-NBTB-03	DP-NBTB-04	DP-NEB-01	DP-WNB-02	NYSDEC	NYSDEC
Sample Date	5/2/2011	5/2/2011	5/2/2011	5/2/2011	5/2/2011	5/2/2011	5/2/2011	5/2/2011	5/2/2011	5/10/2011	PART 375	PART 375
Location (1)	Area B	Area B	Area B	Area B	Area B	Area B	Area B	Area B	Area B	Area B	Unrestricted	Restrict-Res
Compounds	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	(a) ppm	(b) ppm
SVOCs												
2-Methynaphthalene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	N/A	N/A
Acenaphthene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	100	100
Anthracene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	100	100
Benzo(a)anthracene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1	1
Benzo(a)pyrene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1	1
Benzo(b)fluoranthene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1	1
Benzo(g,h,I)perylene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	100	100
Benzo(k)fluoranthene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.8	3.9
Carbazole	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	N/A	N/A
Chrysene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1	3.9
Dibenz(a,h)anthracene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.33	0.33
Dibenzofuran	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	7	59
Fluoranthene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	100	100
Flourene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	30	100
Indeno(1,2,3-cd)pyrene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.5	0.5
Naphthalene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	12	100
Phenanthrene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	100	100
Pyrene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	100	100
TICs	0.39	102.6	20.2	295.9	ND	0.2	0.7	ND	ND	ND		
PCBs												
Aroclor 1254	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.1	1
Aroclor 1260	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.1	1
Volitile Organics												
Methylene Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.05	100
Trichloroethene	ND	ND	ND	ND	ND	ND	ND	0.01	ND	ND	0.47	21
Tetrachloroethene	ND	ND	ND	0.11 J	ND	0.002 J	0.004 J	0.13	ND	ND	1.3	19
1,2,4-trimethylbenzene	0.34	ND	0.20 J	0.042 J	ND	0.006	0.079	0.003 J	ND	ND	3.6	52
1,3,5-trimethylbenzene	ND	ND	1.26 J	0.031 J	ND	ND	0.03	ND	ND	ND	8.4	52
N-Butylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	12	100
N-Propylbenzene	ND	ND	0.094 J	ND	ND	ND	ND	ND	ND	ND	3.9	100
Sec-Butylbenzene	ND	0.075 J	0.51 J	0.23 J	ND	ND	0.004 J	ND	ND	ND	11	100
Naphthalene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	12	100
Acetone	ND	**0.5 BJ (a)**	**0.36 BJ (a)**	**0.5 BJ (a)**	ND	ND	ND	ND	ND	0.04 BJ	0.05	100
Ethylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1	41
TICs	ND	101.2	61.6	128.3	ND	1.99	0.81	ND	0.01	ND		

(1) - All sample locations were in accordance with DER-10 5.4 (b) and approved by the NYSDEC site representative. Specific side wall sample depths were not recorded.

N/A - Not Applicable ND - Non-detect

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Area A Sample DP-BTA-01

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01 - One location on bottom if 02 two locations on bottom

WA-01 - West wall Area A - one location

NA-01 -North wall Area A - one location

SA-01 - South Wall Area A -0ne location

EA-01 - East Wall Area A - one location

TABLE 5- Dewey Site Rem Confirmation Soil Sample Analytical Results Summary 5 of 6												
Sample Number	**DP-BTC-01**	**DP-WC-01**	**DP-NC-01**	**DP-SC-01**	**DP-EC-01**	**DP-TPW-01**	**DP-TPN-01**	**DP-TPS-01**	**DP-TPB-01**	**DP-TPE-01**	**NYSDEC**	**NYSDEC**
Sample Date	**5/17/2011**	**5/17/2011**	**5/17/2011**	**5/17/2011**	**5/17/2011**	**5/19/2011**	**5/19/2011**	**5/19/2011**	**5/19/2011**	**5/19/2011**	**PART 375**	**PART 375**
Location (1)	**Area C**	**Area C**	**Area C**	**Area C**	**Area C**	**Area TP**	**Area TP**	**Area TP**	**Area TP**	**Area TP**	**Unrestricted**	**Restrict-Res**
Compounds	**ppm**	**ppm**	**ppm**	**ppm**	**ppm**	**ppm**	**ppm**	**ppm**	**ppm**	**ppm**	**(a) ppm**	**(b) ppm**
SVOCs												
2-Methynaphthalene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	N/A	N/A
Acenaphthene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	100	100
Anthracene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	100	100
Benzo(a)anthracene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1	1
Benzo(a)pyrene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1	1
Benzo(b)fluoranthene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1	1
Benzo(g,h,I)perylene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	100	100
Benzo(k)fluoranthene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.8	3.9
Carbazole	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	N/A	N/A
Chrysene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1	3.9
Dibenz(a,h)anthracene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.33	0.33
Dibenzofuran	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	7	59
Fluoranthene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	100	100
Flourene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	30	100
Indeno(1,2,3-cd)pyrene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.5	0.5
Naphthalene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	12	100
Phenanthrene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	100	100
Pyrene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	100	100
TICs	0.15 B	0.21 B	0.18 B	ND	0.21 B	ND	ND	16.7	ND	ND		
PCBs												
Aroclor 1254	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.1	1
Aroclor 1260	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.1	1
Volitile Organics												
Methylene Chloride	0.008 J	0.009 J	0.007 J	0.006 J	ND	0.01 J	0.013 J	0.008 J	0.013 J	0.012 J	0.05	100
m,p-Xylene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.26	100
Tetrachloroethene	0.004	ND	0.002 J	ND	ND	ND	ND	ND	ND	ND	1.3	19
1,2,4-trimethylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.6	52
1,3,5-trimethylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	8.4	52
2- Butanone	0.14 J	0.05 J	0.05 J	0.03 J	0.1 J	0.036 J	0.11 J	0.09 J	0.08 J	0.1 J	N/A	N/A
Acetone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.05	100
TICs	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		

(1) - All sample locations were in accordance with DER-10 5.4 (b) and approved by the NYSDEC site representative. Specific side wall sample depths were not recorded.

N/A - Not Applicable ND - Non-detect

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Area A Sample DP-BTA-01

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NA-01 -North wall Area A - one location

SA-01 - South Wall Area A -0ne location

EA-01 - East Wall Area A - one location

TABLE 5 - Dewey Site Rem Confirmation Soil Sample Analytical Results Summary 6 of 6

Sample Number	DP-BTD-01	DP-ND-01	DP-BTD-01	DP-ED-01	DP-SD-01						NYSDEC	NYSDEC
Sample Date	5/23/2011	5/23/2011	5/23/2011	5/23/2011	5/23/2011						PART 375	PART 375
Location (1)	Area D	Area D	Area D	Area D	Area D						Unrestricted	Restrict-Res
Compounds	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	(a) ppm	(b) ppm
SVOCs												
2-Methynaphthalene	ND	ND	ND	ND	ND						N/A	N/A
Acenaphthene	ND	ND	ND	ND	ND						100	100
Anthracene	ND	ND	ND	ND	ND						100	100
Benzo(a)anthracene	ND	ND	ND	ND	ND						1	1
Benzo(a)pyrene	ND	ND	ND	ND	ND						1	1
Benzo(b)fluoranthene	ND	ND	ND	ND	ND						1	1
Benzo(g,h,I)perylene	ND	ND	ND	ND	ND						100	100
Benzo(k)fluoranthene	ND	ND	ND	ND	ND						0.8	3.9
Carbazole	ND	ND	ND	ND	ND						N/A	N/A
Chrysene	ND	ND	ND	ND	ND						1	3.9
Dibenz(a,h)anthracene	ND	ND	ND	ND	ND						0.33	0.33
Dibenzofuran	ND	ND	ND	ND	ND						7	59
Fluoranthene	ND	ND	ND	ND	ND						100	100
Flourene	ND	ND	ND	ND	ND						30	100
Indeno(1,2,3-cd)pyrene	ND	ND	ND	ND	ND						0.5	0.5
Naphthalene	ND	ND	ND	ND	ND						12	100
Phenanthrene	ND	ND	ND	ND	ND						100	100
Pyrene	ND	ND	ND	ND	ND						100	100
PCBs												
Aroclor 1254	N/A	N/A	N/A	N/A	N/A						0.1	1
Aroclor 1260	N/A	N/A	N/A	N/A	N/A						0.1	1
Volitile Organics												
Methylene Chloride	ND	ND	ND	ND	ND						0.05	100
m,p-Xylene	ND	ND	ND	ND	ND						0.26	100
Tetrachloroethene	ND	ND	ND	ND	ND						1.3	19
1,2,4-trimethylbenzene	ND	ND	ND	ND	ND						3.6	52
1,3,5-trimethylbenzene	ND	ND	ND	ND	ND						8.4	52
Acetone	0.017 J	0.01 J	0.02 J	0.015 J	ND						0.05	100

(1) - All sample locations were in accordance with DER-10 5.4 (b) and approved by the NYSDEC site representative. Specific side wall sample depths were not recorded.

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TABLE 6 - 1630 DEWEY RI GROUNDWATER SAMPLE ANALYTICAL RESULTS SUMMARY											PAGE 1 OF 2			
Well Number	**MW-RI-01**	**MW-RI-02**	**MW-RI-03**	**MW-RI-04**	**MW-RI-05**	**MW-RI-06**	**MW-RI-07**	**MW-RI-08**	**MW-RI-09**	**MW-RI-10**	**MW-RI-03A**	**MW-RI-04A**	**MW-RI-07A**	**NYSDEC**
Sample Number	**DP-MW-101**	**DP-MW-102**	**DP-MW-103**	**DP-MW-104**	**DP-MW-105**	**DP-MW-106**	**DP-MW-107**	**DP-MW-108**	**DP-MW-109**	**DP-MW-110**	**MW-RI-03A**	**MW-RI-04A**	**MW-RI-07A**	**TOGs 1.1.1. GA**
Sample Date	**11/28/2011**	**11/28/2011**	**11/29/2011**	**11/28/2011**	**11/28/2011**	**11/28/2011**	**11/29/2011**	**11/29/2011**	**11/29/2011**	**11/29/2011**	**1/31/2012**	**1/31/2012**	**1/31/2012**	
Compounds	**ppb**	**ppb**	**ppb**	**ppb**	**ppb**	**ppb**	**ppb**	**ppb**	**ppb**	**ppb**	**ppb**	**ppb**	**ppb**	**ppb**
Metals														
Aluminum	461	639	9620 J	2440	2060	713	4850	7150	3780	2810	ND	ND	ND	N/A
Arsenic	N D	2.8	23	ND	ND	ND	ND	ND	ND	ND	21 D	ND	ND	25
Barium	129	373	335	286	133	52 J	297	528 M	58 J	80 J	243 D	ND	ND	1000
Cadmium	ND	ND	**12**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5
Calcium	404000	111000	442000	462000	259000	418000	348000	195000	769000	466000	68100	66900	151000	N/A
Chromium	ND	ND	25	ND	13	8 J	33	11 M	24	ND	ND	8.7 J	ND	50
Copper	ND	ND	**286**	ND	ND	ND	21 J	21 JM	25 J	ND	ND	ND	ND	200
Cyanide	ND	ND	0.016 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	200
Iron	**1850**	**1640**	**22400**	**3530**	**3900**	**3110**	**9750**	**4600**	**9400**	**5150**	265 D	57 J	162	300
Lead	ND	ND	**1040**	ND	ND	ND	**240**	**55 M**	11	ND	ND	ND	ND	25
Magnesium	83000	21900	76100	84900	40900	92800	53100	28800 M	151000	114000	53500	33800	25200	N/A
Manganese	**1490**	**574**	**4770**	**2480**	**1190**	**368**	**3310**	**1390 M**	**796**	**2770**	36 DM	73	**502**	300
Nickel	ND	ND	50	ND	ND	ND	ND	ND	33 J	ND	ND	ND	ND	100
Potassium	14300	11000	14700	7550	6500	34600	5600	3320 D	38400	17300	11200	17400	5760	N/A
Selenium	ND	ND	**11 B**	ND	ND	ND	ND	ND	ND	ND	ND	ND	9 J	10
Sodium	**128000**	**984000**	**695000**	**310000**	**217000**	**345000**	**82700**	**33900**	**306000**	**381000**	**300000**	**93500**	**46700**	20000
Vanadium	ND	ND	29	ND	ND	ND	ND	15 JM	ND	ND	ND	ND	ND	N/A
Zinc	ND	ND	1500	37 J	ND	ND	166	70 M	74	ND	ND	ND	ND	N/A
Semi-Volitile Organics														
Di-n-butyl phthalate	5.63 J	5.61 J	ND	5.55 J	5.68 J	ND	5.56 J	5.94 J	5.51 J	5.52 J	N/A	N/A	N/A	50
Bis(2-ethylhexyl) phthalate	ND	ND	ND	ND	ND	ND	ND	**7.59 J**	**7.56 J**	ND	N/A	N/A	N/A	5
Pentachlorophenol	ND	ND	ND	ND	ND	ND	ND	**155**	ND	ND	N/A	N/A	N/A	1
2,3,4,6-Tetrachlorophenol	ND	ND	ND	ND	ND	ND	ND	6.76 J	ND	ND	N/A	N/A	N/A	N/A
Total TICs	19.7	29.3	NA	13.4	17.2	37.1	13.7	68.2	7.6	9.7	N/A	N/A	N/A	N/A
PCBs														
Aroclor 1248	ND	ND	**1.18**	ND	ND	ND	ND	ND	ND	ND	ND	N/A	N/A	0.09
Pesticides														
Delta BHC	ND	ND	0.111 J	ND	ND	ND	ND	ND	0.09 J	0.133 J	N/A	N/A	N/A	N/A
4,4 DDT	ND	ND	0.08 J	ND	ND	ND	ND	ND	ND	ND	N/A	N/A	N/A	0.2

Data Validation Complete

N/A - Not Applicable ND - Non-detect

TOGs 1.1.1 GA - Technical and Operational Guidance Series (1.1.1) Source of Drinking Water (Groundwater)

Shading - Results above GA Standard or Guidance

B - Analyte was detected in the associated Method Blank.

D = Duplicate results outside QC limits. May indicate a non-homogenous matrix.

M = Matrix spike recoveries outside QC limits. Matrix bias indicated.

J = Any hits present between the Quantitation limit and half the Quantitation limit.

TABLE 6 - 1630 DEWEY RI GROUNDWATER SAMPLE ANALYTICAL RESULTS SUMMARY											PAGE 2 OF 2			
Well Number	**MW-RI-01**	**MW-RI-02**	**MW-RI-03**	**MW-RI-04**	**MW-RI-05**	**MW-RI-06**	**MW-RI-07**	**MW-RI-08**	**MW-RI-09**	**MW-RI-10**	**MW-RI-03A**	**MW-RI-04A**	**MW-RI-07A**	**NYSDEC**
Sample Number	**DP-MW-101**	**DP-MW-102**	**DP-MW-103**	**DP-MW-104**	**DP-MW-105**	**DP-MW-106**	**DP-MW-107**	**DP-MW-108**	**DP-MW-109**	**DP-MW-110**	**MW-RI-03A**	**MW-RI-04A**	**MW-RI-07A**	**TOGs 1.1.1. GA**
Sample Date	**11/28/2011**	**11/28/2011**	**11/29/2011**	**11/28/2011**	**11/28/2011**	**11/28/2011**	**11/29/2011**	**11/29/2011**	**11/29/2011**	**11/29/2011**	**1/31/2012**	**1/31/2012**	**1/31/2012**	
Compounds	**ppb**	**ppb**	**ppb**	**ppb**	**ppb**	**ppb**	**ppb**	**ppb**	**ppb**	**ppb**	**ppb**	**ppb**	**ppb**	**ppb**
Volitile Organics														
Acetone	**210 BJ**	ND	ND	ND	ND	ND	ND	ND	ND	ND	N/A	N/A	N/A	50
Benzene	**124 J**	**3.49**	**3.49**	ND	ND	**15.5**	ND	ND	**1.45**	**1.92**	N/A	N/A	N/A	1
Cyclohexane	ND	ND	ND	ND	ND	14.6	ND	ND	ND	ND	N/A	N/A	N/A	D
Ethylbenzene	**229 J**	1.74 J	1.74 J	ND	ND	2.79	ND	ND	ND	ND	N/A	N/A	N/A	5
Methyl tert-butyl Ether	ND	**14.4**	**14.4**	ND	ND	ND	ND	ND	ND	ND	N/A	N/A	N/A	10
Methylcyclohexane	ND	ND	ND	ND	ND	9.92	ND	ND	ND	ND	N/A	N/A	N/A	N/A
Naphthalene	ND	ND	6.5	ND	ND	ND	ND	ND	ND	ND	N/A	N/A	N/A	10
Toluene	**299 J**	ND	ND	ND	ND	ND	ND	ND	ND	ND	N/A	N/A	N/A	5
m,p-Xylenes	**392 J**	ND	ND	ND	ND	ND	ND	ND	ND	ND	N/A	N/A	N/A	5
o-Xylenes	**176 J**	ND	ND	ND	ND	ND	ND	ND	ND	ND	N/A	N/A	N/A	5
1,2,4-Trimethylbenzene	**18.2 J**	ND	ND	ND	ND	3.49	ND	ND	ND	ND	N/A	N/A	N/A	5
Trichloroethene	ND	ND	ND	ND	ND	ND	2.22	ND	ND	ND	N/A	N/A	N/A	5
Tetrachloroethene	ND	ND	ND	**114**	**9.73**	ND	3.09	ND	ND	ND	N/A	N/A	N/A	5
1,2-Dichloroethene	ND	ND	ND	NA	NA	ND	ND	ND	ND	1.41	N/A	N/A	N/A	5
Total TICs	490.5	6.7	ND	ND	ND	501.9	ND	7.6	ND	ND	N/A	N/A	N/A	N/A
Field Parameters														
Turbidity (NTU)	>1000	>1000	473	>1000	>1000	>1000	>1000	283	511	>1000	2	10	13	N/A
pH	6.94	7.93	7.2	7.83	8.02	7.72	7.44	7.4	6.92	7.12	7.17	7.25	6.73	N/A
Dissolved Oxygen	36.4	45.3	43.6	25.6	41.2	35.4	45.6	28.5	38.6	43.6	0	1.5	4.56	N/A
Temp (degrees C)	13.21	12.97	13.1	12.65	13.05	13.25	12.76	12.84	13.32	13.06	9.98	8.5	7.6	N/A
Conductivity	3.085	2.965	2.774	3.103	3.004	2.976	3.207	3.064	2.964	2.879	0.177	N/A *	N/A *	N/A

* - Instrument malfunction Data Validation Complete

N/A - Not Applicable ND - Non-detect

TOGs 1.1.1 GA - Technical and Operational Guidance Series (1.1.1) Source of Drinking Water (Groundwater)

Shading - Results above GA Standard or Guidance

B - Analyte was detected in the associated Method Blank.

D = Duplicate results outside QC limits. May indicate a non-homogenous matrix.

M = Matrix spike recoveries outside QC limits. Matrix bias indicated.

J = Any hits present between the Quantitation limit and half the Quantitation limit.

TABLE 6A - 1630 DEWEY RI GROUNDWATER SAMPLE ANALYTICAL RESULTS SUMMARY ROUND 2 (2/29/12)

Well Number	MW-RI-01	MW-RI-01	MW-RI-05	MW-RI-05	MW-RI-06	MW-RI-06	MW-RI-08	MW-RI-08	MW-RI-09	MW-RI-09	MW-RI-10	MW-RI-10	NYSDEC
Sample Number	DP-MW-101	DP-MW-101B	DP-MW-105	DP-MW-105B	DP-MW-106	DP-MW-106B	DP-MW-108	DP-MW-108B	DP-MW-109	DP-MW-109B	DP-MW-110	DP-MW-110B	TOGs 1.1.1. GA
Sample Date	11/28/2011	2/29/2012	11/28/2011	2/29/2012	11/28/2011	2/29/2012	11/29/2011	2/29/2012	11/29/2011	2/29/2012	11/29/2011	2/29/2012	
Compounds	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
Lolitiles													
Acetone	**210 BJ**	ND	ND	ND	ND	ND	ND	17.7	ND	ND	ND	ND	50
Benzene	**124 J**	**69.8**	ND	ND	**15.5**	**9.8**	ND	ND	**1.45**	**1.41**	**1.92**	0.86	1
Cyclohexane	ND	ND	ND	ND	14.6	ND	ND	ND	ND	ND	ND	ND	D
Ethylbenzene	**229 J**	**197**	ND	ND	2.79	ND	ND	ND	ND	ND	ND	ND	5
Methyl tert-butyl Ether	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	10
Methylcyclohexane	ND	ND	ND	ND	9.92	ND	ND	ND	ND	ND	ND	ND	N/A
Naphthalene	ND	6.07	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	10
Toluene	**299 J**	**52.4**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5
m,p-Xylenes	**392 J**	**205**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5
o-Xylenes	**176 J**	**55.6**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5
1,2,4-Trimethylbenzene	**18.2 J**	**26.9**	ND	ND	3.49	3.36	ND	ND	ND	ND	ND	ND	5
1,3,5-Trimethylbenzene	ND	**6.69**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5
Trichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5
Tetrachloroethene	ND	ND	**9.73**	ND	ND	ND	ND	ND	ND	ND	ND	ND	5
1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.41	ND	5
n-Propylbenezene	ND	**12.2**	ND	ND	ND	ND	ND	ND	ND	ND	Nd	ND	5
Isopropylbenezene	ND	**7.91**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5
Total TICs	490.5	1412.5	ND	ND	501.9	399	7.6	13.1	ND	9.2	ND	29.7	N/A
Semi-Volitile Organics													
Di-n-butyl phthalate	5.63 J	N/A	5.55 J	ND	ND	ND	5.94 J	ND	5.51 J	ND	5.52 J	ND	50
Bis(2-ethylhexyl) phthalate	ND	N/A	ND	ND	ND	ND	**7.59 J**	ND	**7.56 J**	ND	ND	ND	5
Pentachlorophenol	ND	N/A	ND	ND	ND	ND	**155**	**142**	ND	ND	ND	ND	1
2,3,4,6-Tetrachlorophenol	ND	N/A	ND	ND	ND	ND	6.76 J	ND	ND	ND	ND	ND	N/A
Total TICs	19.7	N/A	13.4	12.4	37.1	32.5	68.2	59.8	7.6	89.5	9.7	5.8	N/A
Field Parameters													
Turbidity (NTU)	>1000	>1000	>1000	>1000	>1000	900	283	>1000	511	420	>1000	880	N/A
pH	6.94	7.09	8.02	7.36	7.72	7.58	7.4	6.9	6.92	7.11	7.12	7.01	N/A
Dissolved Oxygen	36.4	NA	41.2	N/A	35.4	N/A	28.5	N/A	38.6	N/A	43.6	N/A	N/A
Temp (degrees C)	13.21	7.9	13.05	6.6	13.25	6.02	12.84	4.4	13.32	5.2	13.06	4.7	N/A
Conductivity	3.085	0.315	3.004	0.178	2.976	0.412	3.064	0.117	2.964	0.353	2.879	0.451	N/A

Data Validation Complete

N/A - Not Applicable ND - Non-detect

TOGs 1.1.1 GA - Technical and Operational Guidance Series (1.1.1) Source of Drinking Water (Groundwater)

Shading - Results above GA Standard or Guidance

B - Analyte was detected in the associated Method Blank.

D = Duplicate results outside QC limits. May indicate a non-homogenous matrix.

M = Matrix spike recoveries outside QC limits. Matrix bias indicated.

J = Any hits present between the Quantitation limit and half the Quantitation limit.

TABLE 6B- 1630 DEWEY RI GROUNDWATER SAMPLE ANALYTICAL RESULTS SUMMARY ROUNDS 1 to 3												Page 1 of 2
Well Number	**MW-RI-04**	**MW-RI-04**	**MW-RI-05**	**MW-RI-05**	**MW-RI-05**	**MW-RI-06**	**MW-RI-06**	**MW-RI-06**	**MW-RI-08**	**MW-RI-08**	**MW-RI-08**	**NYSDEC**
Sample Number	**DP-MW-104**	**DP-MW-104B**	**DP-MW-105**	**DP-MW-105B**	**DP-MW-105C**	**DP-MW-106**	**DP-MW-106B**	**DP-MW-106C**	**DP-MW-108**	**DP-MW-108B**	**DP-MW-108C**	**TOGs 1.1.1. GA**
Sample Date	**11/28/2011**	**2/29/2012**	**11/28/2011**	**2/29/2012**	**4/27/2012**	**11/28/2011**	**2/29/2012**	**4/27/2012**	**11/29/2011**	**2/29/2012**	**4/27/2012**	
Compounds	**ppb**	**ppb**	**ppb**	**ppb**	**ppb**	**ppb**	**ppb**	**ppb**	**ppb**	**ppb**	**ppb**	**ppb**
Lolitiles												
Acetone	ND	ND	ND	ND	ND	ND	ND	ND	ND	17.7	ND	50
Benzene	ND	ND	ND	ND	ND	**15.5**	**9.8**	**11.7**	ND	ND	ND	1
Cyclohexane	ND	ND	ND	ND	ND	14.6	ND	ND	ND	ND	ND	D
Ethylbenzene	ND	ND	ND	ND	ND	2.79	ND	ND	ND	ND	ND	5
Methyl tert-butyl Ether	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	10
Methylcyclohexane	ND	ND	ND	ND	ND	9.92	ND	ND	ND	ND	ND	N/A
Naphthalene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	10
Toluene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5
m,p-Xylenes	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5
o-Xylenes	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5
1,2,4-Trimethylbenzene	ND	ND	ND	ND	ND	3.49	3.36	ND	ND	ND	ND	5
1,3,5-Trimethylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5
Trichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5
Tetrachloroethene	**114**	**7.25**	**9.73**	ND	3.06	ND	ND	ND	ND	ND	ND	5
1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5
n-Propylbenezene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5
Isopropylbenezene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5
Total TICs	ND	ND	ND	ND	ND	501.9	399	331	7.6	13.1	ND	N/A
Semi-Volitile Organics												
Di-n-butyl phthalate	5.55 J	N/A	5.55 J	ND	ND	ND	ND	ND	5.94 J	ND	ND	50
Bis(2-ethylhexyl) phthalate	ND	N/A	ND	ND	ND	ND	ND	ND	**7.59 J**	ND	ND	5
Pentachlorophenol	ND	N/A	ND	ND	ND	ND	ND	ND	**155**	**142**	**59**	1
2,3,4,6-Tetrachlorophenol	ND	N/A	ND	ND	ND	ND	ND	ND	6.76 J	ND	ND	N/A
Total TICs	13.4	N/A	13.4	12.4	14.6	37.1	32.5	34.4	68.2	59.8	39	N/A
Field Parameters												
Turbidity (NTU)	>1000	>1000	>1000	>1000	896	>1000	900	884	283	>1000	>1000	N/A
pH	7.83	11.4	8.02	7.36	8.02	7.72	7.58	7.76	7.4	6.9	6.94	N/A
Dissolved Oxygen	25.6	N/A	41.2	N/A	N/A	35.4	N/A	N/A	28.5	N/A	N/A	N/A
Temp (degrees C)	12.65	8.2	13.05	6.6	7.3	13.25	6.02	9.5	12.84	4.4	8.2	N/A
Conductivity	3.103	0.141	3.004	0.178	0.168	2.976	0.412	0.325	3.064	0.117	0.108	N/A

Data Validation Complete

N/A - Not Applicable ND - Non-detect

TOGs 1.1.1 GA - Technical and Operational Guidance Series (1.1.1) Source of Drinking Water (Groundwater)

Shading - Results above GA Standard or Guidance

B - Analyte was detected in the associated Method Blank.

D = Duplicate results outside QC limits. May indicate a non-homogenous matrix.

M = Matrix spike recoveries outside QC limits. Matrix bias indicated.

J = Any hits present between the Quantitation limit and half the Quantitation limit.

TABLE 6B- 1630 DEWEY RI GROUNDWATER SAMPLE ANALYTICAL RESULTS SUMMARY ROUNDS 1 to 3												Page 2 of 2
Well Number	**MW-RI-09**	**MW-RI-09**	**MW-RI-09**	**MW-RI-10**	**MW-RI-10**	**MW-RI-10**						**NYSDEC**
Sample Number	**DP-MW-109**	**DP-MW-109B**	**DP-MW-109C**	**DP-MW-110**	**DP-MW-110B**	**DP-MW-110C**						**TOGs 1.1.1. GA**
Sample Date	**11/29/2011**	**2/29/2012**	**4/27/2012**	**11/29/2011**	**2/29/2012**	**4/27/2012**						
Compounds	**ppb**	**ppb**	**ppb**	**ppb**	**ppb**	**ppb**						**ppb**
Lolitiles												
Acetone	ND	ND	ND	ND	ND	ND						50
Benzene	**1.45**	**1.41**	**1.28**	**1.92**	0.86	ND						1
Cyclohexane	ND	ND	ND	ND	ND	ND						D
Ethylbenzene	ND	ND	ND	ND	ND	ND						5
Methyl tert-butyl Ether	ND	ND	ND	ND	ND	ND						10
Methylcyclohexane	ND	ND	ND	ND	ND	ND						N/A
Naphthalene	ND	ND	ND	ND	ND	ND						10
Toluene	ND	ND	ND	ND	ND	ND						5
m,p-Xylenes	ND	ND	ND	ND	ND	ND						5
o-Xylenes	ND	ND	ND	ND	ND	ND						5
1,2,4-Trimethylbenzene	ND	ND	ND	ND	ND	ND						5
1,3,5-Trimethylbenzene	ND	ND	ND	ND	ND	ND						5
Trichloroethene	ND	ND	ND	ND	ND	ND						5
Tetrachloroethene	ND	ND	ND	ND	ND	2.4						5
1,2-Dichloroethene	ND	ND	ND	1.41	ND	ND						5
n-Propylbenezene	ND	ND	ND	Nd	ND	ND						5
Isopropylbenezene	ND	ND	ND	ND	ND	ND						5
Total TICs	ND	9.2	ND	ND	29.7	ND						N/A
Semi-Volitile Organics												
Di-n-butyl phthalate	5.51 J	ND	ND	5.52 J	ND	ND						50
Bis(2-ethylhexyl) phthalate	**7.56 J**	ND	ND	ND	ND	ND						5
Pentachlorophenol	ND	ND	ND	ND	ND	ND						1
2,3,4,6-Tetrachlorophenol	ND	ND	ND	ND	ND	ND						N/A
Total TICs	7.6	89.5	53	9.7	5.8	13						N/A
Field Parameters												
Turbidity (NTU)	511	420	223	>1000	880	>1000						N/A
pH	6.92	7.11	7.1	7.12	7.01	6.83						N/A
Dissolved Oxygen	38.6	N/A	N/A	43.6	N/A	N/A						N/A
Temp (degrees C)	13.32	5.2	8.1	13.06	4.7	7.9						N/A
Conductivity	2.964	0.353	0.265	2.879	0.451	0.365						N/A

Data Validation Complete

N/A - Not Applicable ND - Non-detect

TOGs 1.1.1 GA - Technical and Operational Guidance Series (1.1.1) Source of Drinking Water (Groundwater)

Shading - Results above GA Standard or Guidance

B - Analyte was detected in the associated Method Blank.

D = Duplicate results outside QC limits. May indicate a non-homogenous matrix.

M = Matrix spike recoveries outside QC limits. Matrix bias indicated.

J = Any hits present between the Quantitation limit and half the Quantitation limit.

TABLE 7 - DEWEY SOIL VAPOR ANALYTICAL RESULTS			
Sample Number	**DP-VP-01**	**DP-VP-02**	**DP-VP-03**
Sample Date	**11/10/2011**	**11/10/2011**	**11/10/2011**
Sample Location	**Soil Probe**	**Soil Probe**	**Soil Probe**
Compounds	**ug/m3**	**ug/m3**	**ug/m3**
VOCs EPA T0-15			
1,2,4-Trimethylbenzene	7.0.	1.4.	9.5.
1,3,5-Trimethylbenzene	17.0.	ND	8.4.
2,2,4-trimethylpentane	ND	2.0.	9.0.
4-ethyltoluene	19.0.	ND	9.1.
Acetone	580.0.	160.0.	200.0.
Benzene	6.5.	5.2.	32.0.
Carbon Disulfide	1.0.	ND	2.3.
Carbon tetrachloride	5.2.	0.5.	0.4.
Chloroform	3.4.	1.6.	ND
cis-1,2-Dichloroethene	ND	4.6.	ND
Cyclohexane	ND	23.0.	670.0.
Ethylbenzene	8.4.	2.8.	12.0.
Freon 11	4.5.	1.9.	2.3.
Freon 12	2.8.	2.2.	2.3.
Heptane	10.0.	11.0.	760.0.
Hexane	250.0.	120.0.	1100.0.
Isopropyl alcohol	ND	23.0.	ND
m&p-Xylene	26.0.	9.3.	35.0.
Methylene chloride	4.4.	5.3.	ND
o-Xylene	7.9.	2.1.	11.0.
Tetrachloroethene	520.0.	13.0.	470.0.
Toluene	750	390.0.	240.0.
Trichloroethene	ND	8.5	ND
TICs (1)	143	245.8	148.5

(1)- Total Tentitively Identified Compounds in ppbV

ND - Non-detect N/A Not Applicable

TABLE 8 - 1630 Dewey RI Groundwater Elevations (1)						
Well Number	T of C Elevation (ft)	Water Level 11/14/2011	Groundwater Elevation	Water Level 11/28/2011	Groundwater Elevation	Groundwater Avg Elev.
MW-RI-01	**442.88**	6.85	436.03	6.45	436.43	436.23
MW-RI-02	**444.77**	6.20	438.57	7.60	437.17	437.87
MW-RI-03	**442.68**	6.45	436.23	6.20	436.48	436.36
MW-RI-04	**438.62**	6.82	431.8	6.50	432.12	431.96
MW-RI-05	**435.53**	4.07	431.46	3.60	431.93	431.70
MW-RI-06	**435.27**	4.05	431.22	4.00	431.27	431.25
MW-RI-07	**436.63**	2.92	433.71	2.95	433.68	433.70
MW-RI-08	**439.48**	3.33	436.15	2.70	436.78	436.47
MW-RI-09	**438.5**	3.55	434.95	2.70	435.8	435.38
MW-RI-10	**438.43**	5.00	433.43	4.65	433.78	433.61

(1) - Elevations are referenced to the City of Rochester Vertical Monument #090350101, Type USC&GS-Primrose & #090410305

TABLE 11- DEWEY-SUB SLAB DIFFERENTIAL PRESSURE (DP) READINGS				
Test Number	**North - 1**	**Center - 2**	**South - 3**	**Minimum**
Test Date	**10/19/2012**	**10/19/2012**	**10/19/2012**	**DP**
Test Location (1)	**Basement North Probe**	**Basement Center Probe**	**Basement South Probe**	**Required**
Measurement	**Inches of Water**	**Inches of Water**	**Inches of Water**	**Inches of Water**
DP Measurements (2)	**Neg 0.055**	**Neg 0.1236**	**Neg 0.4795**	**Neg 0.004**

(1) - Refer to Figure 9
(2) - AirData Multimeter", ADM-860C, by Shortridge Instruments, Inc.

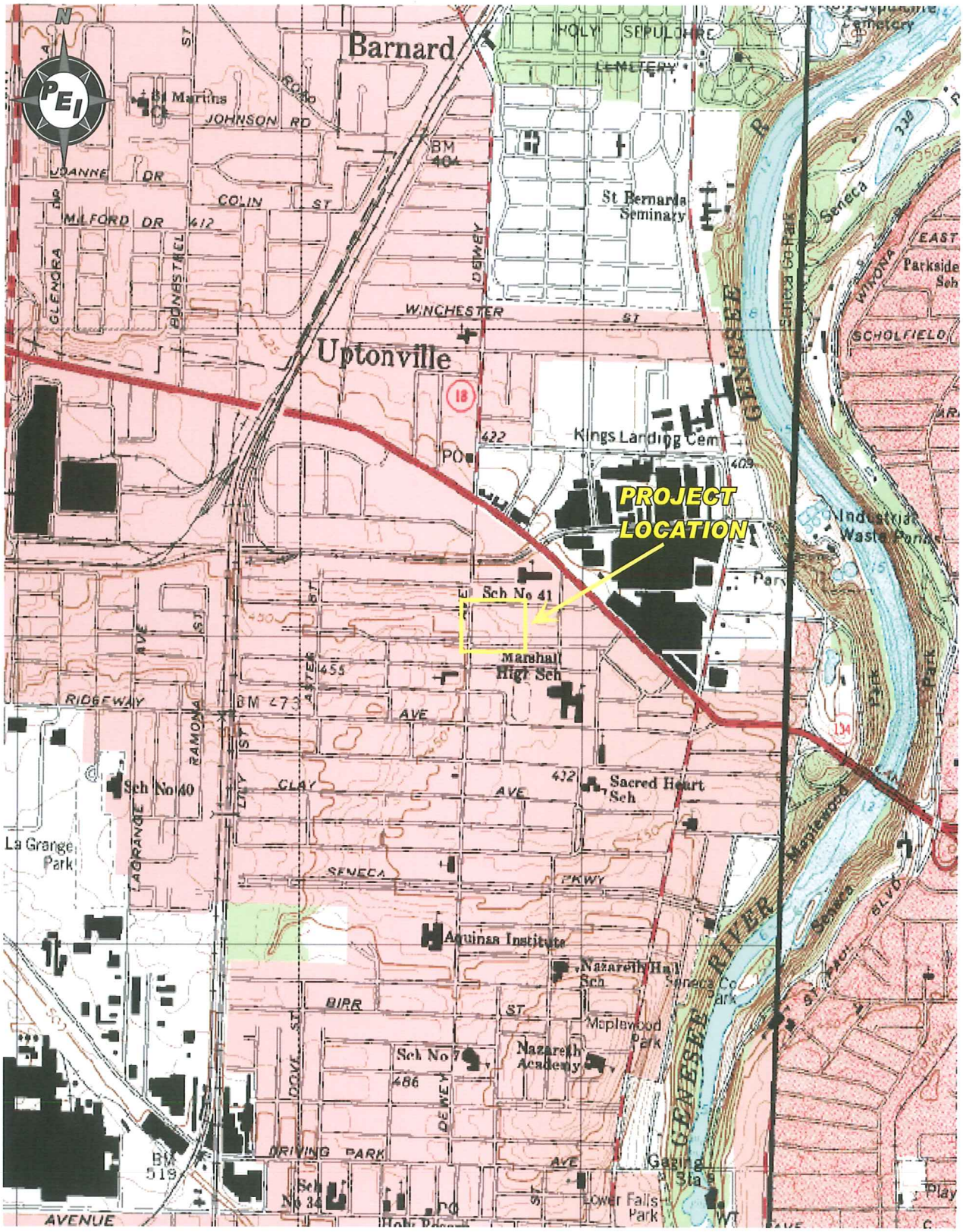


Figure 1. Project areas location in the City of Rochester, Monroe County, New York *(USGS 7.5' Quadrangle, Rochester West, NY).*

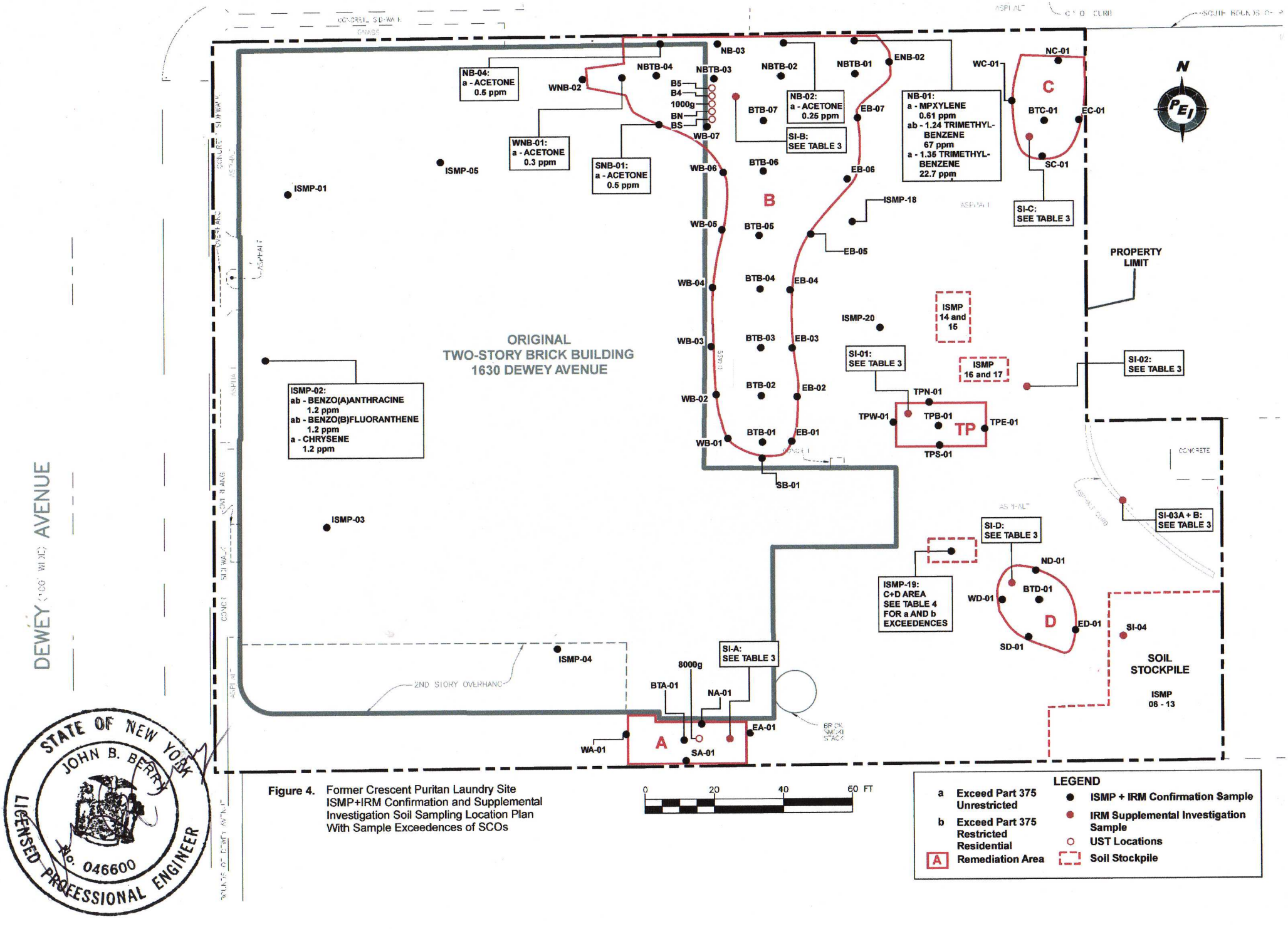


Figure 4. Former Crescent Puritan Laundry Site ISMP+IRM Confirmation and Supplemental Investigation Soil Sampling Location Plan With Sample Exceedences of SCOs

STATE OF NEW YORK
JOHN B. BERRY
No. 046600
LICENSED PROFESSIONAL ENGINEER

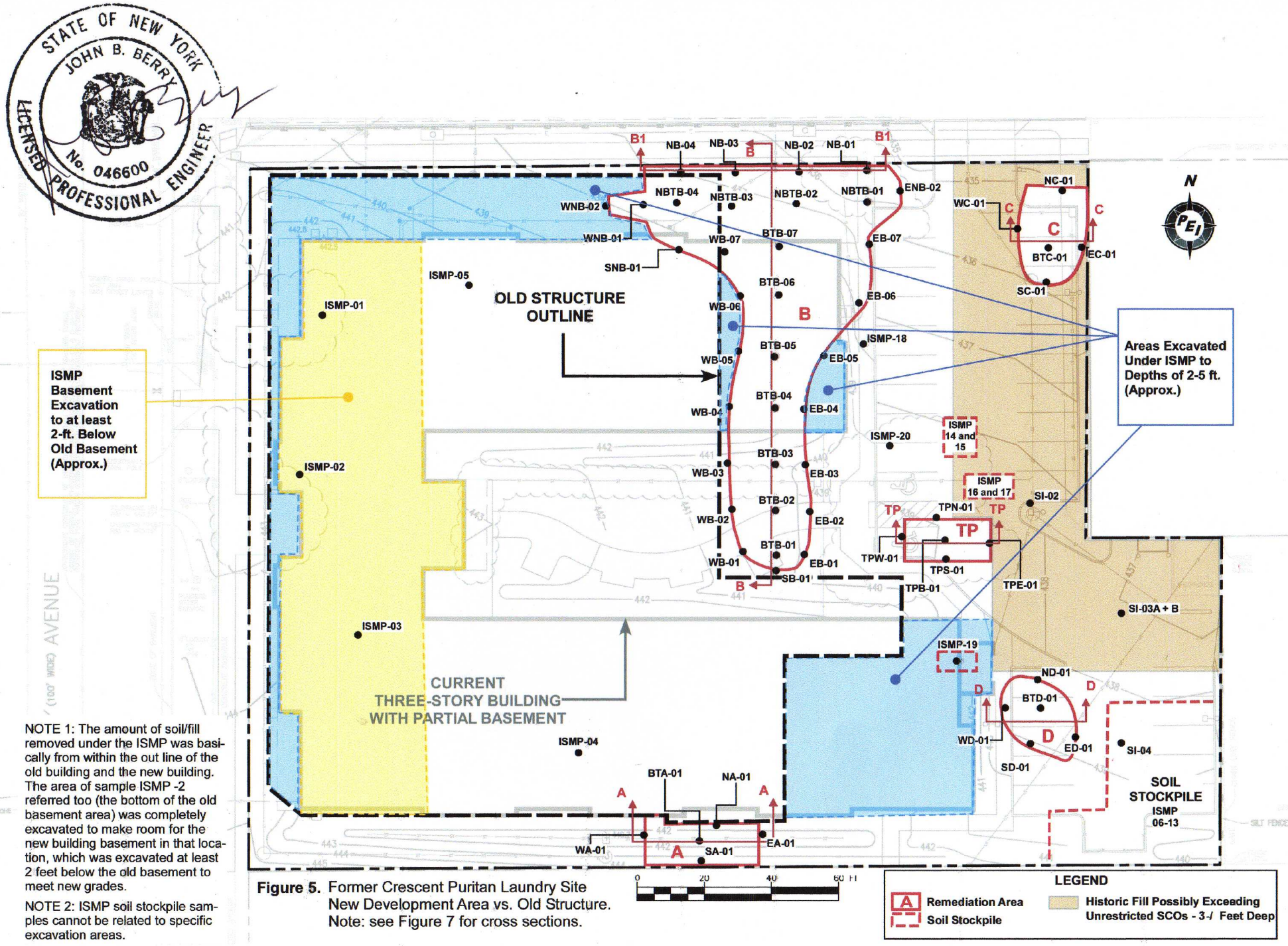


Figure 5. Former Crescent Puritan Laundry Site New Development Area vs. Old Structure. Note: see Figure 7 for cross sections.

NOTE 1: The amount of soil/fill removed under the ISMP was basically from within the out line of the old building and the new building. The area of sample ISMP -2 referred too (the bottom of the old basement area) was completely excavated to make room for the new building basement in that location, which was excavated at least 2 feet below the old basement to meet new grades.

NOTE 2: ISMP soil stockpile samples cannot be related to specific excavation areas.

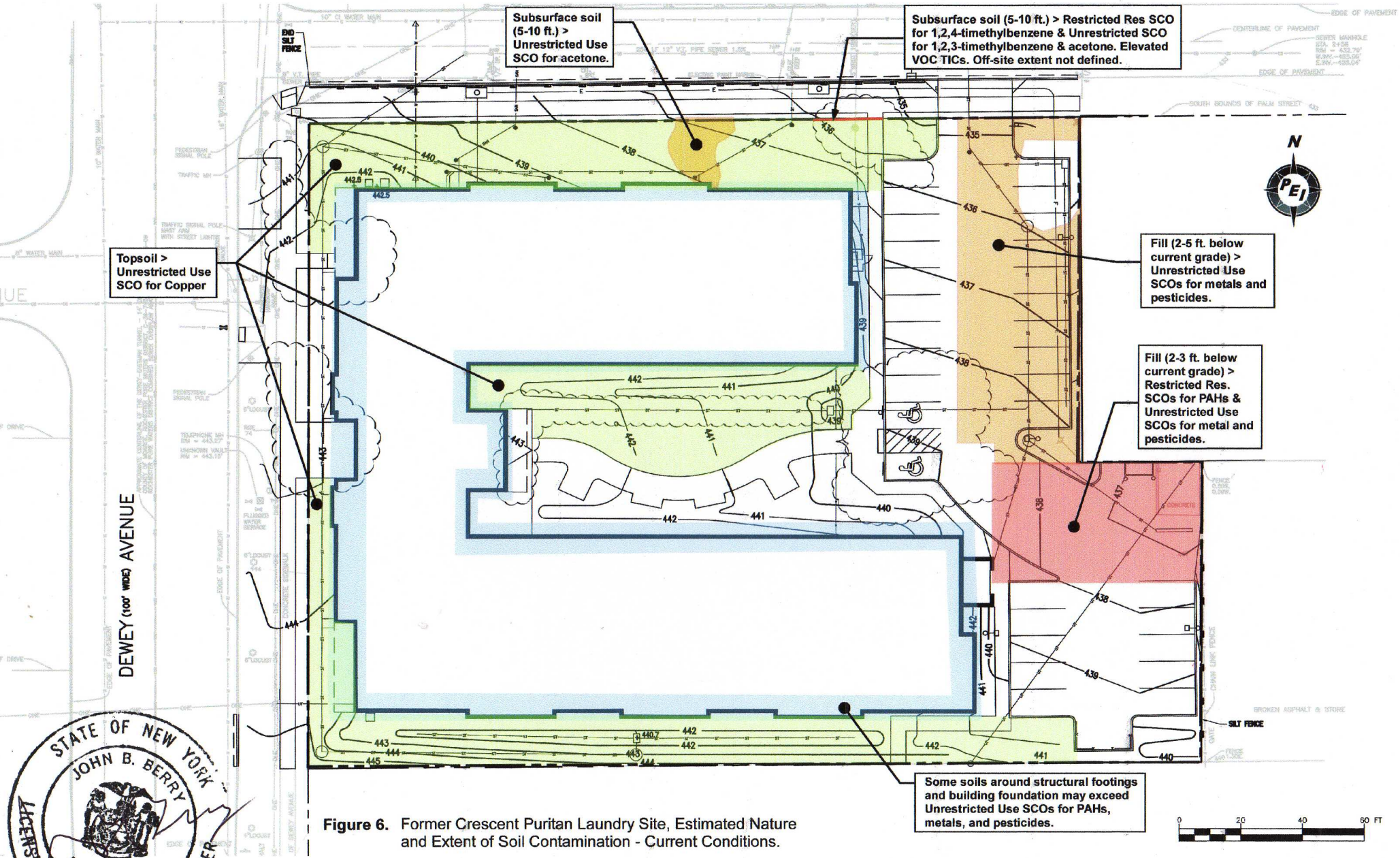
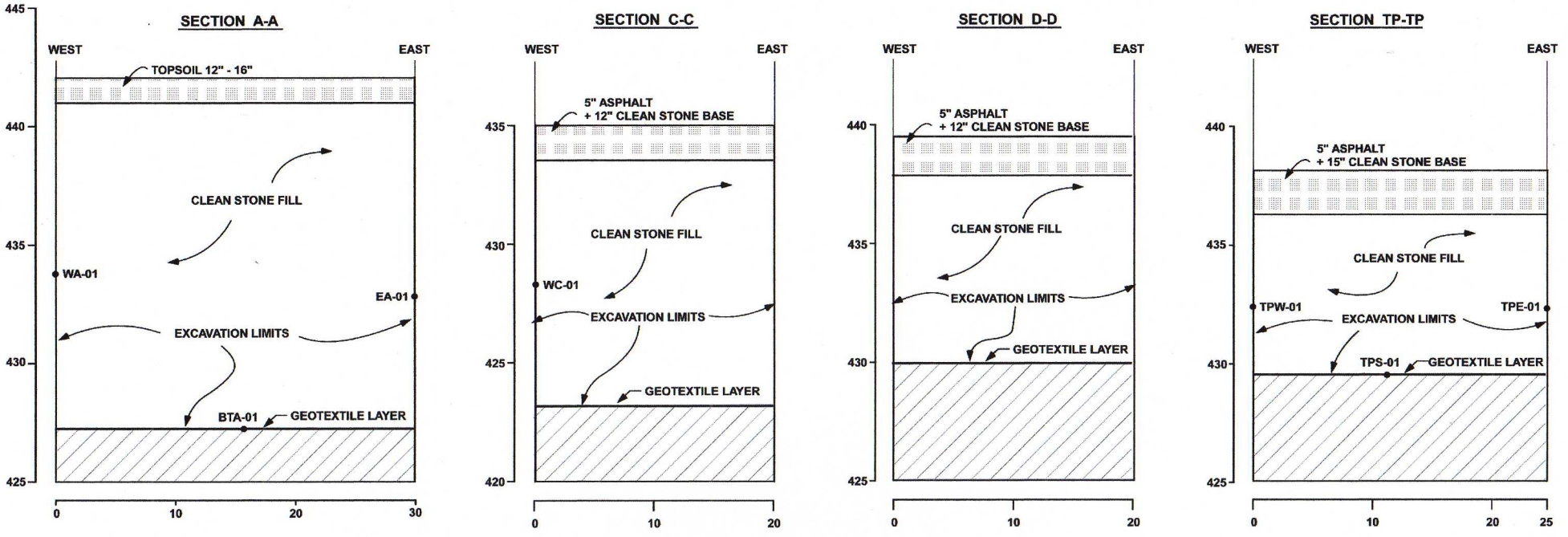
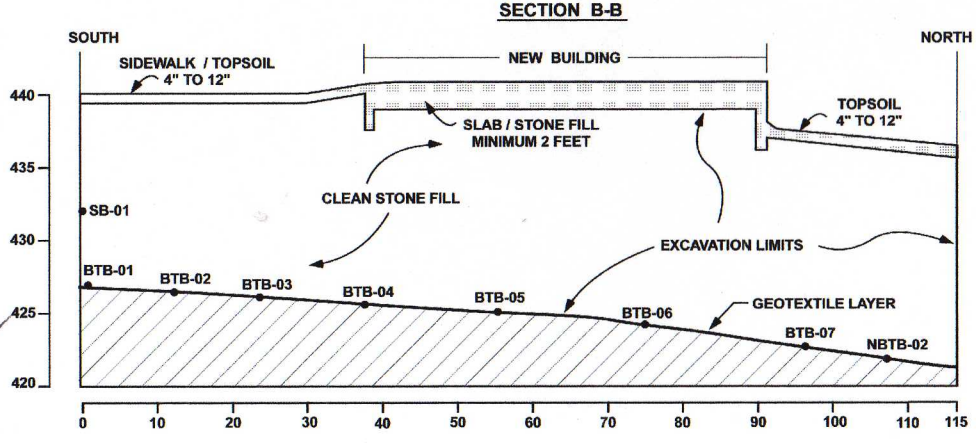


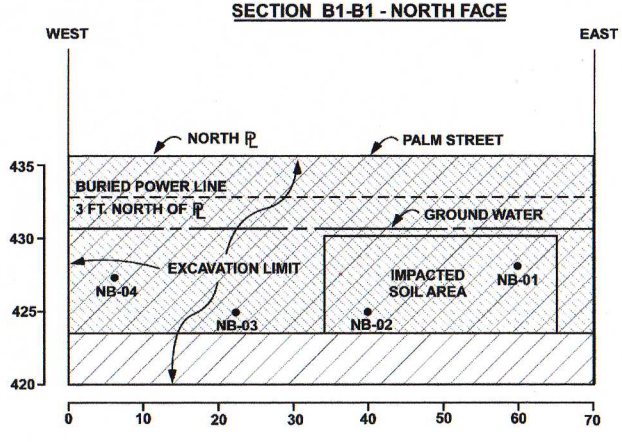
Figure 6. Former Crescent Puritan Laundry Site, Estimated Nature and Extent of Soil Contamination - Current Conditions.



KEY

- INDIGENOUS SOIL
- GRAY SANDY SILT WITH TRACES OF GRAVEL AND CLAY





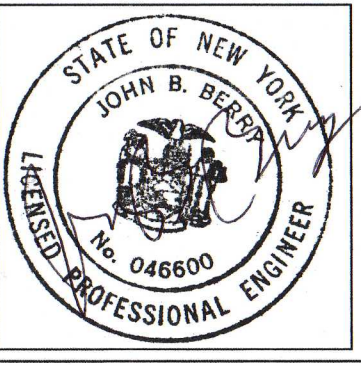


Figure 7 - Former Crescent Puritan Laundry Site.
IRM Excavation Area Cross Sections.
Note: Refer to Figure 5.

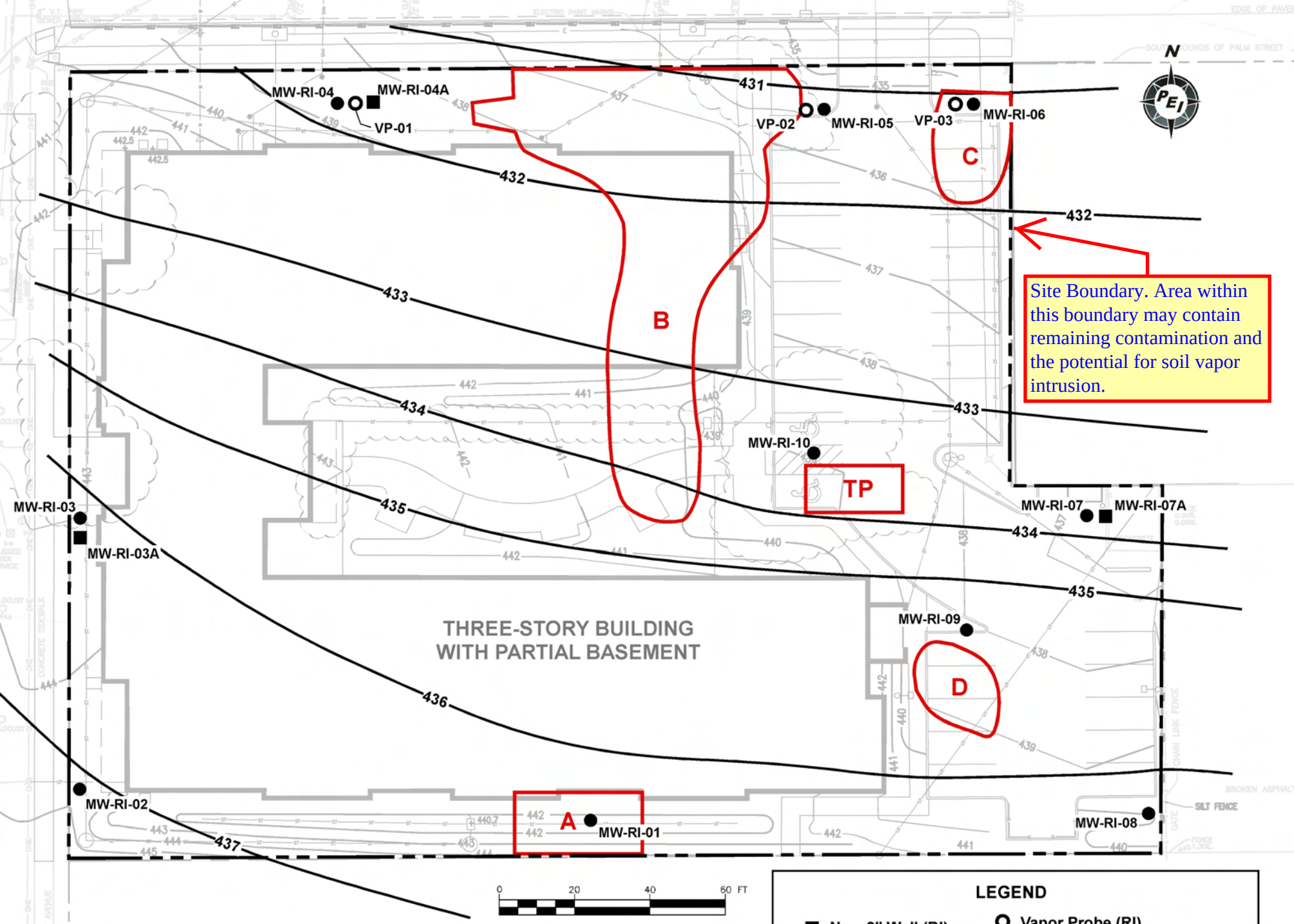


Figure 8. Former Crescent Puritan Laundry Site
IRM and Remedial Investigation Plan
(Rev. January 2012)

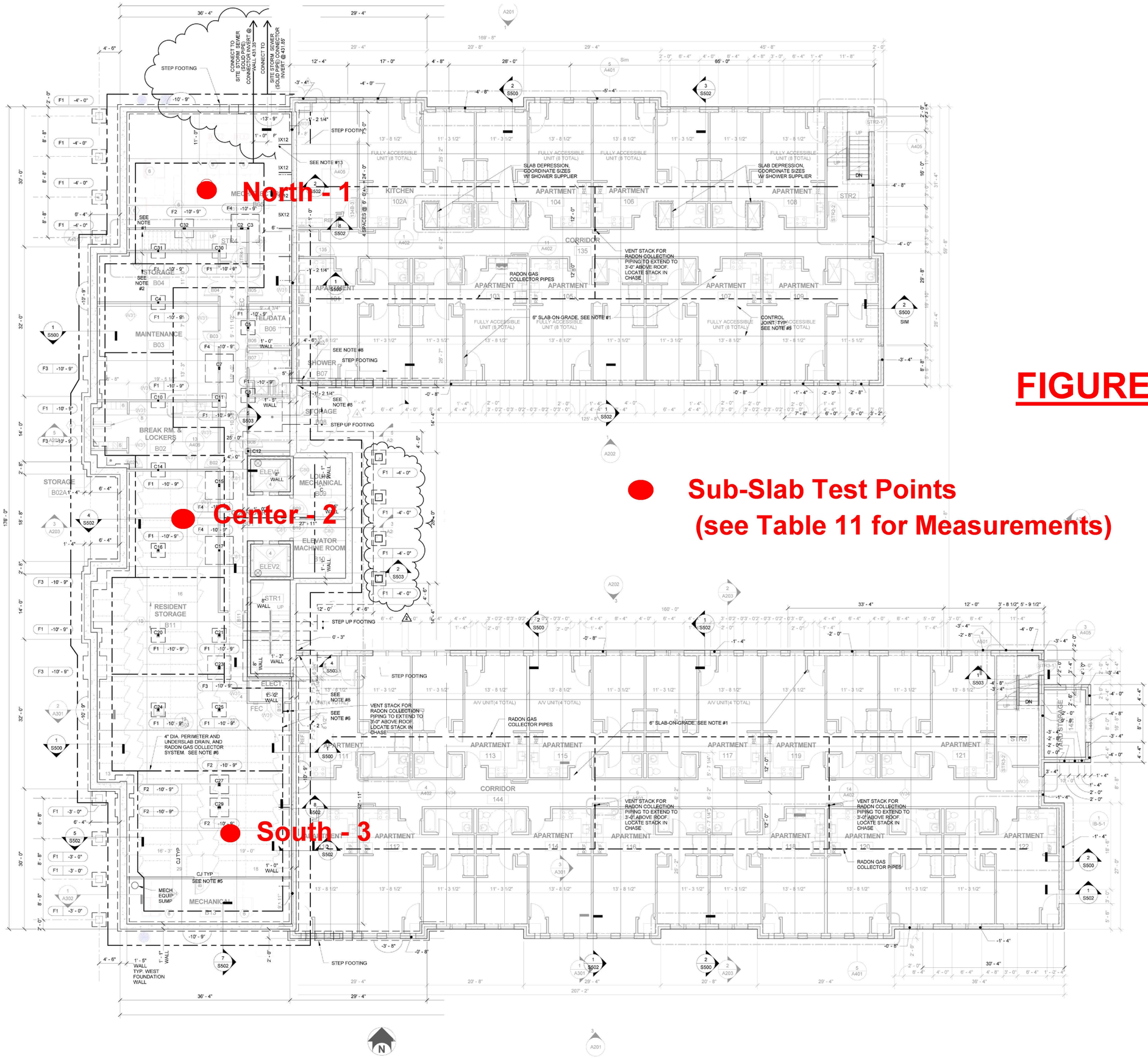
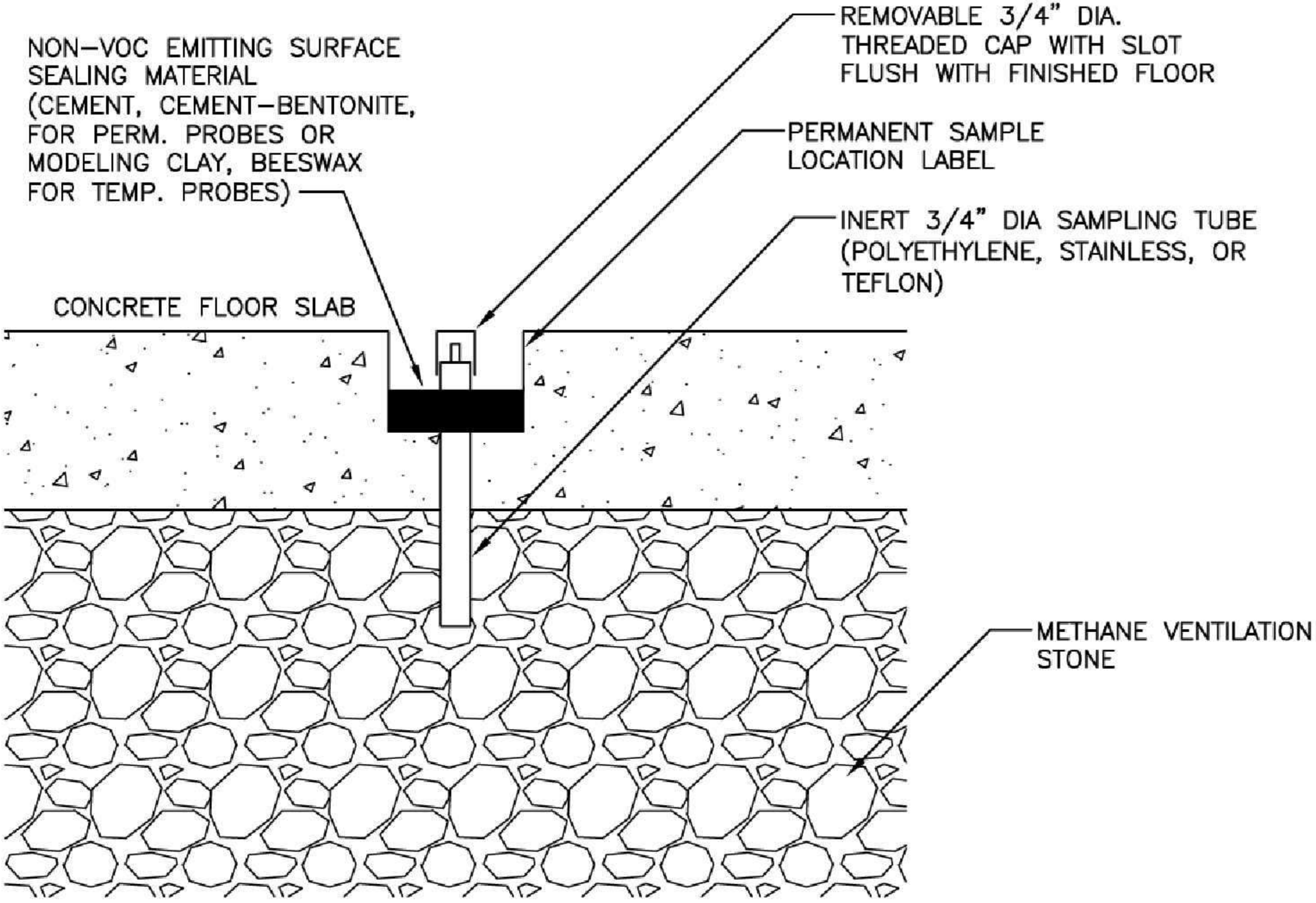

North - 1
Center - 2
South - 3
Sub-Slab Test Points
(see Table 11 for Measurements)

FIGURE 9



1 SUB–SLAB SAMPLE POINT DETAIL

SCALE: NONE

Figure 10

APPENDIX B

ENVIRONMENTAL EASEMENT/METES & BOUNDS

MONROE COUNTY CLERK'S OFFICE

THIS IS NOT A BILL. THIS IS YOUR RECEIPT

ROCHESTER,NY

Receipt # 738081

Index DEEDS

Book 11139 Page 597

No. Pages : 13

Instrument EASEMENT AGREEMENT

Date : 07/05/2012

Time : 01:22:36PM

Control # **201207050441**

TT # TT0000015288

Ref 1 #

Employee : CJTa

Return To:
HARTER SECREST & EMERY LLP
ATTN JAMES MAHONEY
12 FOUNTAIN PLAZA SUITE 400
BUFFALO,NY 14202-

1630 DEWEY AVENUE HOUSING DEVELOPMENT FUND CORP
1630 DEWEY AVENUE LLC

PEOPLE OF THE STATE OF NEW YORK

COUNTY FEE TP584	$	0.00
COUNTY FEE NUMBER PAGES	$	0.00
RECORDING FEE	$	0.00
STATE FEE TRANSFER TAX	$	0.00

Total $ 0.00

State of New York

MONROE COUNTY CLERK'S OFFICE

WARNING - THIS SHEET CONSTITUTES THE CLERKS ENDORSEMENT, REQUIRED BY SECTION 317-a(5) & SECTION 319 OF THE REAL PROPERTY LAW OF THE STATE OF NEW YORK. DO NOT DETACH OR REMOVE.

TRANSFER AMT

TRANSFER AMT $1.00

CHERYL DINOLFO

MONROE COUNTY CLERK

PI182-201207050441-13

ENVIRONMENTAL EASEMENT GRANTED PURSUANT TO ARTICLE 71, TITLE 36 OF THE NEW YORK STATE ENVIRONMENTAL CONSERVATION LAW

THIS INDENTURE made this 2nd day of July, 2012 between Owner(s) 1630 Dewey Avenue Housing Development Fund Corp., having an office at c/o Common Ground Community II Housing Development Fund Corporation, 505 Eighth Avenue, 15th Floor, New York, NY 10018, and 1630 Dewey Avenue LLC, having an office at 505 Eighth Avenue, 15th Floor, New York, NY 10018 (collectively the "Grantor"), and The People of the State of New York (the "Grantee".), acting through their Commissioner of the Department of Environmental Conservation (the "Commissioner", or "NYSDEC" or "Department" as the context requires) with its headquarters located at 625 Broadway, Albany, New York 12233.

WHEREAS, the Legislature of the State of New York has declared that it is in the public interest to encourage the remediation of abandoned and likely contaminated properties ("sites") that threaten the health and vitality of the communities they burden while at the same time ensuring the protection of public health and the environment; and

WHEREAS, the Legislature of the State of New York has declared that it is in the public interest to establish within the Department a statutory environmental remediation program that includes the use of Environmental Easements as an enforceable means of ensuring the performance of operation, maintenance, and/or monitoring requirements and the restriction of future uses of the land, when an environmental remediation project leaves residual contamination at levels that have been determined to be safe for a specific use, but not all uses, or which includes engineered structures that must be maintained or protected against damage to perform properly and be effective, or which requires groundwater use or soil management restrictions; and

WHEREAS, the Legislature of the State of New York has declared that Environmental Easement shall mean an interest in real property, created under and subject to the provisions of Article 71, Title 36 of the New York State Environmental Conservation Law ("ECL") which contains a use restriction and/or a prohibition on the use of land in a manner inconsistent with engineering controls which are intended to ensure the long term effectiveness of a site remedial program or eliminate potential exposure pathways to hazardous waste or petroleum; and

WHEREAS, Grantor, is the owner of real property located at the address of 1630 Dewey Avenue in the City of Rochester, County of Monroe, and State of New York, known and designated on the tax map of the County Clerk of Monroe, as tax map parcel numbers: Section 90.34 Block 2 Lot 41 and Section: 90.34 Block: 2 Lot: 42.1, being the same as that property conveyed to Grantor by deed dated August 25, 2010 and recorded in the Monroe County Clerk's Office in Book 10918 at Page 680 and deed dated August 17, 2010 and recorded in the Monroe County Clerk's Office in Book 10918 at Page 676 and a Declaration of Interest between 1630 Dewey Avenue Housing Development Fund Corp. and 1630 Dewey Avenue LLC, dated September 1, 2010, recorded in the Monroe County Clerk's Office in Book 10918 at Page 686 . The property subject to this Environmental Easement (the "Controlled Property") comprises approximately 1.335 +/- acres, and is hereinafter more fully described in the Land Title Survey

dated March 16, 2012 and signed May 23, 2012 prepared by Michelle A. Clark for Creekside Boundary, which will be attached to the Site Management Plan. The Controlled Property description is set forth in and attached hereto as Schedule A; and

WHEREAS, the Department accepts this Environmental Easement in order to ensure the protection of public health and the environment and to achieve the requirements for remediation established for the Controlled Property until such time as this Environmental Easement is extinguished pursuant to ECL Article 71, Title 36; and

NOW THEREFORE, in consideration of the mutual covenants contained herein and the terms and conditions of Brownfield Cleanup Agreement Index Number: C828163-07-10, Grantor conveys to Grantee a permanent Environmental Easement pursuant to ECL Article 71, Title 36 in, on, over, under, and upon the Controlled Property as more fully described herein ("Environmental Easement").

1. Purposes. Grantor and Grantee acknowledge that the Purposes of this Environmental Easement are: to convey to Grantee real property rights and interests that will run with the land in perpetuity in order to provide an effective and enforceable means of encouraging the reuse and redevelopment of this Controlled Property at a level that has been determined to be safe for a specific use while ensuring the performance of operation, maintenance, and/or monitoring requirements; and to ensure the restriction of future uses of the land that are inconsistent with the above-stated purpose.

2. Institutional and Engineering Controls. The controls and requirements listed in the Department approved Site Management Plan ("SMP") including any and all Department approved amendments to the SMP are incorporated into and made part of this Environmental Easement. These controls and requirements apply to the use of the Controlled Property, run with the land, are binding on the Grantor and the Grantor's successors and assigns, and are enforceable in law or equity against any owner of the Controlled Property, any lessees and any person using the Controlled Property.

A. (1) The Controlled Property may be used for:

Restricted Residential as described in 6 NYCRR Part 375-1.8(g)(2)(ii), Commercial as described in 6 NYCRR Part 375-1.8(g)(2)(iii) and Industrial as described in 6 NYCRR Part 375-1.8(g)(2)(iv)

(2) All Engineering Controls must be operated and maintained as specified in the Site Management Plan (SMP);

(3) All Engineering Controls must be inspected at a frequency and in a manner defined in the SMP;

(4) Groundwater and other environmental or public health monitoring must be performed as defined in the SMP;

(5) Data and information pertinent to Site Management of the Controlled

Property must be reported at the frequency and in a manner defined in the SMP;

(6) All future activities on the property that will disturb remaining contaminated material must be conducted in accordance with the SMP;

(7) Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in the SMP;

(8) Operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical components of the remedy shall be performed as defined in the SMP;

(9) Access to the site must be provided to agents, employees or other representatives of the State of New York with reasonable prior notice to the property owner to assure compliance with the restrictions identified by this Environmental Easement.

B. The Controlled Property shall not be used for Residential purposes as defined in 6NYCRR 375-1.8(g)(2)(i), and the above-stated engineering controls may not be discontinued without an amendment or extinguishment of this Environmental Easement.

C. The SMP describes obligations that the Grantor assumes on behalf of Grantor, its successors and assigns. The Grantor's assumption of the obligations contained in the SMP which may include sampling, monitoring, and/or operating a treatment system, and providing certified reports to the NYSDEC, is and remains a fundamental element of the Department's determination that the Controlled Property is safe for a specific use, but not all uses. The SMP may be modified in accordance with the Department's statutory and regulatory authority. The Grantor and all successors and assigns, assume the burden of complying with the SMP and obtaining an up-to-date version of the SMP from:

Site Control Section
Division of Environmental Remediation
NYSDEC
625 Broadway
Albany, New York 12233
Phone: (518) 402-9553

D. Grantor must provide all persons who acquire any interest in the Controlled Property a true and complete copy of the SMP that the Department approves for the Controlled Property and all Department-approved amendments to that SMP.

E. Grantor covenants and agrees that until such time as the Environmental Easement is extinguished in accordance with the requirements of ECL Article 71, Title 36 of the ECL, the property deed and all subsequent instruments of conveyance relating to the Controlled Property shall state in at least fifteen-point bold-faced type:

This property is subject to an Environmental Easement held by the New York State Department of Environmental Conservation pursuant to Title 36 of Article 71 of the Environmental Conservation Law.

F. Grantor covenants and agrees that this Environmental Easement shall be incorporated in full or by reference in any leases, licenses, or other instruments granting a right to use the Controlled Property.

G. Grantor covenants and agrees that it shall annually, or such time as NYSDEC may allow, submit to NYSDEC a written statement by an expert the NYSDEC may find acceptable certifying under penalty of perjury, in such form and manner as the Department may require, that:

(1) the inspection of the site to confirm the effectiveness of the institutional and engineering controls required by the remedial program was performed under the direction of the individual set forth at 6 NYCRR Part 375-1.8(h)(3).

(2) the institutional controls and/or engineering controls employed at such site:

(i) are in-place;

(ii) are unchanged from the previous certification, or that any identified changes to the controls employed were approved by the NYSDEC and that all controls are in the Department-approved format; and

(iii) that nothing has occurred that would impair the ability of such control to protect the public health and environment;

(3) the owner will continue to allow access to such real property to evaluate the continued maintenance of such controls;

(4) nothing has occurred that would constitute a violation or failure to comply with any site management plan for such controls;

(5) the report and all attachments were prepared under the direction of, and reviewed by, the party making the certification;

(6) to the best of his/her knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the site remedial program, and generally accepted engineering practices; and

(7) the information presented is accurate and complete.

3. Right to Enter and Inspect. Grantee, its agents, employees, or other representatives of the State may enter and inspect the Controlled Property in a reasonable manner and at reasonable times to assure compliance with the above-stated restrictions.

4. Reserved Grantor's Rights. Grantor reserves for itself, its assigns, representatives, and successors in interest with respect to the Property, all rights as fee owner of the Property, including:

A. Use of the Controlled Property for all purposes not inconsistent with, or limited by the terms of this Environmental Easement;

B. The right to give, sell, assign, or otherwise transfer part or all of the underlying fee interest to the Controlled Property, subject and subordinate to this Environmental Easement;

5. Enforcement

A. This Environmental Easement is enforceable in law or equity in perpetuity by Grantor, Grantee, or any affected local government, as defined in ECL Section 71-3603, against the owner of the Property, any lessees, and any person using the land. Enforcement shall not be defeated because of any subsequent adverse possession, laches, estoppel, or waiver. It is not a defense in any action to enforce this Environmental Easement that: it is not appurtenant to an interest in real property; it is not of a character that has been recognized traditionally at common law; it imposes a negative burden; it imposes affirmative obligations upon the owner of any interest in the burdened property; the benefit does not touch or concern real property; there is no privity of estate or of contract; or it imposes an unreasonable restraint on alienation.

B. If any person violates this Environmental Easement, the Grantee may revoke the Certificate of Completion with respect to the Controlled Property.

C. Grantee shall notify Grantor of a breach or suspected breach of any of the terms of this Environmental Easement. Such notice shall set forth how Grantor can cure such breach or suspected breach and give Grantor a reasonable amount of time from the date of receipt of notice in which to cure. At the expiration of such period of time to cure, or any extensions granted by Grantee, the Grantee shall notify Grantor of any failure to adequately cure the breach or suspected breach, and Grantee may take any other appropriate action reasonably necessary to remedy any breach of this Environmental Easement, including the commencement of any proceedings in accordance with applicable law.

D. The failure of Grantee to enforce any of the terms contained herein shall not be deemed a waiver of any such term nor bar any enforcement rights.

6. Notice. Whenever notice to the Grantee (other than the annual certification) or approval from the Grantee is required, the Party providing such notice or seeking such approval shall identify the Controlled Property by referencing the following information:

County, NYSDEC Site Number, NYSDEC Brownfield Cleanup Agreement, State Assistance Contract or Order Number, and the County tax map number or the Liber and Page or computerized system identification number.

Parties shall address correspondence to:

Site Number: C828163
Office of General Counsel
NYSDEC
625 Broadway
Albany New York 12233-5500

With a copy to:

Site Control Section
Division of Environmental Remediation
NYSDEC
625 Broadway
Albany, NY 12233

All notices and correspondence shall be delivered by hand, by registered mail or by Certified mail and return receipt requested. The Parties may provide for other means of receiving and communicating notices and responses to requests for approval.

7. Recordation. Grantor shall record this instrument, within thirty (30) days of execution of this instrument by the Commissioner or her/his authorized representative in the office of the recording officer for the county or counties where the Property is situated in the manner prescribed by Article 9 of the Real Property Law.

8. Amendment. Any amendment to this Environmental Easement may only be executed by the Commissioner of the New York State Department of Environmental Conservation or the Commissioner's Designee, and filed with the office of the recording officer for the county or counties where the Property is situated in the manner prescribed by Article 9 of the Real Property Law.

9. Extinguishment. This Environmental Easement may be extinguished only by a release by the Commissioner of the New York State Department of Environmental Conservation, or the Commissioner's Designee, and filed with the office of the recording officer for the county or counties where the Property is situated in the manner prescribed by Article 9 of the Real Property Law.

10. Joint Obligation. If there are two or more parties identified as Grantor herein, the obligations imposed by this instrument upon them shall be joint and several.

IN WITNESS WHEREOF, Grantor has caused this instrument to be signed in its name.

Grantor: **1630 Dewey Avenue Housing Development Fund Corp.,**

By: David Beer

Print Name: David Beer

Title: Vice President Date: 6/5/12

Grantor's Acknowledgment

STATE OF NEW YORK)
) ss:
COUNTY OF)

On the 5th day of JUNE, in the year 2012, before me, the undersigned, personally appeared DAVID BEER, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

Sandra Velez
Notary Public - State of New York

SANDRA VELEZ
Notary Public - State of New York
NO. 01VE6105072
Qualified in New York County
My Commission Expires 2/2/2016

Grantor: **1630 Dewey Avenue LLC**

By: 1630 Dewey Avenue Managing Member, Inc., its managing member

By: David Beer

Print Name: David Beer

Title: Vice President Date: 6/5/12

Grantor's Acknowledgment

STATE OF NEW YORK)
) ss:
COUNTY OF)

On the 5TH day of JUNE, in the year 20 12, before me, the undersigned, personally appeared DAVID BEEN, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

Notary Public - State of New York

SANDRA VELEZ
Notary Public - State of New York
NO. 01VE6105072
Qualified in New York County
My Commission Expires 5/2/2016

THIS ENVIRONMENTAL EASEMENT IS HEREBY ACCEPTED BY THE PEOPLE OF THE STATE OF NEW YORK, Acting By and Through the Department of Environmental Conservation as Designee of the Commissioner.

By: _____
Robert W. Schick, Acting Director
Division of Environmental Remediation

Grantee's Acknowledgment

STATE OF NEW YORK)
) ss:
COUNTY OF ALBANY)

On the 2nd day of July, in the year 2012, before me, the undersigned, personally appeared Robert W. Schick, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/ executed the same in his/her/ capacity as Designee of the Commissioner of the State of New York Department of Environmental Conservation, and that by his/her/ signature on the instrument, the individual, or the person upon behalf of which the individual acted, executed the instrument.

_____
Notary Public - State of New York

David J. Chiusano
Notary Public, State of New York
No. 01CH5032146
Qualified in Schenectady County
Commission Expires August 22, 2014

SCHEDULE "A"
ENVIRONMENTAL EASEMENT
PROPERTY DESCRIPTION

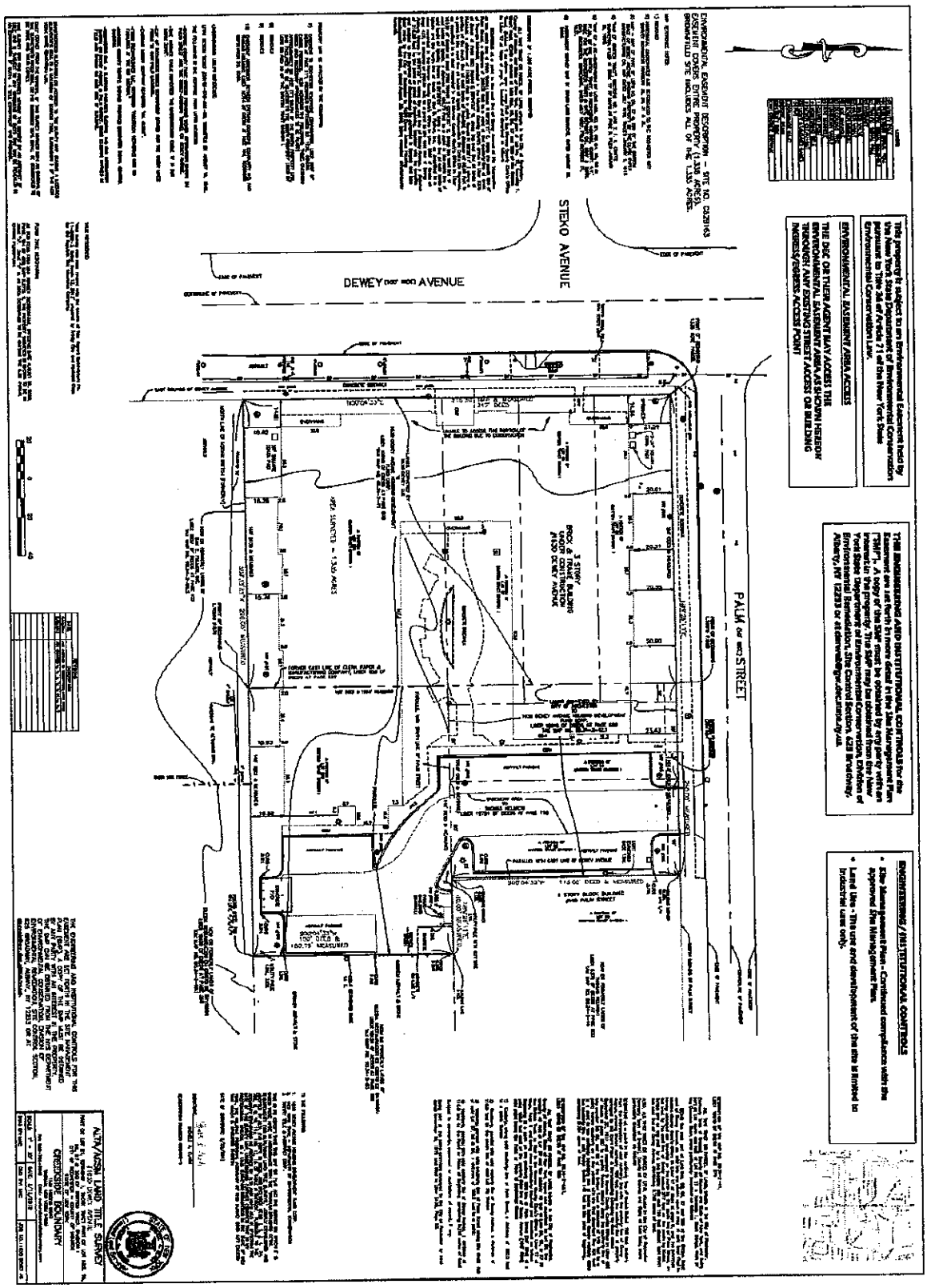
ADDRESS: 1630 Dewey Avenue in the City of Rochester, Monroe County, New York

Easement Area Legal Description

ALL THAT TRACT OR PARCEL OF LAND, situate in the City of Rochester, County of Monroe and State of New York, being part of Lot No. 27, Township 1, Short Tract, BEING a portion of Lots Nos. 55, 56, 57 and 200 of the Britton Tract, Division 1 as shown upon a map filed in the Monroe County Clerk's Office in Liber 17 of Maps at page 9, bounded and described as follows:

BEGINNING at a point in the east line of Dewey Avenue at the intersection of the south line of Palm Street; thence N 89° 28' 11" E, along the south line of Palm Street, a distance of 250.00 feet to a point at the westerly line of lands of Thomas Helmicki, recorded in the Monroe county Clerk's Office in Liber 9375 of Deeds at page 622; thence S 00° 04' 33" W, along the west line of lands of Helmicki, a distance of 116.00 feet to a point; thence N 89° 28' 11" E along a portion of the south line of said lands of Helmicki, a distance of 40.00 feet to a point in the west line of lands of Iglesia Restauracion En Cristo De Bayamon, as described in a deed recorded in the Monroe County Clerk's Office in Liber 10139 of Deeds at page 286; thence S 00° 04' 33" W, along the west line of said lands of Iglesia, a distance of 100.75 feet to a point in a north line of said lands of Iglesia; thence S 89° 33' 29" W, along a north line of said lands of Iglesia and the north line of lands of Dan C. Fulmer, Inc., as described in a deed recorded in the Monroe County Clerk's Office in Liber 8837 of Deeds at page 427, a distance of 290.00 feet to a point in the east line of Dewey Avenue; thence N 00° 04' 33" E, along the east line of Dewey Avenue, a distance of 216.30 feet to the point or place of beginning, together with the benefits and subject to the burdens of Restrictions as contained in Bargain and Sale Deed made by the City of Rochester to 1630 Dewey Avenue Housing Development Fund Corp., dated August 25, 2010, being recorded simultaneously herewith.

SURVEY


DEWEY AVENUE
STEKO AVENUE
PALM STREET
ENGINEERING AND INSTITUTIONAL CONTROLS
ALTA/ACSM LAND TITLE SURVEY
CREDSIDE BOUNDARY

APPENDIX C

HEALTH & SAFETY/COMMUNITY AIR MONITORING PLAN

HEALTH AND SAFETY PLAN

Site Investigations
And
Remedial Oversight

FORMER CRESCENT PURITAN LAUNDRY
(EASTMAN COMMONS)

SITE # C828163
1630 DEWEY AVENUE, 149 AND 161 PALMSTREET
ROCHESTER, NEW YORK

Prepared for:

Norstar Development USA, L.P.
200 South Division Street
Buffalo, New York 14204

Prepared by:

Panamerican Environmental, Inc.
2390 Clinton Street
Buffalo, New York 14227

JUNE 2012

Peter J. Gorton, MPH, CHCM
PEI Safety Officer

TABLE OF CONTENTS

Section Page

HEALTH AND SAFETY PLAN

1.0 INTRODUCTION

The following health and safety procedures will be followed by PEI personnel and their immediate subcontractors performing the activities described in the Demolition and Site Remediation Work Plans. Please note, however, contractors are required to develop and follow their own plans meeting these requirements minimally or adopt this plan.

1.1 Purpose

Directed at protecting the health and safety of the field personnel during field activities, the following site-specific Health and Safety Plan (HASP) was prepared to provide safe procedures and practices for personnel engaged in conducting the field activities associated with this plan. The plan has been developed using the Occupational Safety and Health Administration (OSHA) 1910 and 1926 regulations and NYSDEC Brownfields DER-10 as guidance. The purpose of this HASP is to establish personnel protection standards and mandatory safety practices and procedures for this task specific effort. This plan assigns responsibilities, establishes standard operating procedures, and provides for contingencies that may arise during the field efforts.

1.2 Applicability

The provisions of the plan are mandatory for all personnel engaged in field activities. All personnel who engage in these activities must be familiar with this plan and comply with its requirements. The plan is based on available information concerning the project area and planned tasks. If more data concerning the project area becomes available which constitute safety concerns, the plan will be modified accordingly. One crew member of each contractor will be designated Field Safety Officer and will be responsible for in-field safety. Any necessary modifications to the plan will be made by the Field Safety Officer after discussion with the PEI Project Manager and Safety Manager. All modifications will be documented in the HASP plan and field book and provided to the Project Manager and the Health and Safety Manager for approval. A copy of this plan will be available for review by all on- site personnel. In addition, a copy of the plan will be provided to all subcontractors prior to their initial entry onto the site.

Before field activities begin, all personnel will be required to read the plan. All personnel must agree to comply with the minimum requirements of the site-specific plan, be responsible for health and safety, and sign the Statement of Compliance for all on-site employees before site work begins.

1.3 Field Activities

The work includes 1) Demolition of the existing structure including the removal of all asbestos containing materials (ACM) from the Former Crescent Puritan Laundry and demolishing of the building including foundations (refer to Demolition Work Plan section 3.0); 2) remediation of site media (soil, groundwater and USTs (refer to Site Remediation Work Plan sections 5.0-7.0) and 3) any additional investigations. PEI will provide oversight services for the asbestos removal/building demolition and the site remediation IRM activities mentioned above to verify that the requirements of the remediation as specified in the work plans have been met.

1.3.1 Building Demolition and Disposal

A contractor has been selected for asbestos removal and building demolition (Frederico Wrecking). Frederico Wrecking (Contractor) is responsible for preparing a company and project specific demolition/disposal plan to be submitted to PEI, Owner and NYSDEC for review. The plan shall include, but not limited to, the following:

- Detailed construction schedule that meets the overall project schedule provided in the bid documents.
- Method of demolition and handling of asbestos containing materials.
- Work zone limits and staging of equipment, material, etc.
- Off-site transport routing and end disposal destinations.
- Traffic control and protection of city streets and property.
- End use verification to meet NYSDEC tracking requirements (Bills of Lading, etc.).
- Other requirements as specified in the construction plans and specifications

The Contractor will prepare separate health and safety plan (HASP) pertaining to the asbestos removal and demolition work for the protection of his workers and the general public.

The plan will include but not limited to:

- OSHA and DOL requirements
- Applicable laws and regulations regarding the handling and treatment of asbestos containing building materials
- Air and particulate monitoring
- Dust control
- Vehicle access to and from the site
- Vehicle decontamination procedures (tire wash, etc.)
- Site access restriction requirements (fencing, gates, watchmen service, etc.).

Asbestos Abatement Plan

As noted above, pre-demolition asbestos surveys have been completed and asbestos containing building materials are present. Those materials will be removed prior to demolition by a qualified asbestos abatement contractor. The contractor will be required to submit a site-specific asbestos abatement work plan that will also address health and safety issues and will include:

- Contractor's Asbestos Handling License;
- Contractor's employees asbestos handling certificates;
- Abatement and staffing schedule;
- Work plan summary of method of asbestos removal methods consistent with Code Rule 56;
- Written description and/or plans for the construction of decontamination enclosure systems (personnel and waste), asbestos work zones/areas, decontamination systems locations, proposed placement locations of negative air equipment, and other engineering controls;

- Security and Contingency Plans;
- Written proof of notifications to local emergency responders and hospital, NYSDOL, USEPA, and the City of Rochester;
- Written respiratory protection program and record keeping requirements;
- Identification of all waste transporters and disposal facilities including all relevant permits.

The Contractor's HASP must be submitted to PEI, the Owner and NYSDEC for review prior to beginning any work.

Asbestos Abatement Air Monitoring

During the asbestos abatement activities, the owner will retain an independent third party firm/laboratory to perform project air monitoring and analysis consistent with Code Rule 56-4 for asbestos abatement.

Air sampling is required on all large abatement projects such as this project. "Background", "Pre-Abatement", "Abatement", and "Post-Abatement" sampling are required for large abatement projects.

Background Sampling is conducted prior to any abatement activity. It is used to determine existing conditions before the start of the project; Pre-Abatement sampling is conducted during the preparation of the work area to determine if any Asbestos Material was disturbed during area preparation; Abatement sampling is conducted while the abatement is being performed to determine whether any airborne asbestos is escaping the contained work area; and Post-Abatement sampling is conducted after the completion of abatement activity to determine that the area abated is safe for re-occupancy. Post-Abatement Sampling is also referred to as Final or Clearance Air Monitoring. NYSDOL Certified Project Monitor is required to perform a final clearance visual inspection consistent with Code Rule 56-9. The project monitor visual inspection for completeness of abatement and completeness of cleanup will be performed consistent with ASTM Standard E-1368 "Standard Practice for Visual Inspection of Asbestos Abatement Projects."

The Firm performing the air monitoring will prepare an air monitoring report at the end of the asbestos abatement that will certify that clearance air monitoring has been completed and accepted.

The Contractor's HASP must be submitted to PEI, the Owner and NYSDEC for review prior to beginning any work.

1.3.2 Site Remediation Activities

A contractor has not as yet been selected for performing the site remediation activities. When selected he will be responsible for preparing a company and project specific site remediation plan to be submitted to PEI, Owner and NYSDEC for review. The contractor's HASP, at a minimum, must

comply with all Federal and State regulations and the requirements of this HASP including, but not to limited to, the following:

- Occupational Safety Health Administration (OSHA) Regulations 29 CFR 1910 120
- OSHA Regulations 29 CFR 1926
- NYSDEC DER-10 (latest version)
- All applicable laws and regulations regarding the handling and treatment of petroleum containing USTs and excavation/handling of impacted soils.
- The contractor's HASP must also comply with the Community Air Monitoring Plan (CAMP) provided in section 9.0 of this HASP.

The contractors HASP shall, at a minimum address, the following subject areas, as deemed necessary by the Contractor's health and safety personnel in accordance with OSHA Part 29 CFR 1910.120 and applicable New York State regulations:

- On-site health and safety organization.
- Hazard analysis of each site task and operation to be performed.
- Provisions for employee training to ensure compliance with 29 CFR 1910.120(e).
  Personal protective equipment (PPE) to be used by employees for each of the site tasks and operations being conducted to eliminate potential exposures, as required by the PPE programs in 1910.120(g)(5).
- Personnel and equipment decontamination procedures in accordance with 1910.120(k), as applicable.
- Standard Operating Safety Procedures, engineering controls and work practices.
- First aid requirements.
- Confined space entry requirements, if applicable, meeting requirements of 29 CFR1910.146.
- Dust control measures that comply with actions levels of the CAMP (section 9.0)
- A spill containment program meeting the requirements of 1910.120(j)
- Heat/cold stress monitoring.
- Record keeping procedures.

The Contractor's HASP must be submitted to PEI, the Owner and NYSDEC for review prior to beginning any work.

1.3.3 Additional Field Investigations

Additional field investigations would be conducted as necessary be PEI which may include soil borings, monitoring well installation, groundwater sampling and soil sampling. Specific health and safety requirements to be adhered to for these tasks are covered in this HASP.

1.4 Personnel Requirements

Key personnel are as follows:

Project Manager and Corporate health and Safety - Peter J. Gorton, MPH, CHCM

Project Engineer - John B. Berry, P.E.
Project Geologists - Justin Ryszkiewicz
Field Inspection/Health and Safety – Russell Lewis
Project QA/QC - Frank Schieppati, Ph.D
Building Demolition and Asbestos Removal Contractor – Frederico Wrecking
Site Remediation Contractor – To be named
Analytical Laboratory - To be named - DEC and ELAP Approved

Site personnel and their duties are outlined below.

The Project Manager will be responsible for all PEI personnel and their subcontractors' on-site duties.

The Project Manager has the primary responsibility for:

1. Assuring that personnel are aware of the provisions of the HASP and are instructed in the work practices necessary to ensure safety for planned procedures and in emergencies;
2. Verifying that the provisions of this plan are implemented;
3. Assuring that appropriate personnel protective equipment (PPE), if necessary, is available for and properly utilized by all personnel;
4. Assuring that personnel are aware of the potential hazards associated with site operations;
5. Supervising the monitoring of safety performances by all personnel to ensure that required work practices are employed; and,
6. Maintaining sign-off forms and safety briefing forms.

Field Health and Safety/oversight Inspector:

1. Monitor safety hazards to determine if potential hazards are present;
2. Determine changes to work efforts or equipment needed to ensure the safety of personnel;
3. Evaluate on-site conditions and recommend to the Project Manager modifications to work plans needed to maintain personnel safety;
4. Determine that appropriate safety equipment is available on-site and monitor its proper use;
5. Monitor field personnel and potential for exposure to physical hazards, such as heat/cold stress, safety rules near heavy equipment and borings;
6. Halt site operations if unsafe conditions occur or if work is not being performed in compliance with this plan:
7. Monitor performance of all personnel to ensure that the required safety procedures are followed. If established safety rules and practices are violated, a report of the incident will be filed and sent to the Project Manager within 48 hours of the incident; and,
8. Conduct safety meetings as necessary.

Field Personnel: The responsibility of each field crew member is to follow the safe work practices of this HASP and be familiar with and comply with the Contractor's HASP and in general to:

1. Be aware of the procedures outlined in this plan;
2. Take reasonable precautions to prevent injury to him/herself and to his/her co-workers;

3. Perform only those tasks that he/she believes can be done safely and
4. Immediately report any accidents or unsafe conditions to the safety personnel and Project Manager;
5. Notify the safety personnel and Project Manager of any special medical problems (i.e., allergies or medical restrictions) and make certain that on-site personnel are aware of any such problems;
6. Think Safety First prior to and while conducting field work; and,
7. Do not eat, drink or smoke in work areas.

Each crew member has the authority to halt work should he deem conditions to be unsafe. Visitors will be required to report to the construction manager or designee and follow the requirements of this plan and the Contractor's HASP.

2.0 SITE DESCRIPTION AND HAZARDS/SAFETY CONCERNS

2.1 Site Background And Description

The subject site contains three adjacent parcels located in the City of Rochester at the southeast corner of Dewey Avenue and Palm Street (refer to Figure 1). The area is historically mixed residential/commercial. The 1630 Dewey Avenue property contains a vacant approximately 52,000 square foot 2-story brick, former commercial laundry facility.

This existing vacant facility operated as a commercial laundry (Crescent Puritan Laundry) since at least the late 1920's to the mid 1970's or early 1980's. Now vacant, the property had various tenants after the laundry closed which included plastic fabrication, printing, tool machining, bathroom and kitchen cabinet sales, and other commercial/retail uses through the early 1980's and 1990's. Some of the tenants included DJ Printing, Monroe Micro film, Samson's Gym (second floor) and Vella Bath & Kitchen. The 149 and 161 Palm Street properties currently form an asphalt covered parking area behind the former laundry facility. These properties were historically used to support the laundry facility and historically contained vehicle garage and petroleum storage operations most likely to service laundry operations.

The adjacent property to the east is an automobile service and repair operation which has operated in this capacity since at least the 1950's. Further east and north is residential and beyond that is Kodak Park, a division of Eastman Kodak. North of the parcels along Palm Street is residential. The adjacent properties north along Dewey Avenue at Palm are commercial/retail including a Sunoco gasoline station. West of the properties across Dewey Avenue are an industrial facility (Steko) and other commercial/retail establishments including a motor cycle shop, auto service center, and a carpet center. The Steko property has a long history as the Clark Steko Corporation which was a large commercial building that may have been associated with paper manufacturing and supply as early as the 1920's. South of the properties across an alleyway (Industrial Alley – former railroad line) is mixed residential and retail/commercial including an insulation, roofing and gutter repair store and advent auto.

A series of investigations and site assessments have been completed at the property including:

- Phase I and Phase II Environmental Site Assessment completed by Galson Corporation for the City of Rochester Department of Environmental Services in 1999.
- Addendum to The Phase I Environmental Site Assessment: Final Report FOIA Response from NYSDEC completed by Galson in April 1999.
- Modified Phase I Environmental Site Assessment for 149 and 161 Palm Street, Rochester, New York. Completed by Day Environmental, Inc. for the City of Rochester, April 19, 2000
- Phase I/II Environmental Site Assessment for 1630 Dewey Avenue and 149/161 Palm Street. Completed by PEI for Norstar in September 2006
- Supplemental Site Characterization 1630 Dewey Avenue Rochester, New York. Completed by ATC Associates for Norstar in July 2010

Based these investigations, petroleum-like contamination was found in site soils in certain areas of the property and dry cleaning solvents were found in groundwater along the northern border of the property. Four separate petroleum source areas were identified:

- Area A - the area along and adjacent to the south-southeast side of the Dewey Street structure which is the location of an estimated 15,000-20,000-gallon fuel oil underground storage tank (UST). Assessment results in this area suggest limited soil impacts.
- Area B - the area along and adjacent to the northeast side of the Dewey Street structure which is the location of an estimated 500-1,000-gallon gasoline UST. Assessment results in this area indicate impacted soil towards Palm Street.
- Area C – the area of the former USTs identified in a previous investigation. This area appears to have limited soil impacts isolated to the general area
- Area D – the grass covered area east of the boiler room in the Dewey Street Structure. This area indicated limited petroleum-like soils impacts to that area

No source area for the low levels of dry cleaning solvents in the groundwater has been identified and may have been removed and/or associated with releases years ago.

To address the four identified source areas of apparent petroleum release and the relative low levels of dry cleaning solvents in downgradient wells, interim remedial measures (IRMs) have been established. These include the excavation, removal and disposal the two USTs and the impacted soil from the four “source” areas. Residual groundwater contamination can then be treated with Accelerated Bioremediation by the addition of a hydrogen release type mixture to the soil/water interface in the northern excavations prior to clean fill replacement. This will reduce any residual levels of petroleum/solvents in the downgradient wells which can be monitored. In addition, the existing structure will be demolished. A new mixed use office/residential complex will be constructed at the property. This new structure will include vapor barrier and passive vapor intrusion system which can be activated to an active system, if necessary.

During the above remediation activities an assessment will be made as to whether on-site contamination has the potential to migrate off-site via groundwater or soil vapor where it could

represent an exposure concern.

Asbestos Containing Materials

The following pre-demolition asbestos surveys have been conducted at the existing vacant Crescent Puritan building:

- Asbestos Survey complete by Galson Corporation for the City of Rochester, Department of Environmental Services, dated February 1999.

- Limited Asbestos Containing Materials Survey completed by Bergmann Associates for Norstar Development USA, L.P., dated December 1999.

The Bergmann survey was limited to an assessment of building materials that that may not have been included in the earlier Galson survey. Both surveys indicated the presence of asbestos containing materials (ACM) throughout the building.

Any universal wastes within the building will be identified and inventoried by the demolition contractor and the owner's representative prior to demolition. Items may include drums/containers, electrical/process equipment, fluorescent light fixtures, etc. Samples will also be collected for analysis of unidentified wastes to determine proper disposal.

2.2 Hazard Evaluation

Specific health and safety concerns particular to the project tasks include working around asbestos containing materials (ACM) and low levels of petroleum in soils and dry cleaning solvents in groundwater from the northern perimeter. Physical hazards include those associated with working near a building that is being demolished and open excavations, as well as working adjacent manual/mechanical operation of field equipment. The asbestos abatement and demolition IRM Contractor and remediation contractor will have separate detailed health and safety procedures/requirements for the removal and disposal of ACM, the demolition of the building, removal of USTs and impacted soil which will meet or exceed requirements in this plan. Their plans will be attached to this plan.

2.2.1 Chemical Hazards

Chemical hazards detected at the site include dry cleaning solvents (Tetrachloroethylene and 1,2-Dichloroethane) and petroleum related chemical compounds.

Tetrachloroethylene is widely used for dry-cleaning fabrics and metal degreasing operations. The main effects of tetrachloroethylene in humans are neurological, liver, and kidney effects following acute (short-term) and chronic (long-term) inhalation exposure. Adverse reproductive effects, such as spontaneous abortions, have been reported from occupational exposure to tetrachloroethylene; however, no definite conclusions can be made because of the limitations of the studies. Results from epidemiological studies of dry-cleaners occupationally exposed to

tetrachloroethylene suggest increased risks for several types of cancer. Animal studies have reported an increased incidence of liver cancer in mice, via inhalation and gavage (experimentally placing the chemical in the stomach), and kidney and mononuclear cell leukemia in rats. In the mid-1980s, EPA considered the epidemiological and animal evidence on tetrachloroethylene as intermediate between a probable and possible human carcinogen (Group B/C).

Effects resulting from acute, inhalation exposure of humans to tetrachloroethylene vapors include irritation of the upper respiratory tract and eyes, kidney dysfunction, and at lower concentrations, neurological effects, such as reversible mood and behavioral changes, impairment of coordination, dizziness, headache, sleepiness, and unconciousness. Animal studies have reported effects on the liver, kidney, and central nervous system (CNS) from acute inhalation exposure to tetrachloroethylene. Acute animal tests in mice have shown tetrachloroethylene to have low toxicity from inhalation and oral exposure.

The major effects from chronic inhalation exposure to tetrachloroethylene in humans are neurological effects, including sensory symptoms such as headaches, impairments in cognitive and motor neurobehavioral functioning and color vision decrements. Other effects noted in humans include cardiac arrhythmia, liver damage, and possible kidney effects. Animal studies have reported effects on the liver, kidney, and CNS from chronic inhalation exposure to tetrachloroethylene

1,2-Dichloroethane (1,2-DCA). 1,2-DCA is a colorless, heavy and flammable liquid which evaporates quickly at room temperature and has a sweet odor and taste. Its vapor pressure at 25°C is 79.1 mmHg and density is 1.23 g/cm^3 at 20°C. Its melting and boiling point are —35.5°C and 83.5°C, respectively (ATSDR, 2001).

1,2-DCA is classified as a group B2 carcinogen, which means it is a probable human carcinogen through the oral and inhalation routes (Opresko, 1994). The routes of exposure to humans are absorption through the lungs, gastrointestinal system, and skin. It is distributed throughout the body, but concentrates in the adipose tissue and is generally excreted with soluble urinary metabolites. Some health effects caused by exposure to 1,2-DCA are bronchitis, central nervous system depression, dizziness, vomiting, partial paralysis, liver and kidney damage, hemorrhages throughout the body, and death (Opresko, 1994).

1,2-DCA is mainly used in the manufacturing of vinyl chloride and other compounds including PCE, TCE, and 1,1,1-trichloroethane Other uses are as a solvent to degrease metals, as well as a fumigant and lead-scavenging agent in gasoline. It is also used in paints, coatings, adhesives, varnishes, finish removers, soaps, and scouring agents (Opresko, 1994).

Petroleum related compounds. Only a few distinct petroleum related compounds were detected in soil samples from the site at concentrations that slightly exceeded Part 375 soil cleanup requirements. However, a significant concentration of tentatively identified compounds (TICs) were detected which indicates that weathered petroleum compounds exist in the soils from the break down of the original petroleum compounds over time. Petroleum is a mixture of chemicals, but they are all made mainly from hydrogen and carbon, called hydrocarbons. Scientists divide petroleum hydrocarbons into groups that act alike in soil or water. These groups are called

petroleum hydrocarbon fractions. Each fraction contains many individual chemicals.

Some chemicals that may be found in petroleum products include hexane, jet fuels, mineral oils, benzene, toluene, xylenes, naphthalene, and fluorene, as well as other petroleum compounds and gasoline components.

How might someone be exposed to petroleum hydrocarbons?

- Everyone is exposed to petroleum hydrocarbons from many sources.
- Breathing air at gasoline stations, using chemicals at home or work, or using certain pesticides.
- Drinking water contaminated with petroleum hydrocarbons.
- Working in occupations that use petroleum products.
- Living in an area near a spill or leak of petroleum products.
- Touching soil contaminated with petroleum hydrocarbons.

Potential routes of exposure include:

- Skin contact;
- Inhalation of vapors or particles;
- Ingestion; and,
- Entry of contaminants through cuts, abrasions or punctures.

The anticipated levels of personnel protection will include Level D personal protective equipment:

1. Long sleeve shirt and long pants (recommended),
2. Work boots,
3. Hard hats, if work is conducted around heavy equipment or overhead hazards,
4. Safety Glasses
5. Gloves to include work gloves and chemical resistant gloves when sampling potentially contaminated materials.

Modifications may include chemically resistant gloves, boots/booties, and overalls. If monitoring levels indicate levels requiring respiratory protection (sustained PID readings at or above 5 ppm above a daily established background), work will be halted pending discussions with field and office management. If any readings are recorded above background, work will proceed with caution and breathing zone monitoring will be conducted.

2.2.2 Other Physical Hazards

Depending on the time of year, weather conditions or work activity, some of the following potential physical hazards could result from project activities:

1. Noise
2. Heat Stress

3 . Cold Stress
4 . Slips, trips, and falls
5 . Exposure to moving machinery or stored energy, particularly during Lime removal and drilling
6 . Physical eye hazards
7 . Lacerations and skin punctures
8 . Back strain from lifting equipment
9 . Electrical storms and high winds
1 0 . Contact with overhead or underground utilities

Slips, Trips, and Falls. Field personnel shall become familiar with the general terrain and potential physical hazards which would be associated with accidental risk of slips, trips, and/or falls. Special care shall be taken when working near demolition operations or demolition material stockpiles. Workers will observe all pedestrian and vehicle rules and regulations. Extra caution will be observed while working near roadways and while driving in reverse to ensure safety.

Noise. All personnel shall wear hearing protection devices, such as ear muffs or ear plugs, if work conditions warrant. These conditions would include difficulty hearing while speaking to one another at a normal tone within three feet. If normal speech is interfered with due to work noise, the field safety officer will initiate the mandatory use of hearing protection around the backhoe, or other noise-producing equipment or events.

Heat/Cold Stress. Heat stress work modification may be necessary during ambient temperatures of greater than 29° C (85° F) while wearing normal clothing or exceeding 21' C (70° F) while wearing personnel protective clothing. Because heat stress is one of the most common and potentially serious illnesses at work sites, regular monitoring and preventive measures will be utilized should conditions warrant. This may include additional rest periods, supplemental fluids, restricted consumption of drinks containing caffeine or alcohol, use of cooling vests, or modification of work practices.

Most of the work to be conducted during the oversight and monitoring operations is expected to consist of light manual labor and visual observation. Given the nature of the work and probable temperatures, heat stress hazards are not anticipated.

If work is to be conducted during winter conditions, cold stress may be a concern to the health and safety of personnel. Wet clothes combined with cold temperatures can lead to hypothermia. If air temperature is less than 40° F (4° C) and an employee perspires, the employee must change to dry clothes. The following summary of the signs and symptoms of cold stress are provided as a guide for field and safety personnel.

Incipient frostbite is a mild form of cold stress characterized by sudden blanching or whitening of the skin.

Chilblain is an inflammation of the hands and feet caused by exposure to cold moisture. It is characterized by a recurrent localized itching, swelling, and painful inflammation of the fingers, toes, or ears. Such a sequence produces severe spasms, accompanied by pain.

Second-degree frostbite is manifested by skin with a white, waxy appearance and the skin is firm to the touch. Individuals with this condition are generally not aware of its seriousness because the underlying nerves are frozen and unable to transmit signals to warn the body. Immediate first aid and medical treatment are required.

Third-degree frostbite will appear as blue blotchy skin. The tissue is cold, pale, and solid. Immediate medical attention is required.

Hypothermia develops when body temperature falls below a critical level. In extreme cases, cardiac failure and death may occur. Immediate medical attention is warranted when the following symptoms are observed:

1. Involuntary shivering
2. Irrational behavior
3. Slurred speech
4. Sluggishness

Fire and Explosion. These hazards will be minimal for activities associated with this project. All heavy equipment will be equipped with a fire extinguisher.

Trenching and Excavations. There are a variety of potential health and safety hazards associated with excavations. These include:

- Surface encumbrances, such as structures, fencing, stored materials, etc., may interfere with safe excavations;
- Below- and above-ground utilities, such as water and sewer lines, gas lines, power lines, telephones, and optical cable lines, etc.;
- Overhead power lines and other utilities which may be contacted by the excavation equipment;
- Vehicle and heavy equipment traffic around the excavations;
- Falling loads from lifting or digging equipment;
- Water accumulation within excavations;
- Hazardous atmospheres, such as oxygen deficiency, flammable gases or vapors, and toxic gases which may occur in excavations,
- Falling into or driving equipment or vehicles into unprotected or unmarked excavations; and,
- Cave-in of loose rocks and soil/lime at the excavation face.

OSHA requirements for trenching and excavations are contained in 29 CFR, subpart P, 1926:650 thru 1926.652.

Basic minimum excavation requirements should include:

- Personnel entry into excavations should be minimized, whenever possible and no entry will occur in pits below 4 feet in depth.
- Sloping, shoring or some other equivalent means should be utilized, as required. Surface encumbrances such as structures, fencing, piping, stored material etc. which may interfere with safe excavations should be avoided, removed or adequately supported prior to the start of excavations. Support systems should be inspected daily.

- Underground utility locations should be checked and determined and permits as necessary should be in place prior to initiating excavations. Local utility companies will be contacted at least two days in advance, advised of proposed work, and requested to locate underground installations. When excavations approach the estimated location of utilities, the exact location should be determined by careful probing or hand digging and when it is uncovered, proper supports should be provided.
- A minimum safe distance of 15 feet should be maintained when working around overhead high-voltage lines or the line should be de-energized following appropriate lock-out and tag-out procedures by qualified utility personnel.
- Excavations five feet or more deep if entered will require an adequate means of exit, such as a ladder, ramp, or steps and located so as to require no more than 25 feet of lateral travel. Under no circumstances should personnel be raised using heavy equipment.
- Personnel working around heavy equipment, or who may be exposed to public vehicular traffic should wear a traffic warning vest. At night, fluorescent or other reflective material is recommended to be worn.
- Heavy equipment or other vehicles operating next to or approaching the edge of an excavation will require that the operator have a clear view of the edge of the excavation, or that warning systems such as barricades, hand or mechanical signals, or stop logs be used. If possible the surface grade should slope away from the excavation.
- Personnel should be safely located in and around the trench/excavation face and should not work underneath loads handled by lifting or digging equipment.
- Hazardous atmospheres, such as oxygen deficiency (atmospheres containing less than 19.5% oxygen), flammable gases or vapors (airborne concentrations greater than 20% of the lower explosive limit), and toxic gases or vapors (airborne concentrations above the OSHA Permissible Exposure Limit or other exposure limits) may occur in excavations. Monitoring should be conducted for hazardous atmospheres prior to entry and at regular intervals. Ventilation or respiratory protection may be provided to prevent personnel exposures to oxygen deficient or toxic atmospheres. Periodic retesting (at least each shift) of the excavation will be conducted to verify that the atmosphere is acceptable. A log or field book records should be maintained.
- Personnel should not work in excavations that have accumulated water or where water is accumulating unless adequate precautions have been taken. These precautions can include special support or shield systems, water removal systems such as pumps, or safety harnesses and lifelines. Groundwater entering the excavation should be properly directed away and down gradient from the excavation.
- Safety harnesses and lifelines should be worn by personnel entering excavations that qualify as confined spaces.
- Excavations near structures should include support systems such as shoring, bracing, or underpinning to maintain the stability of adjoining buildings, walls, sidewalks, or other structures endangered by the excavation operations.
- Loose rock, excavated or other material, and spoils should be effectively stored and retained at least two and preferably 5 feet or more from the edge of the excavation. Barriers or other effective retaining devices may be used in order to prevent spoils or other materials from falling into the excavation.
- Walkways or bridges with standard guardrails that meet OSHA specifications will be provided

where employees, the public, or equipment are required to cross over excavations.

- Adequate barrier physical protection should be provided and excavations should be barricaded or covered when not in use or left unattended. Excavations should be backfilled as soon as possible when completed.
- Safety personnel should conduct inspections prior to the start of work and as needed throughout the work shift and after occurrence that increases the hazard of collapse (i.e., heavy rain, vibration from heavy equipment, freezing and thawing, etc.).
- Personnel working in excavations should be protected from cave-ins by sloping and/or benching of excavation walls, a shoring system or some other equivalent means in accordance with OSHA regulations. Soil type is important in the determination of the angle of repose for sloping and benching, and the design of shoring systems.

2.2.3 Biological Hazards

Biological hazards can result from encounters with mammals, insects, snakes, spiders, ticks, plants, parasites, and pathogens. Mammals can bite or scratch when cornered or surprised. The bite or scratch can result in local infection with systemic pathogens or parasites. Insect and spider bites can result in severe allergic reactions in sensitive individuals. Exposure to poison ivy, poison oak or poison sumac results in skin rash. Ticks are a vector for a number of serious diseases. Dead animals, organic wastes, and contaminated soil and water can harbor parasites and pathogens. These hazards will be reduced to non-existent if work is conducted during late fall and winter months. The following are highlighted because they represent more likely concerns for the site-specific tasks and location:

Bees, Ants, Wasps and Hornets. Sensitization by the victim to the venom from repeated stings can result in anaphylactic reactions. If a stinger remains in the skin, it should be removed by teasing or scraping, rather than pulling. An ice cube placed over the sting will reduce pain. An analgesic corticosteroid lotion is often useful. People with known hypersensitivity to such stings should consult with their doctor about carrying a kit containing an antihistamine and aqueous epinephrine in a pre-filled syringe when in endemic areas. Nests and hives for bees, wasps, hornets and yellow jackets often occur in the ground, trees and brush. Before any nests or hives are disturbed, an alternate sampling location should be selected. If the sample location cannot be relocated, site personnel who may have allergic reactions shall not work in these areas.

Storm Conditions. When lightening is within 10 miles of the work site, all personnel should evacuate to a safe area.

Sun. When working in the sun, personnel should apply appropriate sun screening lotions (30 sun screen or above), and/or wear long sieve clothing and hats.
Field personnel should refrain from handling any foreign objects such as hypodermic needles, glass, etc.

2.2.4 Activity Hazard Analysis

Table 1 presents a completed activity hazard analysis for the performance of IRM and SI

Table 1. Activity Hazard Analysis

PRINCIPAL STEPS	POTENTIAL SAFETY/ HEALTH HAZARDS	RECOMMENDED CONTROLS
1. IRM-Demolition 2. IRM Site Remediation &SI soil/groundwater investigation	1. Exposure Demolition & asbestos operations and physical hazards 2. Potential exposure to low levels of solvents and petroleum products	Covers all hazards 1. Use of administrative controls (site control and general safety rules), work cloths, dust suppression 2. Use of real-time monitoring and action levels 3. Use Physical Hazards SOPs
EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
Excavation and other heavy equipment, Backhoe and/or Geoprobe	1. Daily inspection of equipment 2. Continuous safety oversight	1. Safety plan review 2. Routine safety briefings

3.0 MONITORING

The purpose of air monitoring is to monitor for potential airborne contaminants and to verify that protection levels are suitable. Monitoring will be performed for dust/particulates and volatile organic compounds during excavation activities. Daily background and calibration readings will be recorded prior to the start of field activities. All monitoring equipment used during this investigation will be maintained and calibrated and records of calibration and maintenance will be kept in accordance with 29 CFR 1910.120(b)4(11)E. The Community Air Monitoring Program (CAMP) is discussed in Section 9.0.

3.1 Particulate Monitoring

PEI will obtain real-time air monitoring readings from upwind and downwind locations in accordance with DER-10 for community air-monitoring (refer to Section 9.0).

PEI will complete daily field reports that document activities performed equipment and manpower onsite, screening and/or monitoring results, general conditions and weather conditions.

Air Monitoring for Worker Protection

Real time air monitoring will be conducted during building demolition, UST removal and when site soils are disturbed including during, excavation and grading and other activities. A real time personal aerosol monitor (i.e., TSI SidePak AM5 10 Personal Aerosol monitor or equivalent) will be used. This monitor is a laser photometer which measures data as both real-time aerosol mass-

concentration and 8-hour time weighted average (TWA). For this project the monitor will be used to measure real-time concentrations in milligrams per meter cubed (mg/m^3). Action levels are based on potential exposure to calcium carbonate and will be as follows:

- 15 mg/m^3 total dust
- 5 mg/m^3 respirable fraction for nuisance dusts

Dust suppression techniques should be employed prior to exceeding the action levels. However, if these if these levels are exceeded work will be halted and additional dust suppression techniques employed until safe levels are reached.

3.2 Total Volatile Organics Monitoring

Monitoring of volatile organic compounds will be conducted using a photo-ionization detector (PID). If a sustained reading of 5 ppm above background occurs, work will be halted and personnel will evacuate the work area. Levels will be allowed to stabilize and another reading will be taken in the breathing zone. If background levels continue to be exceeded, work will not continue at that location and the project manager will be notified of the situation. Action levels will remain the same.

4.0 SAFE WORKING PRACTICES

4.1 General Practices

The following general safe work practices apply:

- Eating, drinking, chewing gum or tobacco and smoking are prohibited within the work area as part of safe work practices.
- Contact with potentially contaminated substances should be avoided. Puddles, pools, mud, etc. should not be walked through if possible. Kneeling, leaning, or sitting on equipment or on the ground should be avoided whenever possible.
- Upon leaving the work area, hands, face and other exposed skin surfaces should be thoroughly washed.
- Unusual site conditions shall be promptly conveyed to the site manager and safety personnel as well as the project management for resolution.
- A first-aid kit shall be available at the site.
- Field personnel should use all their senses to alert themselves to potentially dangerous situations (i.e., presence of strong, irritating, or nauseating odors).
- Personal hygiene practices such as no eating, drinking or smoking will be followed.
- If severe dusty conditions hazardous to the crew are present, soils will be dampened to mitigate dust. All equipment will be cleaned before leaving the work area.
- Field personnel must attend safety briefings and should be familiar with the physical characteristics of the investigation, including:
    - Accessibility to associates, equipment, and vehicles.
    - Areas of known or suspected contamination.
    - Site access.
    - Routes and procedures to be used during emergencies.
- Personnel will perform all investigation activities with a buddy who is able to:

– Provide his or her partner with assistance.
- Notify management / emergency personnel if emergency help is needed.

- Excavation activities shall be terminated immediately in event of thunder and/or electrical storm.
- The use of alcohol or drugs at the site is strictly prohibited.

5.0 PERSONAL SAFETY EQUIPMENT AND SITE CONTROL

5.1 Personal Safety Equipment

As required by OSHA in 29 CFR 1920.132, this plan constitutes a workplace hazard assessment to select personal protective equipment (PPE) to perform the site investigation.

The PPE to be donned by on-site personnel during this investigation are those associated with the industry standard of level D. Protective clothing and equipment to initiate the project will include:

- Work clothes
- Work boots
- Work gloves as necessary
- Hard hat if work is conducted in areas with overhead danger
- Hearing protection as necessary

Modifications may include chemically resistant gloves, boots/booties, and overalls. If monitoring levels indicate levels requiring respiratory protection (sustained readings at or above action levels above a daily established background), work will be halted pending discussions with field and office management.

5.2 Site Control

Site control will be established near each work zone by the Contractor. The purpose is to control access to the immediate work areas from individuals not associated with the project. Site control limits will be established by the Contractor in his HASP. All work zones will be fenced off with controlled access and appropriately designated as an exclusion area.

5.2.1 Work Zones (For excavations/drilling using heavy equipment or deeper than 3 feet)

Each excavation will be set up in work zones to include an exclusion area and support zone. Exact configuration of each zone is dependent upon location, weather conditions, wind direction and topography. The Contractor's safety manager will establish the control areas daily at each excavation.

An area of 10 feet (as practical) around each excavation will be designated as the exclusion area. This is the area where potential physical hazards are most likely to be encountered by field personnel. The size of the exclusion area may be altered to accommodate site conditions and the drilling/excavation location. If levels of protection higher than level D are used, this plan will be modified to include decontamination procedure. The Site excavation contractor will be required to have eye/face wash equipment/means available on-site.

A support area will be defined for each field activity. Support equipment will be located in this clean area. Normal work clothes are appropriate within this area. The location of this area depends on factors such as accessibility, wind direction (upwind of the operation.), and resources (i.e., roads, shelter, utilities). The location of this zone will be established daily.

Excavation areas will be filled and or secured (fencing) to prevent access from the general public.

6.0 EMERGENCY INFORMATION

In the event of an emergency, the field team members or the site safety manager will employ emergency procedures. A copy of emergency information will be kept in the field vehicle and will be reviewed during the initial site briefing. Copies of emergency telephone numbers and directions to the nearest hospital will be prominently posted in the field vehicle.

6.1 Emergency Medical Treatment and First Aid

A first aid kit large enough to accommodate anticipated emergencies will be kept in the PEI field vehicle. If any injury should require advanced medical assistance, emergency personnel will be notified and the victim will be transported to the hospital. The Contractor will establish his own first aid station and details will be provided in his HASP.

In the event of an injury or illness, work will cease until the field safety and oversight inspector has examined the cause of the incident and taken appropriate corrective action. Any injury or illness, regardless of extent, is to be reported to the project manager.

6.2 Emergency Telephone Numbers and Hospital

Emergency telephone numbers for medical and chemical emergencies will be posted in the field vehicle are listed below:

Ambulance	911
Fire	911
Police - NYS Troopers	911
Poison Control Center	1-800-888-7655
NYSDEC Spills Hotline	1-800-457-7362

PEI Project Manager, Mr. Peter J. Gorton: Work 716 - 821-1650 & Cellular 716-308-8220
PEI H & S & Oversight Inspector, Russ Lewis Cell 716-783-2835
NYSDEC Project Manager, Mr. Gary Bonarski 585-226-5328
NYSDOH Project Manager, Justin Deming (518) 402-7860

Norstar VP Construction, Sam Finlay 716-847-1098 Ext 13
Norstar Sr. project manager, Lori Harris 518-431-1051

Hospital – Rochester General Hospital
1425 Portland Avenue

Rochester, NY 14621

Start out going NORTH on DEWEY AVE (From A on Map) toward STEKO AVE.	0.2 mi
Turn RIGHT onto W RIDGE RD/NY-104 E. Continue to follow NY-104 E.	2.4 mi
Take the ramp toward CARTER ST/PORTLAND AVE.	0.1 mi
Stay STRAIGHT to go onto RT-104.	0.4 mi
Turn RIGHT onto PORTLAND AVE/CR-114.	0.2 mi
1425 PORTLAND AVE is on the RIGHT (B on Map)	

See attached map for route to the Hospital Facility.

Verbal communications between workers or use of a site vehicle horn repeated at intervals of three short beeps shall be used to signal all on-site personnel to immediately evacuate the area and report to the vehicle parking area.

6.3 Emergency Standard Operating Procedures

The following standard operating procedures are to be implemented by on-site personnel in the event of an emergency. The Contractor's field safety manager along with PEI oversight Inspector shall manage response actions.

Upon notification of injury to personnel, the designated emergency signal shall be sounded, if necessary. All personnel are to terminate their work activities and assemble in a safe location. The emergency medical service and hospital emergency room shall be notified of the situation. If the injury is minor, but requires medical attention, the field safety manager shall accompany the victim to the hospital and provide assistance in describing the circumstances of the accident to the attending physician.

Upon notification of an equipment failure or accident, the field safety manager shall determine the effect of the failure or accident on site operations. If the failure or accident affects the safety of personnel or prevents completion of the scheduled operations, all personnel are to leave the area until the situation is evaluated and appropriate actions taken.

Upon notification of a natural disaster, such as tornado, high winds, flood, thunderstorm or earthquake, on-site work activities are to be terminated and all personnel are to evacuate the area.

6.4 Emergency Response Follow-Up Actions

Following activation an Emergency Response, PEI Oversight inspector shall notify the PEI project manager regarding any emergency involving PEI personnel. The Contractor's field safety manager shall submit a written report documenting the incident to PEI and Norstar site representatives

6.5 Medical Treatment for Site Accidents/Incidents

The Contractor's field safety manager shall be informed of any site-related injury, exposure or medical condition resulting from work activities. All personnel are entitled to medical evaluation and treatment in the event of a site accident or incident.

6.6 Site Medical Supplies and Services

The Contractor's field safety manager or a trained first aid crew member shall evaluate all injuries at the site and render emergency first-aid treatment as appropriate. If an injury is minor but requires professional medical evaluation, the field safety manager shall escort the employee to the appropriate emergency room. For major injuries occurring at the site, emergency services shall be requested.

A first-aid kit shall be available, readily accessible and fully stocked. The first-aid kit shall be located within specified vehicles used for on-site operations.

6.7 Universal Precautions

Universal precautions shall be followed on-site at all times. This consists of treating all human blood and certain body fluids as being infected with Human Immune Deficiency Virus (HIV), Hepatitis B virus (HBV), and other blood borne pathogens. Clothing and first-aid materials visibly contaminated with blood or other body fluids will be collected and placed into a biohazard bag. Individuals providing first aid or cleanup of blood- or body-fluid contaminated items should wear latex gloves. If providing CPR, a one-way valve CPR device should be used. Biohazard bags, latex gloves, and CPR devices will be included in the site first-aid kits.

Work areas visibly contaminated with blood or body fluids shall be cleaned using a 1:10 dilution of household bleach. If equipment becomes contaminated with blood or body fluids, and can not be sufficiently cleaned, the equipment shall be placed in a plastic bag and sealed.

Any personnel servicing the equipment shall be made aware of the contamination, so that proper precautions can be taken.

7.0 RECORD KEEPING

The Contractor's field manager and safety manager are responsible for site record keeping. Prior to the start of work, they will review this Plan along with the Contractor's HASP.

A Site Safety Briefing will be completed prior to the initiation of investigation activities. This shall be recorded in the field log book An Accident Report should be completed by the Field Manager in the event that an accident occurs and forwarded to the office administrative manager.

8.0 PERSONNEL TRAINING REQUIREMENTS

8.1 Initial Site Entry Briefing

Prior to initial site entry, the Contractor's field safety manager shall provide all personnel (including site visitors) with site-specific health and safety training. A record of this training shall be maintained. This training shall consist of the following:

- Discussion of the elements contained within this plan
- Discussion of responsibilities and duties of key site personnel
- Discussion of physical, biological and chemical hazards present at the site
  Discussion of work assignments and responsibilities
- Discussion of the correct use and limitations of the required PPE
- Discussion of the emergency procedures to be followed at the site
- Safe work practices to minimize risk
- Communication procedures and equipment
- Emergency notification procedures

8.2 Daily Safety Briefings

The Contractor's field safety manager will determine if a daily safety briefing with all site personnel is needed. The briefing shall discuss the specific tasks scheduled for that day and the following topics:

- Specific work plans
- Physical, chemical or biological hazards anticipated
- Fire or explosion hazards
- PPE required
- Emergency procedures, including emergency escape routes, emergency medical treatment, and medical evacuation from the site
- Weather forecast for the day
- Buddy system
- Communication requirements
- Site control requirements
- Material handling requirements

9.0 COMMUNITY AIR MONITORING PROGRAM (CAMP)

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the upwind and downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities)

from potential airborne contaminant releases as a direct result of investigative and remedial work activities.

The generic CAMP presented in Attachment 4 from *NYSDEC DER-10* titled *Appendix 1A-New York State Department of Health Generic Community Air Monitoring Plan* will be followed and adhered to for the building demolition, IRMs and similar applicable areas.

A program for suppressing fugitive dust and particulate matter monitoring will also be conducted in accordance *NYSDEC DER-10* titled *Appendix 1B Fugitive Dust and Particulate Monitoring* which is also provided in Attachment 4. The fugitive dust suppression and particulate monitoring program will be employed at the site during building demolition, IRM site remediation and other intrusive activities which warrant its use.

Both the CAMP and the fugitive dust suppression and particulate monitoring program will be carried out be PEI the Owner's consultant. Monitoring results of the CAMP will be reported to the New York State Department of Health on a daily basis for review.

10.0 POTENTIAL HAZARDS AND OSHA STANDARDS

A table of Potential Hazards and OSHA Standards for Consideration during the building demolition and IRMs is provided in Attachment 5.

ATTACHMENT 1

Heat Stress management Program & procedures

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PANAMERICAN

PANAMERICAN HEAT STRESS MANAGEMENT PROGRAM

INTRODUCTION

Panamerican employees engage in a variety of activities with potential exposure to excessive ambient temperatures and humidity, with the overall result being Aheat stress@. This procedure establishes the Panamerican Heat Stress Management Program. It establishes responsibilities and basic requirements for personnel who may be required to work in situations where the ambient temperature exceeds 21° C (70° F) while wearing protective equipment (e.g., hazardous waste site investigations) or when the ambient temperature exceeds 29° (85° F) while wearing normal clothing. Because heart stress is one of the most common and potentially serious illnesses at job sites and particularly hazardous waste sites, regular monitoring and other preventive measures are warranted.

There are no regulations addressing heat stress. However, it should be noted that OSHA does recognize heat stress as a potentially serious health hazard and can site employers under the Ageneral duty clause@ of the Occupational Safety Health Act if heat-related illness is occurring or likely to occur.

PROGRAM ADMINISTRATION AND RESPONSIBILITIES

The Heat Stress Management Program is administered by Panamerican Managers and Health and Safety personnel.

These Individuals:

- Oversee the implementation of the Heat Stress Management Program;
- Periodically audit and evaluate program implementation;
- Evaluate this procedure on an ongoing basis to see that it reflects current practice and regulations;
- Assist field crews in their implementation of this procedure.

Project Managers (PM) and Safety Personnel are responsible for:

- Implementing this Procedure in all field operations:
- Providing guidance to staff regarding heat stress management as described in the Procedure; and
- Providing feedback to management regarding program effectiveness.

Staff Members are responsible for:

- Complying with this Procedure as it applies to their activities; and
- Providing feed back to their supervisor regarding program effectiveness.

HEAT STRESS HAZARDS AND RISK FACTORS

Heat Stress is defined as the total net load on the body with contributions from both exposure to external sources, such as sunshine and hot surfaces, and from internal metabolic heat production. A person=s

exposure to the increased ambient temperatures and humidity produces physiological responses referred to as heat stress which are characterized by an increase in the: a) Acore@ or Adeep body temperature@. b) heart rate, c) blood flow to the skin, and d) water and salt loss due to sweating. Conditions of excessive heat stress may occur either when the physical work is too heavy or the environment is too hot in relation to the work being performed. If work is performed under hot environmental conditions, the work load effort must be reviewed and the heat exposure limit maintained at or below the levels to protect the worker from the risk of acute heat illness.

In general, there are four types of physiological disorders associated with heat stress. They include:

- Heat Rash - a skin reaction occurring as a result of obstructed sweat glands, often associated with impermeable clothing.

- Heat Cramps - painful muscle spasms of extremities and abdomen, resulting from inadequate balance of electrolytes which are lost from sweating.

- Heat Exhaustion - a mild form of heat stroke due to depletion of body fluids and electrolytes. Blood vessels dilate despite decreased volume of blood. Symptoms include weakness, dizziness, nausea, rapid pulse, and a small increase in body temperature.

- Heatstroke - a potentially fatal disorder resulting from failure of the body=s thermoregulatory system. The classical description of heatstroke includes (1) a major disruption of central nervous function (unconsciousness of convulsions), (2) a lack of sweating (3) hot, dry, red or mottled skin, and (4) a core temperature in excess of 41^{o} C (105.8^{o} F). Heatstroke is a serious medical condition which calls for emergency medical action.

Seven factors play significant roles in the development of or predisposition to, heat stress disorders. These factors include:

- Acclimatization - Heat acclimatization leads to increased and quicker sweating, cooler skin due to an increase in evaporative cooling and a lower, more stable core body temperature. Maximal sweating rates in unacclimatized persons are lower, but salt concentrations in their perspiration are higher, requiring a higher rate of salt replacement.

- Age - Older individuals are generally more susceptible to heat stress than younger individuals. However, older healthy workers are able to perform well in hot jobs if permitted to proceed at a self-regulated pace.

- Gender - The average woman has a lower aerobic capacity than a similar-sized man. Nevertheless, when working at similar proportions of their maximum aerobic capacity, women perform similarly or only slightly less well than men.

- Body Fat - The lower level of physical fitness, decreased maximum work capacity and decreased cardiovascular capacity frequently associated with obesity predispose individuals to heat disorders.

- Water and Electrolyte Balance - Sustained, effective work performance in heat requires a

replacement of body water and electrolytes lost through sweating. If this water is not replaced by drinking, continued sweating will draw on water reserves from both tissues and body cells leading to dehydration.

- Use of Alcohol and Medication - Not withstanding the potential hazards from impaired coordination and judgment, the ingestion of alcohol before or during work in the heat should not be permitted because it reduces heat tolerance and increases the risk of heat illness, Many drugs, including diuretics and antihypertensives, can interfere with the body=s thermoregulation.

- Physical Fitness - Physical conditioning enhances heat tolerance by increasing the functional capacity of the cardiovasculatory system, and reduces the time required to develop heat acclimatization by about 50% over those not physically fit.

The factors listed above are to be taken into account by all project personnel when planning or executing a project subject to heat stress conditions. The factors should be taken into consideration for:

- the development of the project schedule;
- the ordering of supplies/equipment;
- the support facilities to be made available at the site;
- the execution of work tasks; and
- the after work hours activities.

The following is a summary of signs and symptoms of heat stress:

Heat Rash may result from continuous exposure to heat or humid air .

Heat cramps are caused by heavy sweating with inadequate electrolyte replacement. Signs and symptoms include:

- Muscle Spasms
- Pain in the hands, feet and abdomen.

Heat Exhaustion occurs from increased stress on various body organs, including inadequate blood circulation due to cardiovascular insufficiency or dehydration. Signs and symptoms include:

- Pale, cool and moist skin
- Heavy sweating
- Dizziness, fainting and nausea

Heat stroke is the most serious form of heat stress. Temperature regulation fails, and the body temperature rises to critical levels. Immediate action must be taken to cool the body before serious injury or death occurs. Competent medical help must be obtained. Signs and symptoms are:

- Red, hot and unusually dry skin
- Lack of or reduced perspiration
- Dizziness and confusion

- Strong, rapid pulse and coma.

HEAT AND STRESS PREVENTION

Preventive measures should be taken to prevent personnel from experiencing heat stress illness. Prevention of heat stress is also important because if an individual has experienced a heat illness incident, he has an increased likelihood of future occurrences. Preventive measures include: favorable work scheduling, acclimatization of workers to hot environments, drinking sufficient quantities of fluids, providing cool, sheltered work and rest areas, and utilizing cooling devices as appropriate of feasible. Heat stress monitoring/work rest regimens are discussed below.

Work Schedules and Activity

If possible, work should be scheduled during the coolest part of the day. Early morning and evening work can be considerably more effective than working midday when the additional time for breaks and heat stress monitoring are taken into account.

Employees should also be encourages to maintain a certain level of activity during the work shift. Prolonged standing in hot environments can lead to heat illness because the blood pools in the lower extremities. Workers should periodically walk about to encourage blood circulation from the feet and legs.

Acclimatization of Workers

A properly designed and applied heat acclimatization program will dramatically increase the ability of workers to work at a hot job and will decrease the risk of heat-related illnesses and unsafe acts. Heat acclimatization can usually be induced in 5 to 7 days of exposure to the hot job. For workers who have had previous experience with the job, the acclimatization regimen should be exposure for 50% on day 1, 60% on day 2, 80% on day 3 and 100% on day 4. For workers new to job the schedule should be 20% on day 1 with a 20% increase in each additional day.
Acclimatization can be induced by sustained elevations of the skin and core body temperatures above levels for the same work in cool environments for an hour or more per day. Acclimatization needs periodic reinforcement such as occurs daily during the work week. Persons may show some loss of acclimatization on the first day of the new shift after being idle for two days or over a weekend. After vacations of two weeks or longer he loss of acclimatization is substantial, several days at work will be needed before heat tolerance is fully restored.

Drinking Sufficient Quantities of Fluids

Under hot conditions where sweat production may reach 6 to 8 liters per day, voluntary replacement of the water lost is usually incomplete. The normal thirst mechanism is not sensitive enough to urge us to drink enough water to prevent dehydration. Individuals are seldom aware of the exact amount of seat they produce of how much water is needed to replace that lost in sweat; 1 liter/hour is not an uncommon rate of water loss. Every effort should be made to encourage individuals to drink water, low-sodium noncarbonated beverages or electrolyte replacement fluids (e.g., Gatorade). Lightly salted water (1 gram/liter of water (0.1%) or one level teaspoon per 15 quarts of water), should be provided to unacclimated workers. The salt should be dissolved completely and the water kept cool. Salt tablets as dietary supplements are not generally recommended.

Workers should drink at least 500 ml (one pint) of water before beginning work. The fluid should be maintained at temperatures of 10° to 15° (50 to 59° F). If possible, small quantities of fluids should be consumed at frequent intervals (e.g., 150 to 250 milliliters (ml), or at least a quarter pint, every 20 minutes) rather than the intake of 750 ml (3 cups) or more once per hour. Individuals vary, but water intake should total 4 to 8 liters (quarts) per day. When heat stress is considered a potential problem, a minimum of 1 liter/hour/person of water are to be maintained onsite. Individual paper or plastic cups will be provided in order to prevent the spread of communicable disease.

Alcohol and diuretics such as caffeine (contained in coffee, tea and soft drinks) can increase dehydration. Therefore employees with potential exposure to heat stress should be discouraged from the consumption of these types of fluids during and after working hours.

Cool, sheltered Work and Rest Areas

Exposure to direct sunlight significantly increases the overall thermal loading of the body, thereby increasing an individuals susceptibility to heat stress illnesses. Whenever possible work should be conducted under suspended tarps, in shady areas or in other sheltered areas in order to reduce thermal loading caused by the sun. Cool sheltered areas should be provided also for rest breaks. A rest area should be situated so that part of it is in the contamination reduction area so that workers can take breaks without being required to undertake a full decontamination procedure. Canopies or tarps and open air tents, are types of cool shelters which can provide shaded rest areas.

Cooling Devices

Auxiliary cooling devices can be successfully used to provide body cooling, especially to workers wearing protective garments at hazardous waste sites. Vortex coolers utilize high velocity air which is directed inside the protective clothing. Vortex coolers have been used successfully in some operations. Cooling vests utilizing Ablue ice@ type packs can provide some cooling to the torso, but add weight for the wearer and can inhibit body movements.

Newer, more sophisticated tube and refrigerant systems woven into undergarments are also available. However, some of these systems ,,may not be effective in situations where the work involves considerable motion, since bending and lifting can crimp the tubes, impending the flow of refrigerant.

Heat Stress Monitoring

Several heat stress monitoring systems have been devised to help manage heat stress in hot work environments. Panamerican performs heat stress monitoring when: 1) employees are wearing normal work clothing in ambient temperatures exceeding 29° C, (85° F) and 2) employees wearing chemical protective clothing (including paper coveralls) working in ambient temperatures exceeding 21° C (70° F). The temperature differential is related to the reduced ability of a person to maintain a core temperature of $\pm$ 37° C (98.6° F) when wearing chemical protective clothing.

It should be noted by personnel that there are no Afast and true@ methods of heat stress monitoring; likewise there are no regulations concerning heat stress monitoring. Individual susceptibility to heat stress is highly variable. Some individuals are highly susceptible to any increase in their internal body temperature while other individuals can work very well with internal body temperatures of 39°C (102.2° F) or higher.

The heat stress monitoring systems should be used by Site Safety Officers as guidelines and not necessarily as hard, fast rules. Individuals working in elevated temperatures should be queried on a regular basis regarding their perceived state of heat stress. If the calculated heat stress index value indicates that work can continue but a person states that they believe they are experiencing heat stress, the work effect should be discontinued and a rest break taken.

Likewise, if the calculated heat stress index value indicates that a rest break should be taken but the workers believe they can work longer, they should be permitted to work longer providing that their heart rates do not exceed 110 beats per minute. If the individual's heart rate rates exceed 110 beats per minute a rest break will be taken. In all cases, individual workers should not be permitted or expected to perform excessive work which could result in heat stress. If a SSO has any concerns that an individual may be pushing himself/herself past the Abreaking point@ the calculated work/rest regimen will be followed.

For strenuous field activities that are part of ongoing site work activities in hot weather, the following procedures shall be used to monitor the body=s physiological response to heat, and to monitor the work cycle of each site worker. There are two phases to this monitoring: the initial work/rest cycle is used to estimate how long the first work shifts of the day should be. Heart rate monitoring of each worker will establish the length of the successive work periods. Both phases are to be used are to be used for heat stress monitoring. Failure to use either one could place workers at risk of heat-related disorders.

Phase 1 - Determination of the Initial Work - Rest Regimen

The determination of the initial work - rest regimen can be performed using either of two methods:

-The Modified Dry Bulb Index; or
-The Wet Bulb Globe Thermometer (WBGT) Index

After the initial work - rest regimen has been determined, environmental conditions must be monitored for changes which would require a modification to the work - rest regimen. This, coupled with the heart rate monitoring, determines the work cycles to be followed on a site.

The Modified Dry Bulb Index accounts for the effects caused by solar, load, air temperature, and chemical protective clothing, under a light work load (walking at approximately 3 mph). A mercury thermometer, shielded from direct sunlight, is used to measure ambient temperature. The percentages of (of time) of sunlight and cloud cover are then estimated to determine a sunshine quality factor (e.g., 100% sunshine - no cloud cover = 1.0; 50% sunshine - 50% cloud cover = 0.5; 0% sunshine - 100% cloud cover = 0.0). When these two sets of values have been obtained, they are inserted into the following equation to calculate the adjusted temperature:

$T\ (^{o}C, \text{adjusted}) = T\ (^{o}C, \text{actual}) + (7.2 \times \text{sunshine quality factor})$

-OR-

$T\ (^{o}F, \text{adjusted}) = T\ (^{o}F, \text{actual}) + (13 \times \text{sunshine quality factor})$

After the adjusted temperature has been calculated, the length of the first work shift can be determined using the following table:

Initial Break and Physiological Monitoring Cycles

ADJUSTED TEMPERATURE	NORMAL WORK CLOTHES	PROTECTIVE CLOTHING
90^0F (32.2^0 C) or above	After each 45 minutes of work	After each 15 minutes of work
87.5^0-90^0 F (30.8^0-32.2^0 C)	After each 60 minutes of work	After each 30 minutes of work
82.5^0-87.5^0 F (28.1^0-30.8^0 C)	After each 90 minutes of work	After each 60 minutes of work
77.5^0-82.5^0 F (25.3^0-28.1^0 C)	After each 120 minutes of work	After each 90 minutes of work
72.5^0-77.5^0 F (22.5^0-25.3^0 C)	After each 150 minutes of work	After each 120 minutes of work

NOTE: The standard rest period is 15 minutes

WET BULB GLOBE THERMOMETER INDEX

The Wet Bulb Globe Thermometer (WBGT) Index was developed by the U.S. Army in the 1950s to prevent heat stress in army recruits. The WBGT Index accounts for the effects caused by humidity, air movement, evaporation, air temperature and work rate. It does not, however, account for the effects of chemical protective clothing, non-acclimatized workers, age, or other factors which may affect the likelihood of heat stress. Because of this, it is necessary to make adjustments to the index and conduct Heart Rate Monitoring.

WBGT measurements are usually obtained through the use of are-contained electronic devices. Such devices are easy to set up and can provide the user with the capabilities to store data and download to print out a hard copy.

Heat produced by the body and the environmental heat together determine the total heat load. Therefore, after the WBGT Index has been obtained, the anticipated work load category of each job shall be determined and the initial-rest regimen established using the table below.

The work load category may be determined by ranking each job into light, medium and heavy categories on the basis of type of operation. Examples of each category are:

Light work:	sitting or standing to control machines, performing light hand work
Moderate work:	walking about with moderate lifting and pushing; and
Heavy work:	pick and shovel work.

PERMISSIBLE HEAT EXPOSURE			
WORK-REST REGIMEN	WORK LOAD		
	LIGHT	MODERATE	HEAVY
	30.0^0 C/86^0 F	26.7^0 C/80.1^0 F	25^0C/77^0F
75% Work-25% Rest Each Hour	30.6^0 C/87.1^0 F	28^0 C/82.4^0 F	25.9^0 C/78.6^0 F
50% Work-50% Rest Each Hour	31.4^0 C/88.5^0 F	29.4^0 C/85.0^0 F	27.9^0 C/82.2^0 F
25%Work-75 % Rest Each Hour	32.2^0 C/90.0^0 F	31.1^0 C/88.0^0 F	30.0^0 C/86.0^0 F

The table reads as follows:

Light, continuous work is possible at any WBGT reading up to 30^0 C (86^0F) but above that limit work breaks

are needed to recover from the heat; light work at temperatures of between 30.0 and 30.6^{0}C (86 to 87^{0}F) can be conducted, but 15 minute breaks must be taken every hour, etc. It is important to note that this table is applicable primarily to healthy, acclimatized personnel; wearing standard work clothing.

NOTE: An additional 6 to 11^{0}C (42.8 to 51.8^{0}F) must be added to the calculated WBGT temperature for personnel wearing chemical protective clothing prior to determining the initial work - rest regimen from this table. Because the WBGT Index does not take into account unacclimatized workers, or individual susceptibilities, the addition to the WBGT value does not eliminate the requirement for Heart Rate Monitoring after work has begun.

Phase 2 - Heart Rate Monitoring

An increase in the heart rate is a significant indication of stress, whether induced by exposure to heat or through physical labor. Although baseline heart rates can vary significantly between individuals and during the day for an individual, a heart rate of 110 beats per minute or greater is an indication of physiological stress. To prevent heat stress illnesses, the heart rate (HR) should be measured by radial (wrist) or carotid (neck) pulse for 30 seconds as early as possible in the rest period. The HR at the beginning of the rest period should not exceed 110 beats/minute. If the HR is higher, the next work period should be shortened by 33 percent while the length of the rest period stays the same. If the pulse rate still exceeds 110 beats/minute at the beginning of the next rest period, the following work period should be further shortened by 33 percent while the length of the rest period stays the same.

ATTACHMENT 2

Trenching & Excavating H & S Requirements

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Fax: (716) 821-1607

PANAMERICAN

PANAMERICAN TRENCHING AND EXCAVATION HEALTH AND SAFETY REQUIREMENTS

The following will apply to all activities associated with excavations:

REGULATORY AUTHORITY

Excavations will be performed in accordance with OSHA 29 CFR, subpart P, 1926:650-1926.652 and USACOE EM 385-1-1 section 25 requirements as they apply to project activities.

GENERAL

- **At all times the need for personnel to enter excavations will be minimized. Inspections or sample removal will be done from above the excavation, whenever possible.**
- **Personnel will only enter excavations after the requirements of this plan have been met.**
- **Personnel protective equipment including hard hat, safety glasses and steel-toe work boots may be required.**

SURFACE ENCUMBRANCES

Surface encumbrances such as structures, fencing, piping, stored material etc. which may interfere with safe excavations will be avoided, removed or adequately supported prior to the start of excavations. Support systems will be inspected daily.

UNDERGROUND UTILITIES

Underground utility locations will be checked and determined and permits as necessary will be in place prior to initiating excavations. Local utility companies will be contacted at least two days in advance, advised of proposed work, and requested to locate underground installations. When excavations approach the estimated location of utilities, the exact location will be determined by careful probing or hand digging and when it is uncovered, proper supports will be provided.

OVERHEAD OBSTACLES

A minimum safe distance of 20 feet will be maintained when working around overhead high-voltage lines or the line will be de-energized following appropriate lock-out and tag-out procedures by qualified utility personnel.

ENTRY/EXIT ROUTES

Excavations five feet or more deep will require an adequate means of exit, such as a ladder, ramp, or steps and located so as to require no more than 25 feet of lateral travel. Under no circumstances will

personnel be raised.

VEHICLE CONTROL/SAFETY

Personnel working around heavy equipment, or who may be exposed to public vehicular traffic will wear a traffic warning vest consisting of at least 400 square inches of red or orange material. At night, at least 400 square inches of florescent or other reflective material will be worn.

For excavation work on or adjacent to highways or streets, signs, signals, and barricades tat conform to the requirements of the current American National Standards Institute (ANSI) D6.1, Manual on Uniform Traffic Control Devices for Streets and Highways will be used to protect work areas. Signs, signals, and barricades will be adequately lighted at night. Flagmen will be provided when signs, signals and barricades do not provide adequate protection. Flagmen will use signals and procedures contained in the current issue of ANSI D6.1. At night, flagmen will be clearly illuminated so as to be easily seen by approaching traffic.

For mobile equipment operating next to or approaching the edge of an excavation, the operator will have a clear view of the edge of the excavation, or a warning system such as barricades, hand or mechanical signals, or stop logs will be used. If possible the surface grade will slope away from the excavation.

Personnel will be safely located in and around the trench and will not be permitted to work underneath loads handled by lifting or digging equipment. Personnel are required to stand away from vehicles being loaded and unloaded. Operators can remain in the cabs of vehicles being loaded or unloaded provided the vehicles are equipped to provide adequate protection to the operator.

HAZARDOUS ATMOSPHERES

Hazardous atmospheres, such as oxygen deficiency (atmospheres containing less than 19.5% oxygen), flammable gases or vapors (airborne concentrations greater than 20% of the lower explosive limit), and toxic gases or vapors (airborne concentrations above the OSHA Permissible Exposure Limit or other exposure limits) may occur in excavations, especially around landfills and hazardous waste sites.

In locations where oxygen deficiency or hazardous gaseous conditions are possible, the air in the excavation will be tested before personnel are permitted to enter an excavation deeper than 4 feet. When flammable gases are present, adequate ventilation will be provided and sources of ignition will be eliminated. Ventilation or respiratory protection will be provided to prevent personnel exposures to oxygen deficient or toxic atmospheres. Periodic retesting (at least each shift) of the excavation will be conducted to verify that the atmosphere is acceptable. A log or field book records will be maintained of all test results.

WATER ACCUMULATION HAZARDS

Personnel will not work in excavations that have accumulated water or where water is accumulating unless adequate precautions have been taken. These precautions can include special support or shield systems, water removal systems such as pumps, or safety harnesses and lifelines. Water removal systems will be operated and monitored by experienced personnel. Diversion ditches or dikes will be used to prevent surface water from entering the excavation and to provide adequate drainage of the area around the excavation. Adequate precautions, as described above, will be taken for excavating

subject to heavy rains.

STABILITY OF ADJACENT STRUCTURES

Support systems such as shoring, bracing, or underpinning will be provided to maintain the stability of adjoining buildings, walls, or other structures endangered by the excavation operations. Excavations below a foundation or retaining wall that could be reasonably expected to pose a hazard to personnel will not be permitted unless:

- **a support system is provided**
- **The excavation is in stable rock; or**
- **A Registered Professional Engineer has determined that the structure will not be effected by the excavation activity or that the excavation work will pose a hazard to employees. The Professional Engineer is required to demonstrate how the above determination was made on the basis of appropriate calculations.**

Sidewalks will not be undermined unless shored to protect from possible collapse.

PROTECTION FROM LOOSE ROCK, MATERIALS OR SPOILS

In excavations and trenches that personnel may be required to enter, loose rock, excavated or other material, and spoils will be effectively stored and retained at least two feet or more from the edge of the excavation.

As an alternative to the clearance prescribed above, barriers or other effective retaining devices may be used in order to prevent spoils or other materials from falling into the excavation.

Walkways, runways, and sidewalks will be kept clear of excavated material from other obstructions.

Scaling operations may be used to remove loose material and will be performed only by experienced crews under the direct supervision of a competent supervisor. The scalers will be provided with scaler=s lifelines, safety belts, boatswain chair, and other safety equipment necessary for their protection.

FALL PROTECTION

Walkways or bridges with standard guardrails that meet OSHA specifications will be provided where employees, the public, or equipment are required to cross over excavations.

Adequate barrier physical protection will be provided at all remotely located excavations. All excavations will be barricaded or covered.

EMERGENCY RESCUE

In the event of a cave-in, the Emergency Rescue Squad will be immediately notified. The caller should provide his name, location, nature of the accident (an excavation collapse), the dimensions of the excavation, and number of people trapped in the excavation. Personnel are not to enter a collapsed trench to attempt rescue. This may cause a further collapse of the trench. Under no circumstance is heavy equipment to be used to attempt rescue of personnel in a collapsed excavation; injury or decapitation could be the result. All heavy equipment and traffic in the area is to be shut down and

stopped to reduce vibration. Pumps should be started if water ensues.

INSPECTION PROGRAM

Safety personnel will conduct daily inspections of the excavation, the adjacent areas, and protective systems. Inspections will be conducted prior to the start of work and as needed throughout the work shift. Inspections will also be made after every rainstorm or other occurrence that increases the hazard of collapse (i.e., vibration from heavy equipment, freezing and thawing, etc.).

The excavation inspection will include a check for the following:

- **Evidence if situations that could result in possible cave-in (i.e. soil crumbling or sloughing, water saturated soils, freezing and thawing, unusual vibrations such as from heavy equipment, heavy rains, surface run off entering trench, etc.);**
- **Indications of failure of protective systems;**
- **Hazardous atmosphere (oxygen deficiency, flammable and toxic gases and vapors);**
- **Condition and support of exposed underground installations;**
- **Adequate means of egress;**
- **Signs, signals, and barricades for work area protection;**
- **Precautionary measures to control water accumulation;**
- **Stability and support of adjacent structures; and**
- **Adequate protection from loose rock and soil.**

PROTECTIVE SYSTEMS

Personnel working in excavations will be protected from cave-ins by sloping and/or benching of excavation walls, a shoring system or some other equivalent means except when:

- **The excavation is made entirely in stable rock; or**
- **Excavations are less than five feet deep and safety personnel have determined that there is no indication of potential cave-in. Depending on site and soil conditions protective measures may be taken for the excavations less than five feet in depth.**

The most important factor influencing the choice of protective systems is the soil type classification. Once the soil type has been classified, selection of the protective system, the determination of the angle of repose for sloping and benching, and the design of shoring systems will be made. Decisions will be based on careful evaluation of pertinent factors such as depth of cut; possible variation in water content of the material while the excavation is open; anticipated changes in materials from exposure to air, sun, water, or freezing; loading imposed structures equipment, overlying material, or stored material; and vibration from equipment, blasting traffic or other sources.

Soil Classification

Appendix A of the OSHA Excavation Standard describes a methjod to classify soils into four types:

1. Stable Rock - Solid mineral matter that can be excavated with vertical sides.

2. Type A - cohesive soils with an unconfined compressive strength of 1.5 ton per square foot (tsf) or greater. Examples include: clay; silty clay; sandy clay; clayey loam; and cemented soils such as caliche and hardpan. No soil is considered to be Type A if it is fissured, subject to vibration, previously disturbed, or part of a sloped, layered system.

3. Type B - cohesive soils with an unconfined compressive strength of greater than 0.5 tsf but less than 1.5 tsf. Examples include: angular gravel similar to crushed rock; silt; silty loam; and sandy loam; Type B soils also include : previously disturbed soils that are not type C; Type A soils that are fissured or subject to vibration; and dry rock that is not stable.

4. Type C - cohesive soils with an unconfined compressive strength of 0.5 tsf or less. Examples include: gravel; sand; loamy sand; submerged soil or soil from which water is seeping; submerged rock that is not stable.

The engineer, geologist, or safety personnel will conduct at least one visual and at least one manual test as described in the OSHA excavation standard in order to classify soils. Visual tests include looking for : particle size and soil cohesiveness (clumping); cracking in the excavation sides which suggests fissured material; underground installations ans previously disturbed soils; layered soil systems that slope toward the excavation; evidence of surface water and water seeping from the sides of the excavation; and sources of vibration that may affect the excavation stability. Manual tests include: plascticity; dry strength; tumb penetration; drying test; and strength tests using a pocket penetrometer or hand-operated shearvane.

<u>Sloping and Benching</u>

One of the following options for sloping and benching systems described in section 1926.652(b) of the OSHA Excavation Standard will be used in excavations of .5 foot or deeper or at the discretion of the safety personnel:

- **The walls of excavation will be sloped at an angle not steeper than 0ne-and one-half horizontal to one vertical. Sloping configurations will follow the slopes shown for Type C soils in Appendix B of the OSHA Excavation Standard.**

- **Maximum allowable slopes and sloping and benching configurations will be determined according to soil type as described in Appendices A and B of the OSHA Excavation Standard.**

- **Use of other written tabulated data and designs, such as tables and charts, to design sloping and benching systems. A copy of the tabulated data must be approved by a registered Professional Engineer. A copy of the tabulated data must be kept at the job site.**

Personnel are not allowed to work on the faces of sloped or benched excavations above other workers unless the workers at the lower levels are protected from falling material or equipment. Similar protection will be provided for personnel working in excavations below other workers.

<u>Support Systems, Shield Systems, and Other Protective Devices</u>

One of the following options described in OSHA (1926.652 (c)) will be followed.

- **Timber shoring, designed according to the conditions and requirements of Appendix C of the OSHA Excavation Standard or aluminum hydraulic shoring designed according to manufacturers tabulated data or Appendix D of the OSHA Excavation Standard. In order to use the information in Appendices C or D, the soil type must first be determined using the classification system in Appendix A. For each soil type the size and spacing of the cross braces, uprights, and walls that comprise the shoring system are then selected based on the depth and width of the trench.**

- **Use of the manufacturer=s written tabulated to design support systems, shielded systems, and other protective devices. Any deviation from this tabulated data must be approved by the manufacturer. A copy of the tabulated data as well as any approvals to deviate from the tabulated data must be kept at the job site.**

- **Use of other written tabulated data to design support systems, shield systems, and other protective devices. The tabulated data must be approved by a Registered Professional Engineer. A copy of the tabulated data must be kept at the job site.**

- **Use of a written support system, shield system, and other protective device design that has been approved by a Registered Professional Engineer. A copy of the written design must be kept at the job site.**

<u>Installation and Removal of Support</u>

Cross braces or trench jacks, uprights, and walls will be secured together to prevent sliding, falling or kickouts.

Additional precautions by way of shoring and bracing will be taken to prevent slides or cave-ins when excavations or trenches are made in locations adjacent to backfilled excavations, or where excavations are subjected to vibrations from railroad or highway traffic, the operation of machinery, or any other source.

If it is necessary to place or operate power shovels, derricks, trucks, materials, or other heavy objects on a level above or near any excavation, the side of the excavation will be sheetpiled, shored, and braced as necessary to resist the extra pressure due to such superimposed loads.

Backfilling and removal of trench supports will progress together from the bottom of the trench. Jacks or braces will be released slowly and , in unstable soil, ropes will be used to pull out the jacks or braces from above after employees have cleared the trench.

<u>Shield Systems</u>

Portable trench boxes or sliding trench shields may be used for protection of personnel in lieu of a shoring system or sloping. Where such trench boxes or shields are used, they will be designed, constructed and maintained in a manner which will provide protection equal to or greater than the sheeting or shoring required for the trench. Shields will be installed so as to restrict lateral or other hazardous movement. Personnel are not allowed inside shields when shields are being moved.

EXCAVATION SAFETY LIST

To be completed prior to each work shift, or prior to personnel entering a new trench for the first time, by the Site Safety Officer/Competent Person:

Project_____Location_____

Job Number_____

Competent Person(CP)*_____Date_____

		Yes	No	N/A
1.	**Has the site been cleared for utilities and other underground obstructions?**	____	____	____
2.	**If on public property, has the regional utility locating service been notified?**	____	____	____
3.	**Has the excavation equipment been safety checked by the operator?**	____	____	____
4.	**Are copies of relevant OSHA excavation regulations available on site?**	____	____	____
5.	**Will the excavation be 5 feet or more in depth?**	____	____	____
6.	**If 4 is yes, will personnel enter the excavation at any time?**	____	____	____
7.	**If 4a is yes, have provisions been made for shoring, sloping, or benching the excavation? Describe:** _____ _____ _____	____	____	____
8.	**Has an inspection of the site and excavation been conducted by the SSO?**	____	____	____
9.	**Has the Competent Person conducted visual and manual tests to classify the soil?**	____	____	____

*** According to Federal OSHA, A Competent Person is a person who is capable of identifying existing and predictable hazards in the surroundings; or working conditions which are unsanitary, hazardous, or dangerous to employees; and who has the authority to take prompt corrective measures to eliminate them.**

10.	**G**	**Visual Test _____(type)** **Manual Test_____(type)** **Soil Classification_____(type)**			
11.		**Are there any conditions that might expose employees to injury from possible moving ground?**	____	_____	____
12.		**Is excavated material being placed at least 2 feet from the edge of the excavation?**	____	____	____
13.		**Is work in the excavation at all times under the immediate supervision of the SSO or other competent person?**	____	____	____
14.		**Is there a stairway, ladder, or ramp securely fastened in place to provide ingress and egress from the excavation?**	____	____	____
15.		**If the excavation is 4 feet or more in depth, are safe means of access (see 8) provided so as to require no more than 25 feet of lateral travel to reach them?**	____	____	____
16.		**If structural ramps are installed that are used for access/egress: were they designed by a qualified engineer?**	____	____	____
17.		**Do the structural ramps have appropriate means to prevent slipping and are the ramps uniform in thickness?**	____	____	____
18.		**Are walkways or bridges provided across the excavation to safe crossing?**	____	____	____
19.		**If excavations are 71/2 or more feet in depth, do the walkways have guardrails and toeboards?**	____	____	____
20.		**Are undermined structures adequately supported to safely carry all anticipated loads and protect workers?**	____	____	____
21.		**Are there adequate means provided to prevent mobile equipment from inadvertently entering the excavation?**	____	____	____
22.		**Is the excavation well marked and barricaded to prevent personnel from falling IN?**	____	____	____
23.		**Are means available to prevent surface water from entering the excavation and to provide**	____	____	____

	adequate drainage of the area adjacent to the trench?			
24.	**Where it is reasonable to expect hazardous atmospheres, including oxygen deficiency, to exist in the excavation, is appropriate atmosphere testing equipment available.**	____	____	____
25.	**Has the testing equipment been calibrated, and the calibrations recorded, today?**	____	____	____
26.	**Are employees trained in proper use of this equipment?**	____	____	____
27.	**Has a harness and lifeline been provided whenever an employee is required to enter a confined footing excavation?**	____	____	____
28.	**Is appropriate personal protective equipment (hardhat, safety boots, eye protection, etc.) available and in use?**	____	____	____

Notes:_____

_____

_____

_____

_____ _____

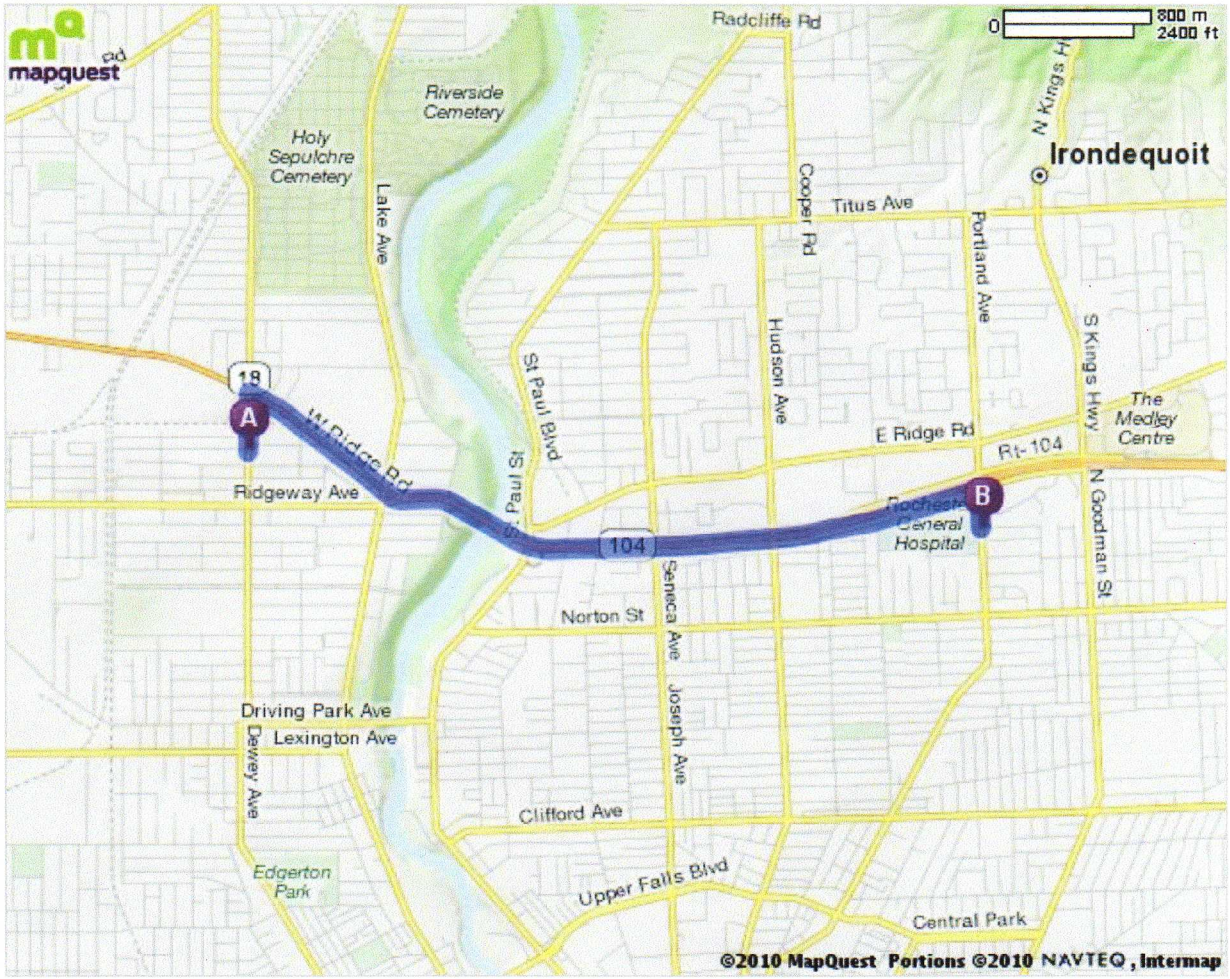
CPs Name (Print) **Signature**

ATTA CHMENT 3

Map to Hospital

Total Travel Estimate : 3.37 miles - about 6 minutes

Route Map Hide



ATTACHMENT 4

NYSDEC DER-10
Appendix 1A & Appendix 1B

Appendix 1A
New York State Department of Health
Generic Community Air Monitoring Plan

Overview

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

The generic CAMP presented below will be sufficient to cover many, if not most, sites. Specific requirements should be reviewed for each situation in consultation with NYSDOH to ensure proper applicability. In some cases, a separate site-specific CAMP or supplement may be required. Depending upon the nature of contamination, chemical- specific monitoring with appropriately-sensitive methods may be required. Depending upon the proximity of potentially exposed individuals, more stringent monitoring or response levels than those presented below may be required. Special requirements will be necessary for work within 20 feet of potentially exposed individuals or structures and for indoor work with co-located residences or facilities. These requirements should be determined in consultation with NYSDOH.

Reliance on the CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around the work areas.

Community Air Monitoring Plan

Depending upon the nature of known or potential contaminants at each site, real-time air monitoring for VOCs and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary. Most sites will involve VOC and particulate monitoring; sites known to be contaminated with heavy metals alone may only require particulate monitoring. If radiological contamination is a concern, additional monitoring requirements may be necessary per consultation with appropriate DEC/NYSDOH staff.

Continuous monitoring will be required for all ground intrusive activities and during the demolition of contaminated or potentially contaminated structures. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. "Periodic" monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or

overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions, particularly if wind direction changes. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

1. If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

2. If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.

3. If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

4. All 15-minute readings must be recorded and be available for State (DEC and NYSDOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations should be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

1. If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m^3 above the upwind level and provided that no visible dust is migrating from the work area.

2. If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m^3 above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m^3 of the upwind level and in preventing visible dust migration.

3. All readings must be recorded and be available for State (DEC and NYSDOH) and County Health personnel to review.

December 2009

Appendix 1B
Fugitive Dust and Particulate Monitoring

A program for suppressing fugitive dust and particulate matter monitoring at hazardous waste sites is a responsibility on the remedial party performing the work. These procedures must be incorporated into appropriate intrusive work plans. The following fugitive dust suppression and particulate monitoring program should be employed at sites during construction and other intrusive activities which warrant its use:

1. Reasonable fugitive dust suppression techniques must be employed during all site activities which may generate fugitive dust.

2. Particulate monitoring must be employed during the handling of waste or contaminated soil or when activities on site may generate fugitive dust from exposed waste or contaminated soil. Remedial activities may also include the excavation, grading, or placement of clean fill. These control measures should not be considered necessary for these activities.

3. Particulate monitoring must be performed using real-time particulate monitors and shall monitor particulate matter less than ten microns (PM10) with the following minimum performance standards:

(a) Objects to be measured: Dust, mists or aerosols;
(b) Measurement Ranges: 0.001 to 400 mg/m3 (1 to 400,000 :ug/m3);
(c) Precision (2-sigma) at constant temperature: +/- 10 :g/m3 for one second averaging; and +/- 1.5 g/m3 for sixty second averaging;
(d) Accuracy: +/- 5% of reading +/- precision (Referred to gravimetric calibration with SAE fine test dust (mmd= 2 to 3 :m, g= 2.5, as aerosolized);
(e) Resolution: 0.1% of reading or 1g/m3, whichever is larger;
(f) Particle Size Range of Maximum Response: 0.1-10;
(g) Total Number of Data Points in Memory: 10,000;
(h) Logged Data: Each data point with average concentration, time/date and data point number
(i) Run Summary: overall average, maximum concentrations, time/date of maximum, total number of logged points, start time/date, total elapsed time (run duration), STEL concentration and time/date occurrence, averaging (logging) period, calibration factor, and tag number;
(j) Alarm Averaging Time (user selectable): real-time (1-60 seconds) or STEL (15 minutes), alarms required;
(k) Operating Time: 48 hours (fully charged NiCd battery); continuously with charger;
(l) Operating Temperature: -10 to 50° C (14 to 122° F);
(m) Particulate levels will be monitored upwind and immediately downwind at the working site and integrated over a period not to exceed 15 minutes.

4. In order to ensure the validity of the fugitive dust measurements performed, there must be appropriate Quality Assurance/Quality Control (QA/QC). It is the responsibility of the remedial party to adequately supplement QA/QC Plans to include the following critical features: periodic instrument calibration, operator training, daily instrument performance (span) checks, and a record keeping plan.

5. The action level will be established at 150 ug/m3 (15 minutes average). While conservative,

this short-term interval will provide a real-time assessment of on-site air quality to assure both health and safety. If particulate levels are detected in excess of 150 ug/m3, the upwind background level must be confirmed immediately. If the working site particulate measurement is greater than 100 ug/m3 above the background level, additional dust suppression techniques must be implemented to reduce the generation of fugitive dust and corrective action taken to protect site personnel and reduce the potential for contaminant migration. Corrective measures may include increasing the level of personal protection for on-site personnel and implementing additional dust suppression techniques (see paragraph 7). Should the action level of 150 ug/m3 continue to be exceeded work must stop and DER must be notified as provided in the site design or remedial work plan. The notification shall include a description of the control measures implemented to prevent further exceedances.

6. It must be recognized that the generation of dust from waste or contaminated soil that migrates off-site, has the potential for transporting contaminants off-site. There may be situations when dust is being generated and leaving the site and the monitoring equipment does not measure PM10 at or above the action level. Since this situation has the potential to allow for the migration of contaminants off-site, it is unacceptable. While it is not practical to quantify total suspended particulates on a real-time basis, it is appropriate to rely on visual observation. If dust is observed leaving the working site, additional dust suppression techniques must be employed. Activities that have a high dusting potential--such as solidification and treatment involving materials like kiln dust and lime--will require the need for special measures to be considered.

7. The following techniques have been shown to be effective for the controlling of the generation and migration of dust during construction activities:

(a) Applying water on haul roads;
(b) Wetting equipment and excavation faces;
(c) Spraying water on buckets during excavation and dumping;
(d) Hauling materials in properly tarped or watertight containers;
(e) Restricting vehicle speeds to 10 mph;
(f) Covering excavated areas and material after excavation activity ceases; and
(g) Reducing the excavation size and/or number of excavations.

Experience has shown that the chance of exceeding the 150ug/m3 action level is remote when the above-mentioned techniques are used. When techniques involving water application are used, care must be taken not to use excess water, which can result in unacceptably wet conditions. Using atomizing sprays will prevent overly wet conditions, conserve water, and provide an effective means of suppressing the fugitive dust.

8. The evaluation of weather conditions is necessary for proper fugitive dust control. When extreme wind conditions make dust control ineffective, as a last resort remedial actions may need to be suspended. There may be situations that require fugitive dust suppression and particulate monitoring requirements with action levels more stringent than those provided above. Under some circumstances, the contaminant concentration and/or toxicity may require additional monitoring to protect site personnel and the public. Additional integrated sampling and chemical analysis of the dust may also be in order. This must be evaluated when a health and safety plan is developed and when appropriate suppression and monitoring requirements are established for protection of health and the environment.

ATTACHMENT 5

Table of Potential Hazards & OSHA Standards

Potential Hazards and OSHA Standards for Consideration during IRMs

Site Exposure/Control	Potentially Applicable OSHA Standard*	
	1910 General Industry	1926 Construction
Hazard Assessmen & Employee Training	29 CFR 1910.132(d)	29 CFR 1926.21(b)
Chemical Exposure	29 CFR 1910.1000	29 CFR 1926.55
Noise Exposure	29 CFR 1910.95	29 CFR 1926.52
Sanitation	29 CFR 1910.141	29 CFR 1926.51
Wiring Methods (temporary wiring)	29 CFR 1910.305(a)(2) 29 CFR 1910.333	29 CFR 1926.405(a)(2)
Electrical Hazards		29 CFR 1926.416
Emergency Action Planning	29 CFR 1910.38	29 CFR 1926.35
Excavation	covered by 1926	29 CFR 1926 Subpart P
Confined Space Entry	29 CFR 1910.146	29 CFR 1926.21(b)(6)29 CFR 1926.353(b)
Material Handling	29 CFR Subpart N	29 CFR Subpart N29 CFR 1926.600-60229 CFR 1926.604
Building Demolition	covered by 1926	29 CFR 1926 Subpart T
Site ContaminantAbatement	29 CFR 1910.1000-1029 29 CFR 1910.1043-1052	29 CFR 1926.5529 CFR 1926.6229 CFR 1926.1101-1152
Elevated Work Surfaces	29 CFR 1910 Subpart D 29 CFR 1910 Subpart F	29 CFR 1926 Subpart L29 CFR 1926 Subpart M29 CFR 1926.552
Chemical Storage	29 CFR 1910 Subpart H29 CFR 1910.1200	29 CFR 1926.5929 CFR 1926 Subpart F
Personal Protective Equipment	29 CFR 1910 Subpart I	29 CFR 1926 Subpart E
Heavy Equipment Operation	29 CFR 1910.9529 CFR 1910 Subpart N	29 CFR 1926.5229 CFR 1926 Subpart O
Tasks-Long Duration	29 CFR 1910.141-142	29 CFR 1926.51

The Federal General Industry and Construction citations are provided above

APPENDIX D

QUALITY ASSURANCE PROJECT PLAN

Page No.

QUALITY ASSURANCE/QUALITY CONTROL PLAN

1.0 INTRODUCTION

This Quality Assurance/Quality Control Plan is designed to provide an overview of QA/QC procedures. It will give specific methods and QA/QC procedures for chemical testing of environmental samples obtained from the site. In addition, it will ensure the quality of the data produced.

The organizational structure for this project is presented in the Work Plan. It identifies the names of key project personnel. The project manager will be responsible for verifying that QA procedures are followed in the field. This will provide for the valid collection of representative samples. The Project Manger will be in direct contact with the analytical laboratory to monitor laboratory activities so that holding times and other QA/QC requirements are met. The numbers of soil/water samples that may be collected and analytical parameters/methods are provided in Table-1 below.

The Project Field Inspector will be responsible for coordinating the activities of all personnel involved with implementing the project in the field, and will be in daily communication with the Project Manager. This person will verify that all field investigation sampling work is carried out in accordance with the approved project Field Sampling Plan (Appendix D).

In addition to overall project coordination, the Project Manager will be responsible for overseeing both the analytical and field QA/QC activities. The ultimate responsibility for maintaining quality throughout the project rests with the Project Manager.

TABLE-1
ANALYTICAL SUMMARY TABLE – SOIL/WATER

CONFIRMATION SAMPLING:

PARAMETER	EPA METHOD (1)	SOIL (2)	GW (3)
TCL VOCs	8260B	TBD	TBD
TCL SVOCs	8270C	TBD	TBD
TICs VOC/SVOC		TBD	TBD

(1) SVOCs plus STARS analyses per EPA Method 8270C
VOCs plus STARS analyses per EPA Method 8260B and additional compounds, Tentatively Identified Compounds (TICs)
(2) Excavation confirmation samples
(3) Future monitoring well samples
TBD – To Be Determined

NEW EXCAVATIONS - INVESTIGATION PROGRAM SAMPLING:

PARAMETER	EPA METHOD	SOIL
TCL VOCs	8260B	TBD
TCL SVOCs	8270C	"
TICs VOC/SVOC		
TAL Metals + Cyanide	6010/7470/7471	"
PCBs	8082	"
Pesticides	8082	"

Technical Holding Times: 8270C - 7 days till extraction, 40 days till analysis (soils)
8260B -14 days till analysis.

The analytical laboratory proposed for use for the analysis of samples will be a certified NYSDOH ELAP laboratory for the appropriate categories. The QA Manager of the laboratory will be responsible for performing project-specific audits and for overseeing the quality control data generated.

2.0 DATA QUALITY OBJECTIVES

2.1 Background

Data quality objectives (DQOs) are qualitative and quantitative statements, which specify the quality of data required supporting the investigation for the site. DQOs focus on the identification of the end use of the data to be collected. The project DQOs will be achieved utilizing the definitive data category, as outlined in *Guidance for the Data Quality Objectives Process,* EPA QA/G-4 (September 1994). All sample analyses will provide definitive data, which are generated using rigorous analytical methods, such as reference methods approved by the United States Environmental Protection Agency (USEPA). The purpose of this investigation is to determine the nature and extent of contamination at the site.

Within the context of the purpose stated above, the project DQOs for data collected during this investigation are:

- To assess the nature/extent of contamination in surface and subsurface soil, and groundwater.
- To maintain the highest possible scientific/professional standards for each procedure.
- To develop enough information to assess if the levels of contaminates identified in the media sampled exceed regulatory guidelines.

2.2 QA Objectives for Chemical Data Measurement

Sample analytical methodology for the media sampled and data deliverables will meet the requirements in NYSDEC Analytical Services Protocol, July 2005 edition. Laboratories will be instructed that completed **Sample Preparation and Analysis Summary forms** are to be

submitted with the analytical data packages. The laboratory also will be instructed that matrix interferences must be cleaned up, to the extent practicable. Data usability summary reports (DUSRs) will be generated. In order to achieve the definitive data category described above, the data quality indicators of precision, accuracy, representativeness, comparability, and completeness will be measured during offsite chemical analysis.

2.2.1 Precision

Precision examines the distribution of the reported values about their mean. The distribution of reported values refers to how different the individual reported values are from the average reported value. Precision may be affected by the natural variation of the matrix or contamination within that matrix, as well as by errors made in field and/or laboratory handling procedures. Precision is evaluated using analyses of a laboratory matrix spike/matrix spike duplicate (for organics) and matrix duplicates (for inorganics), which not only exhibit sampling and analytical precision, but indicate analytical precision through the reproducibility of the analytical results. Relative Percent Difference (RPD) is used to evaluate precision. RPD criteria must meet the method requirements identified in the attached table.

2.2.2 Accuracy

Accuracy measures the analytical bias in a measurement system. Sources of error are the sampling process, field contamination, preservation, handling, sample matrix, sample preparation, and analysis techniques. These data help to assess the potential concentration contribution from various outside sources. The laboratory objective for accuracy is to equal or exceeds the accuracy demonstrated for the applied analytical methods on samples of the same matrix. The percent recovery criterion is used to estimate accuracy based on recovery in the matrix spike/matrix spike duplicate and matrix spike blank samples. The spike and spike duplicate, which will give an indication of matrix effects that may be affecting target compounds is also a good gauge of method efficiency.

2.2.3 Representativeness

Representativeness expresses the degree to which the sample data accurately and precisely represent the characteristics of a population of samples, parameter variations at a sampling point, or environmental conditions. Representativeness is a qualitative parameter, which is most concerned with the proper design of the sampling program or sub-sampling of a given sample. Objectives for representativeness are defined for sampling and analysis tasks and are a function of the investigative objectives. The sampling procedures, as described in the Field Sampling Plan (Appendix D), have been selected with the goal of obtaining representative samples for the media of concern.

2.2.4 Comparability

Comparability is a qualitative parameter expressing the confidence with which one data set can be compared with another. A DQO for this program is to produce data with the greatest possible degree of comparability. This goal is achieved through using standard techniques to collect and analyze representative samples and reporting analytical results in appropriate units. Complete

field documentation will support the assessment of comparability. Comparability is limited by the other parameters (e.g., precision, accuracy, representative-ness, completeness, comparability), because only when precision and accuracy are known can data sets be compared with confidence. In order for data sets may be comparable, it is imperative that contract-required methods and procedures be explicitly followed.

2.2.5 Completeness

Completeness is defined as a measure of the amount of valid data obtainable from a measurement system compared to the amount that was expected to be obtained under normal conditions. It is important that appropriate QA procedures be maintained to verify that valid data are obtained in order to meet project needs. For the data generated, a goal of 90% is required for completeness (or usability) of the analytical data. If this goal is not met, then NYSDEC and PEI project personnel will determine whether the deviations might cause the data to be rejected.

3.0 SAMPLING LOCATIONS, CUSTODY, HOLDING TIMES, & ANALYSIS

Sampling locations and procedures are discussed in Work Plan. Procedures addressing field and laboratory sample chain-of-custody and holding times are presented in the Appendix D - Field Sampling Plan. All holding times begin with validated time of sample receipt (VTSR) at the laboratory. The laboratory must meet the method required detection limits which are referenced within the methods.

4.0 CALIBRATION PROCEDURES AND FREQUENCY

In order to obtain a high level of precision and accuracy during sample processing procedures, laboratory instruments must be calibrated properly. Several analytical support areas must be considered so the integrity of standards and reagents is upheld prior to instrument calibration. The following sections describe the analytical support areas and laboratory instrument calibration procedures.

4.1 Analytical Support Areas

Prior to generating quality data, several analytical support areas must be considered; these are detailed in the following paragraphs.

Standard/Reagent Preparation - Primary reference standards and secondary standard solutions shall be obtained from National Institute of Standards and Technology (NIST), or other reliable commercial sources to verify the highest purity possible. The preparation and maintenance of standards and reagents will be accomplished according to the methods referenced. All standards and standard solutions are to be formally documented (i.e., in a logbook) and should identify the supplier, lot number, purity/concentration, receipt/preparation date, preparers name, method of preparation, expiration date, and any other pertinent information. All standard solutions shall be validated prior to use. Care shall be exercised in the proper storage and handling of standard solutions (e.g., separating volatile standards from nonvolatile standards). The laboratory shall

continually monitor the quality of the standards and reagents through well documented procedures.

Balances - The analytical balances shall be calibrated and maintained in accordance with manufacturer specifications. Calibration is conducted with two Class AS" weights that bracket the expected balance use range. The laboratory shall check the accuracy of the balances daily and they must be properly documented in permanently bound logbooks.

Refrigerators/Freezers - The temperature of the refrigerators and freezers within the laboratory shall be monitored and recorded daily. This will verify that the quality of the standards and reagents is not compromised and the integrity of the analytical samples is upheld. Appropriate acceptance ranges (2 to 6°C for refrigerators) shall be clearly posted on each unit in service.

Water Supply System - The laboratory must maintain a sufficient water supply for all project needs. The grade of the water must be of the highest quality (analyte-free) in order to eliminate false-positives from the analytical results. Ultraviolet cartridges or carbon absorption treatments are recommended for organic analyses and ion-exchange treatment is recommended for inorganic tests. Appropriate documentation of the quality of the water supply system(s) will be performed on a regular basis.

4.2 Laboratory Instruments

Calibration of instruments is required to verify that the analytical system is operating properly and at the sensitivity necessary to meet established quantitation limits. Each instrument for organic and inorganic analyses shall be calibrated with standards appropriate to the type of instrument and linear range established within the analytical method(s). Calibration of laboratory instruments will be performed according to specified methods.

In addition to the requirements stated within the analytical methods, the contract laboratory will be required to analyze an additional low level standard at or near the detection limits. In general, standards will be used that bracket the expected concentration of the samples. This will require the use of different concentration levels, which are used to demonstrate the instrument's linear range of calibration.

Calibration of an instrument must be performed prior to the analysis of any samples and then at periodic intervals (continuing calibration) during the sample analysis to verify that the instrument is still calibrated. If the contract laboratory cannot meet the method required calibration requirements, corrective action shall be taken as discussed in Section 7.0. All corrective action procedures taken by the contract laboratory are to be documented, summarized within the case narrative, and submitted with the analytical results.

5.0 INTERNAL QUALITY CONTROL CHECKS

Internal QC checks are used to determine if analytical operations at the laboratory are in control, as well as determining the effect sample matrix may have on data being generated. Two types of internal checks are performed and are described as batch QC and matrix-specific QC procedures.

The type and frequency of specific QC samples performed by the contract laboratory will be according to the specified analytical method and project specific requirements. Acceptable criteria and/or target ranges for these QC samples are presented within the referenced analytical methods.

QC results which vary from acceptable ranges shall result in the implementation of appropriate corrective measures, potential application of qualifiers, and/or an assessment of the impact these corrective measures have on the established data quality objectives. Quality control samples including any project-specific QC will be analyzed are discussed below.

5.1 Batch QC

Method Blanks - A method blank is defined as laboratory-distilled or deionized water that is carried through the entire analytical procedure. The method blank is used to determine the level of laboratory background contamination. Method blanks are analyzed at a frequency of one per analytical batch.

Matrix Spike Blank Samples - A matrix spike blank (MSB) sample is an aliquot of water spiked (fortified) with all the elements being analyzed for calculation of precision and accuracy to verify that the analysis that is being performed is in control. A MSB will be performed for each matrix and organic parameter only.

5.2 Matrix-Specific QC

Matrix Spike Samples - An aliquot of a matrix is spiked with known concentrations of specific compounds as stipulated by the methodology. The matrix spike (MS) and matrix spike duplicate (MSD) are subjected to the entire analytical procedure in order to assess both accuracy and precision of the method for the matrix by measuring the percent recovery and relative percent difference of the two spiked samples. The samples are used to assess matrix interference effects on the method, as well as to evaluate instrument performance. MS/MSDs are analyzed at a frequency of one each per 20 samples per matrix.

Matrix Duplicates - The matrix duplicate (MD) is two representative aliquots of the same sample which are prepared and analyzed identically. Collection of duplicate samples provides for the evaluation of precision both in the field and at the laboratory by comparing the analytical results of two samples taken from the same location. Obtaining duplicate samples from a soil matrix requires homogenization (except for volatile organic compounds) of the sample aliquot prior to filling sample containers, in order to best achieve representative samples. Every effort will be made to obtain replicate samples; however, due to interferences, lack of homogeneity, and the nature of the soil samples, the analytical results are not always reproducible.

Rinsate (Equipment) Blanks - A rinsate blank is a sample of laboratory demonstrated analyte-free water passed through and over the cleaned sampling equipment. A rinsate blank is used to indicate potential contamination from ambient air and from sample instruments used to collect and transfer samples. This water must originate from one common source within the laboratory and must be the same water used by the laboratory performing the analysis. The rinsate blank

should be collected, transported, and analyzed in the same manner as the samples acquired that day. Rinsate blanks for nonaqueous matrices should be performed at a rate of 10 percent of the total number of samples collected throughout the sampling event. Rinse blanks will not be performed on samples (i.e., groundwater) where dedicated disposable equipment is used.

Trip Blanks - Trip blanks are not required for nonaqueous matrices. Trip blanks are required for aqueous sampling events. They consist of a set of sample bottles filled at the laboratory with laboratory demonstrated analyte free water. These samples then accompany the bottles that are prepared at the lab into the field and back to the laboratory, along with the collected samples for analysis. These bottles are never opened in the field. Trip blanks must return to the lab with the same set of bottles they accompanied to the field. Trip blanks will be analyzed for volatile organic parameters. Trip blanks must be included at a rate of one per volatile sample shipment.

6.0 CALCULATION OF DATA QUALITY INDICATORS

6.1 Precision

Precision is evaluated using analyses of a field duplicate and/or a laboratory MS/MSD which not only exhibit sampling and analytical precision, but indicate analytical precision through the reproducibility of the analytical results. RPD is used to evaluate precision by the following formula:

$$RPD = \frac{(X_1 - X_2)}{[(X_1 + X_2)/2]} \times 100\%$$

where:

X_1 = Measured value of sample or matrix spike
X_2 = Measured value of duplicate or matrix spike duplicate

Precision will be determined through the use of MS/MSD (for organics) and matrix duplicates (for inorganics) analyses.

6.2 Accuracy

Accuracy is defined as the degree of difference between the measured or calculated value and the true value. The closer the numerical value of the measurement comes to the true value or actual concentration, the more accurate the measurement is. Analytical accuracy is expressed as the percent recovery of a compound or element that has been added to the environmental sample at known concentrations before analysis. Analytical accuracy may be assessed through the use of known and unknown QC samples and spiked samples. It is presented as percent recovery. Accuracy will be determined from matrix spike, matrix spike duplicate, and matrix spike blank samples, as well as from surrogate compounds added to organic fractions (i.e., volatiles, semivolatiles, PCB), and is calculated as follows:

$$Accuracy\ (\%R) = \frac{(X_s - X_u)}{K} \times 100\%$$

where:

X_s - Measured value of the spike sample
X_u - Measured value of the unspiked sample
K - Known amount of spike in the sample

6.3 Completeness

Completeness is calculated on a per matrix basis for the project and is calculated as follows:

$$Completeness\ (\%C) = \frac{(X_v - X_n)}{N} \quad x\ 100\%$$

where:
X_v - Number of valid measurements
X_n - Number of invalid measurements
N - Number of valid measurements expected to be obtained

7.0 CORRECTIVE ACTIONS

Laboratory corrective actions shall be implemented to resolve problems and restore proper functioning to the analytical system when errors, deficiencies, or out-of-control situations exist at the laboratory. Full documentation of the corrective action procedure needed to resolve the problem shall be filed in the project records, and the information summarized in the case narrative. A discussion of the corrective actions to be taken is presented in the following sections.

7.1 Incoming Samples

Problems noted during sample receipt shall be documented by the laboratory. The PEI Project Manager shall be contacted immediately for problem resolution. All corrective actions shall be documented thoroughly.

7.2 Sample Holding Times

If any sample extraction and/or analyses exceed method holding time requirements, the PEI Project Manager shall be notified immediately for problem resolution. All corrective actions shall be documented thoroughly.

7.3 Instrument Calibration

Sample analysis shall not be allowed until all initial calibrations meet the appropriate requirements. All laboratory instrumentation must be calibrated in accordance with method requirements. If any initial/continuing calibration standards exceed method QC limits, recalibration must be performed and, if necessary, reanalysis of all samples affected back to the previous acceptable calibration check.

7.4 Reporting Limits

The laboratory must meet the method required detection limits listed in NYSDEC ASP, 10/95 criteria. If difficulties arise in achieving these limits due to a particular sample matrix, the laboratory must notify PEI project personnel for problem resolution. In order to achieve those detection limits, the laboratory must utilize all appropriate cleanup procedures in an attempt to retain the project required detection limits. When any sample requires a secondary dilution due to high levels of target analytes, the laboratory must document all initial analyses and secondary dilution results. Secondary dilution will be permitted only to bring target analytes within the linear range of calibration. If samples are analyzed at a secondary dilution with no target analytes detected, the PEI Project Manager will be immediately notified so that appropriate corrective actions can be initiated.

7.5 Method QC

All QC method-specified QC samples, shall meet the method requirements referenced in the analytical methods. Failure of method-required QC will result in the review and possible qualification of all affected data. If the laboratory cannot find any errors, the affected sample(s) shall be reanalyzed and/or re-extracted/redigested, then reanalyzed within method-required holding times to verify the presence or absence of matrix effects. If matrix effect is confirmed, the corresponding data shall be flagged accordingly using the flagging symbols and criteria. If matrix effect is not confirmed, then the entire batch of samples may have to be reanalyzed and/or re-extracted/redigested, then reanalyzed at no cost to the PEI. PEI shall be notified as soon as possible to discuss possible corrective actions should unusually difficult sample matrices be encountered.

7.6 Calculation Errors

All analytical results must be reviewed systematically for accuracy prior to submittal. If upon data review calculation and/or reporting errors exist, the laboratory will be required to reissue the analytical data report with the corrective actions appropriately documented in the case narrative.

8.0 DATA REDUCTION, VALIDATION, AND USABILITY

8.1 Data Reduction

Laboratory analytical data are first generated in raw form at the instrument. These data may be either in a graphic or printed tabular format. Specific data generation procedures and calculations are found in each of the referenced methods. Analytical results must be reported consistently. Identification of all analytes must be accomplished with an authentic standard of the analyte traceable to NIST or USEPA sources. Individuals experienced with a particular analysis and knowledgeable of requirements will perform data reduction.

8.2 Data Validation

Data validation is a systematic procedure of reviewing a body of data against a set of established criteria to provide a specified level of assurance of validity prior to its intended use. All analytical results from soil and initial and final rounds of groundwater samples will have ASP Category B deliverables and DUSRs. The data validation will be in accordance with DER-10 Section 2.2 with ASP- Cat B data deliverables provided by the laboratory and a Data Usability Summary Report provided for validation.

- Technical holding times will be in accordance with NYSDEC ASP, 7/2005 edition.

- Organic calibration and QC criteria will be in accordance with NYSDEC ASP, 7/2005 edition. Data will be qualified if it does not meet NYSDEC ASP, 7/2005 criteria.

Where possible, discrepancies will be resolved by the PEI project manager (i.e., no letters will be written to laboratories).

9.0 REFERENCES

Comprehensive Environmental Response Compensation and Liability Act (CERCLA) Quality Assurance Manual, Final Copy , Revision I, October 1989.

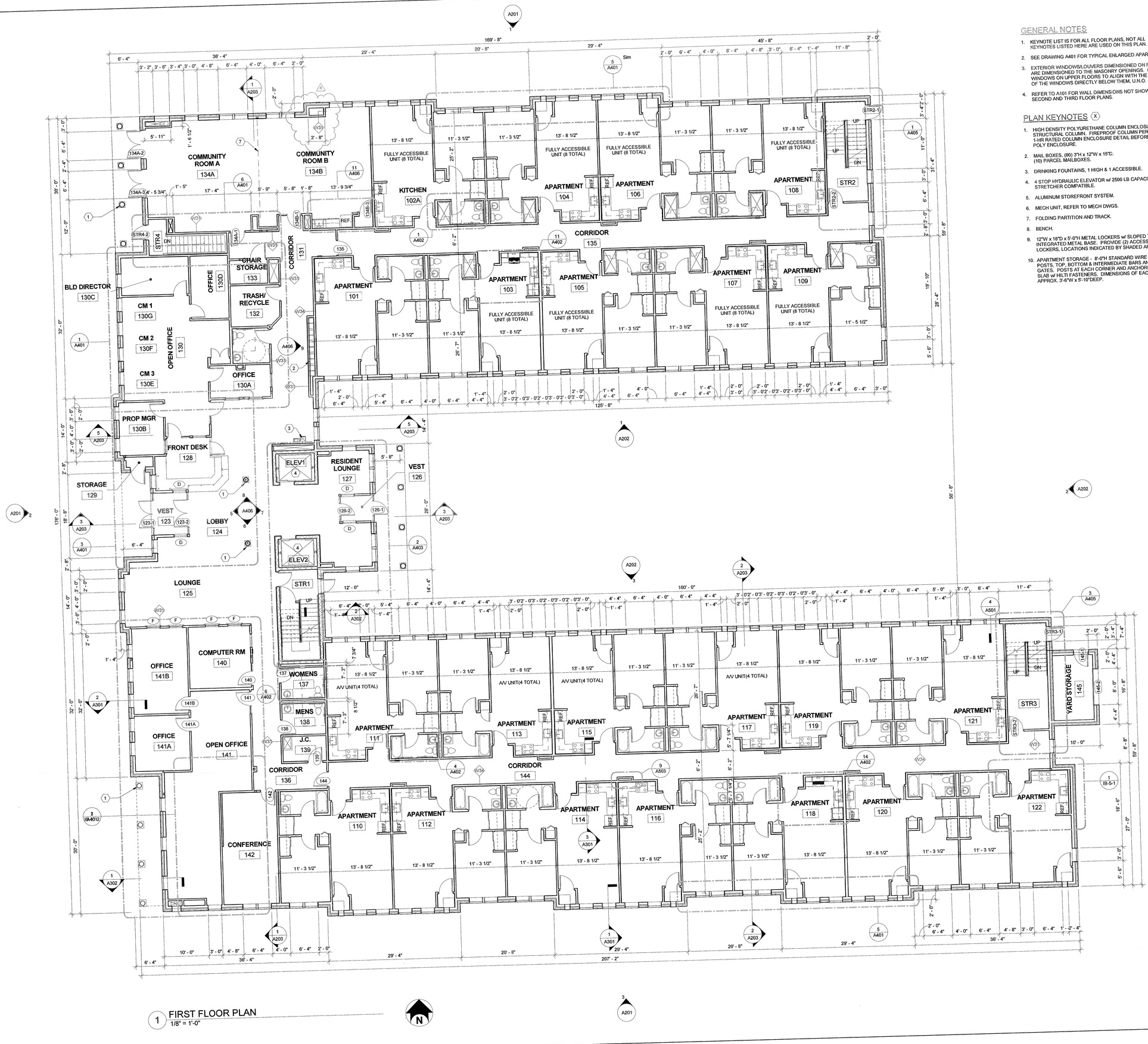
National Enforcement Investigations Center of USEPA Office of Enforcement. *NEIC Policies and Procedures.* Washington: USEPA.

New York State Department of Environmental Conservation (NYSDEC) 2005. *Analytical Services Protocol,* (ASP) 7/2005 Edition. Albany: NYSDEC.

NYSDEC "DER-10 Technical Guidance for Site Investigation and Remediation (DER-10)," dated May 3, 2010, Appendix 2B

APPENDIX E

SUB-SLAB DEPRESSURIZATION SYSTEM ASBUILTS



1 FIRST FLOOR PLAN
1/8" = 1'-0"

GENERAL NOTES

1. KEYNOTE LIST IS FOR ALL FLOOR PLANS, NOT ALL KEYNOTES LISTED HERE ARE USED ON THIS PLAN.
2. SEE DRAWING A401 FOR TYPICAL ENLARGED APARTMENT PLAN.
3. EXTERIOR WINDOWS/LOUVERS DIMENSIONED ON FIRST FLOOR PLAN ARE DIMENSIONED TO THE MASONRY OPENINGS. CENTERLINES OF WINDOWS ON UPPER FLOORS TO ALIGN WITH THE CENTERLINE OF THE WINDOWS DIRECTLY BELOW THEM, U.N.O.
4. REFER TO A101 FOR WALL DIMENSIONS NOT SHOWN ON SECOND AND THIRD FLOOR PLANS.

PLAN KEYNOTES (X)

1. HIGH DENSITY POLYURETHANE COLUMN ENCLOSURE AROUND STRUCTURAL COLUMN. FIREPROOF COLUMN PER TYPICAL 1-HR RATED COLUMN ENCLOSURE DETAIL BEFORE INSTALLING POLY ENCLOSURE.
2. MAIL BOXES, (80) 3"H x 12"W x 15"D. (10) PARCEL MAILBOXES.
3. DRINKING FOUNTAINS, 1 HIGH & 1 ACCESSIBLE.
4. 4 STOP HYDRAULIC ELEVATOR w/ 2500 LB CAPACITY AND STRETCHER COMPATIBLE.
5. ALUMINUM STOREFRONT SYSTEM.
6. MECH UNIT, REFER TO MECH DWGS.
7. FOLDING PARTITION AND TRACK.
8. BENCH.
9. 12"W x 18"D x 5'-0"H METAL LOCKERS w/ SLOPED TOP AND INTEGRATED METAL BASE. PROVIDE (2) ACCESSIBLE LOCKERS, LOCATIONS INDICATED BY SHADED AREA.
10. APARTMENT STORAGE - 8'-0"H STANDARD WIRE FENCING w/ POSTS, TOP, BOTTOM & INTERMEDIATE BARS AND LOCKABLE GATES. POSTS AT EACH CORNER AND ANCHORED TO FLOOR SLAB w/ HILTI FASTENERS. DIMENSIONS OF EACH CAGE APPROX. 3'-6"W x 5'-10"DEEP.

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REVISIONS

NO.	DATE	DESCRIPTION	REV.	CK'D
1	6/04/10	POST BID ADD. #3	MRM	THC
2	4/1/11	IB 7- CG LAYOUT CHANGES	MRM	THC
3	7/11/11	IB-21	MRM	SF
4	7/19/11	IB-23	MRM	SF

SUB-SLAB DEPRESSURIZATION AS-BUILT

Bergmann Associates was contracted to perform periodic site visits only. Accordingly the sub-slab depressurization system, to the best of our knowledge, based on periodic site observations, and in review of the as-built drawings as issued by the installation contractor, was installed per the as-built document.

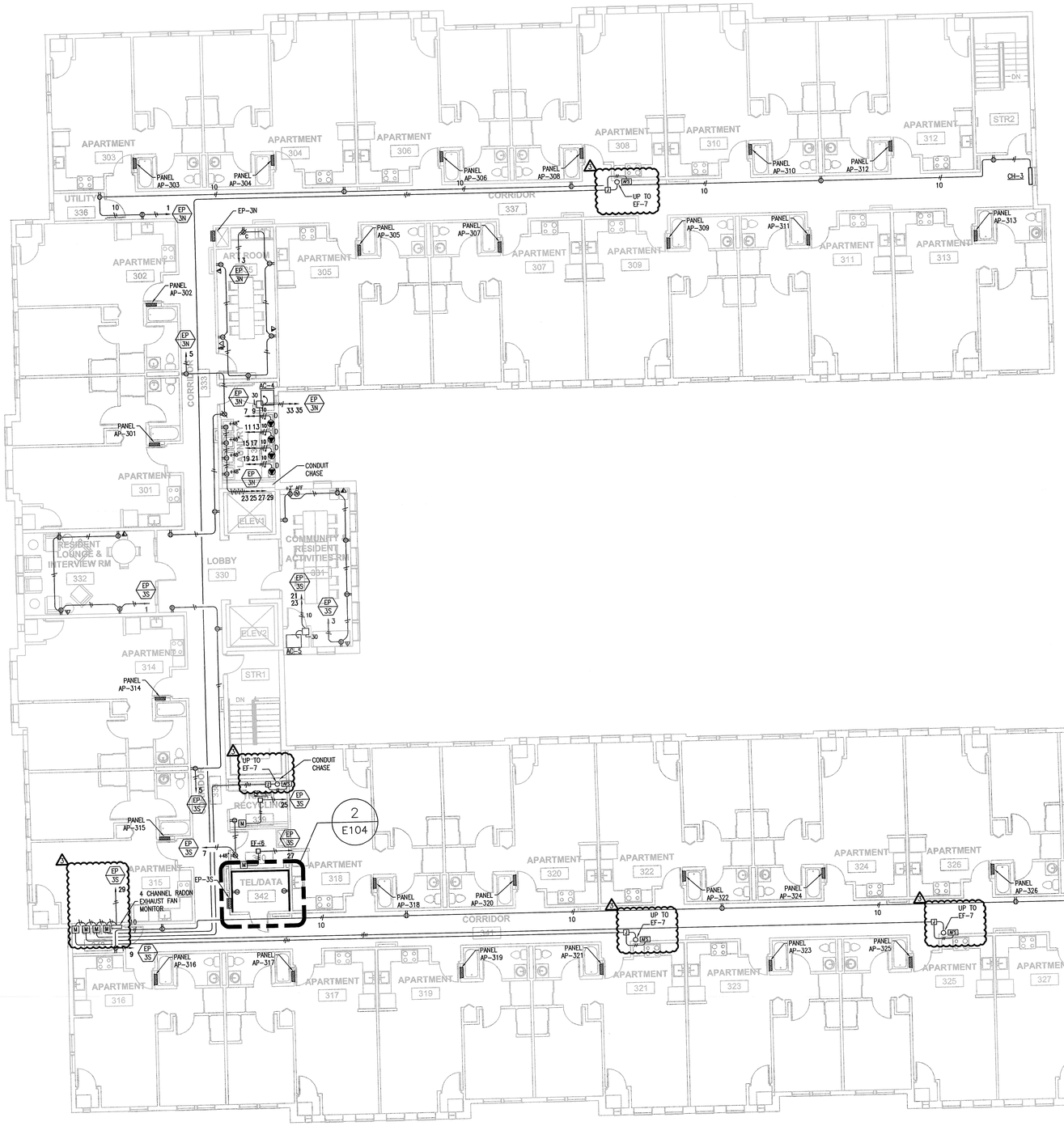
REGISTERED ARCHITECT MITCHELL McALLISTER 033282 STATE OF NEW YORK
7-19-11

FIRST FLOOR PLAN

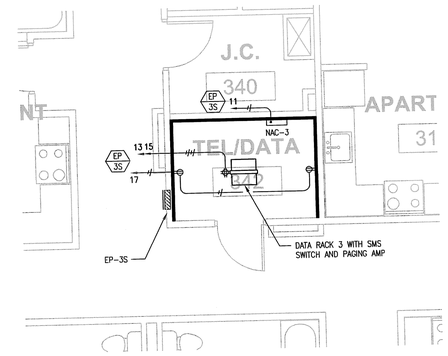
Project Manager: JJI
Designed By: MRM
Drawn By: MRM
Checked By: BCD
Date Issued: 11/18/09
Scale: 1/8" = 1'-0"
Date:
Project Number: 8222.00
File Name: I:\Norstar Development\8222.00 1630 Dewey Ave 12.0 Design\X-4 Arch-ID

Drawing Number:

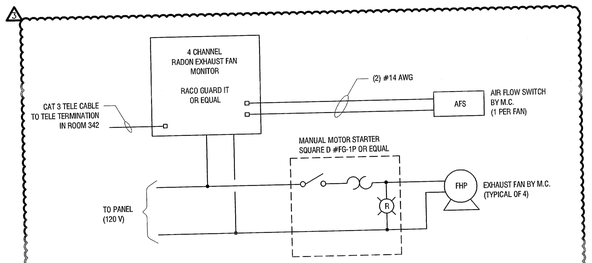
A101



1 E104 THIRD FLOOR ELECTRICAL PLAN
SCALE: 1/8"=1'-0"



2 E104 TEL/DATA 342 ELECTRICAL PLAN
SCALE: 1/8"=1'-0"



3 E104 TYPICAL RADON EXHAUST FAN WIRING SCHEMATIC
SCALE: N.T.S.

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REVISIONS

NO.	DATE	DESCRIPTION	REV.	CKD
1	4/1/11	IB-7	TWW	TGB
2	5/16/11	IB-10	TWW	TGB
3	5/20/11	IB-10 REV1	TWW	TGB

SUB-SLAB DEPRESSURIZATION AS-BUILT

Bergmann Associates was contracted to perform periodic site visits only. Accordingly the sub-slab depressurization system, to the best of our knowledge, based on periodic site observations, and in review of the as-built drawings as issued by the installation contractor, was installed per the as-built document.

STATE OF NEW YORK
THOMAS G. BUCHER
090230
LICENSED PROFESSIONAL ENGINEER

9-13-12

THIRD FLOOR ELECTRICAL PLAN

Note:
Unauthorized alteration or addition to this drawing is a violation of the New York State Education Law Article 145, Section 7209.

Project Manager: A. ISTVAN, AIA
Designed by: L. HANVEY
Drawn by: L. HANVEY
Checked by: T. BUCHER
Date Issued: 11/18/09
Scale: AS NOTED
Date

Project Number: 8222.00
File Name: 822200E104.dwg
Drawing Number:

E104

PANEL: MDP

VOLTAGE: 208Y/120V | LOCATION: MECHANICAL ROOM
PHASE: 3 | FED FROM: UTILITY
WIRE: 4 | UL LISTED EQUIPMENT SHORT CIRCUIT RATING: 35,000
MAIN BUS AMPS: 1200 | MAXIMUM AVAILABLE SHORT CIRCUIT CURRENT:
MAIN CIRCUIT BREAKER: 3P-1200A | PHASE CONDUCTOR: 4 SETS OF 4#350 KCMIL
MOUNTING: WALL | NEUTRAL CONDUCTOR: 4 SETS OF 1#350 KCMIL
DESIGN BASE: SQUARE D #HCWM5486-12U | ELECTRICAL GROUND CONDUCTOR: 4 SETS OF 1#3/0

LOAD DESCRIPTION & LOCATION	PHASE AMPS PH. A	PH. B	PH. C	BREAKER POLES	AMPS	CKT.	PHASE	CKT.	BREAKER AMPS	POLES	PHASE AMPS PH. A	PH. B	PH. C	LOAD DESCRIPTION & LOCATION
	88.0				225		A		225		88.0			
ELEVATOR EL-1		88.0		3	225	1	B	2	225	3		88.0		ELEVATOR EL-2
			88.0		225		C		225				88.0	
	235.5				225		A		225		105.8			
PANEL EP-N RISER (EP-1N/EP-2N/EP-3N)		269.5		3	225	3	B	4	225	3		130.4		PANEL EP-S RISER (EP-1S/EP-2S/EP-3S)
			227.2		225		C		225				82.1	
	52.1				225		A		225		73.4			
PANEL EP-BN		38.4		3	225	5	B	6	225	3		63.7		PANEL EP-BS
			41.0		225		C		225				20.2	
	152.7				225		A							
PANEL EP-BN2		107.1		3	225	7	B	8						
			111.1		225		C							
							A							
							B							
							C							
							A							
							B							
							C							
							A							
							B							
							C							
TOTAL AMPS	528.3	503.0	467.3								267.2	282.1	190.3	TOTAL AMPS

	PH. A	PH. B	PH. C
TOTAL PHASE AMPS	795.50	785.11	657.64
TOTAL PHASE KVA	95.46	94.21	78.92
TOTAL 3-PHASE KVA		268.59	

NOTES:

PANEL: EP-1N

VOLTAGE: 208Y/120V | LOCATION: 1ST FLOOR NORTH CORRIDOR
PHASE: 3 | FED FROM: MDP
WIRE: 4 | UL LISTED EQUIPMENT SHORT CIRCUIT RATING: 22,000
MAIN BUS AMPS: 225 | MAXIMUM AVAILABLE SHORT CIRCUIT CURRENT:
MAIN CIRCUIT BREAKER: 150 | PHASE CONDUCTOR: 3#4/0
MOUNTING: FLUSH | NEUTRAL CONDUCTOR: 1#4/0
DESIGN BASE: SQUARE D #NQOD442M150 | ELECTRICAL GROUND CONDUCTOR: 1#4

LOAD DESCRIPTION & LOCATION	PHASE AMPS PH. A	PH. B	PH. C	BREAKER POLES	AMPS	CKT.	PHASE	CKT.	BREAKER AMPS	POLES	PHASE AMPS PH. A	PH. B	PH. C	LOAD DESCRIPTION & LOCATION
RECEPTACLES - RM. 134A & 134B	4.5			1	20	1	A	2	20	1	3.3			LIGHTS - STAIRS #2
RECEPTACLES - RM. 134B		4.5		1	20	3	B	4	20	1		11.3		LIGHTS - RM. 134A & 134B/OUTSIDE EM.
RECEPTACLES - RM. 134B			3.0	1	20	5	C	6	20	1			8.0	LIGHTS - RM. 130A, C, D, 131A, 132, 133
RECEPTACLES/CH-1 - RM. 134A/OUTSIDE	5.1			1	20	7	A	8	20	1	10.1			LIGHTS - RM. 128, 130, 130B, C, E, F, G
RECEPT/CH-2/CH-3 - CRDR. 135/OUTSIDE		8.7		1	20	9	B	10	20	1		10.4		LIGHTS - RM. 124, 125, 126, 127
RECEPT/WATER CLR - CORRIDOR 131			6.0	1	20	11	C	12	20	1			2.0	LIGHTS - SCONCES AND PICTURE
RECEPTACLES - RM. 132 & 131A	3.0			1	20	13	A	14	20	1				
RECEPTACLES - RM. 130 & 130D		9.0		1	20	15	B	16	20	1				
RECEPTACLES - RM. 130G & 130C			7.5	1	20	17	C	18	20	1				
RECEPTACLES - RM. 130G & 130F	4.5			1	20	19	A	20	20	1				
RECEPTACLES - RM. 130E & 130B		9.0		1	20	21	B	22	20	1				
COPIER RECEPTACLE - RM. 130			1.5	1	20	23	C	24	20	1				
RECEPTACLES - RM. 130, 130A	7.5			1	20	25	A	26	20	1				
RECEPTACLES/CH-2 - FRONT DESK 128		9.6		1	20	27	B	28	20	1				
RECEPTCH-2 - RM. 126 & 127/OUTSIDE			5.1	1	20	29	C	30	20	1				
RECEPTACLE - RM. 134B	1.5			1	20	31	A	32	20	1				
SPARE		0.0		1	20	33	B	34	20	1				
EF-4 - RM. 132			1.6	1	20	35	C	36	20	1				
NAC-1N - RM. 130	1.6			1	20	37	A	38	20	1				
SPARE		0.0		1	20	39	B	40	20	1				
SPARE			0.0	1	20	41	C	42	20	1				
TOTAL AMPS	27.7	40.8	24.7								13.4	21.7	10.0	TOTAL AMPS

	PH. A	PH. B	PH. C
TOTAL PHASE AMPS	41.10	62.50	34.70
TOTAL PHASE KVA	4.93	7.50	4.16
TOTAL 3-PHASE KVA		16.60	

NOTES: Provide sub-feed lugs

PANEL: EP-2S

VOLTAGE: 208Y/120V | LOCATION: 2ND FLOOR SOUTH CORRIDOR
PHASE: 3 | FED FROM: EP-S1
WIRE: 4 | UL LISTED EQUIPMENT SHORT CIRCUIT RATING: 22,000
MAIN BUS AMPS: 225 | MAXIMUM AVAILABLE SHORT CIRCUIT CURRENT:
MAIN CIRCUIT BREAKER: 150 | PHASE CONDUCTOR: 3#4/0
MOUNTING: FLUSH | NEUTRAL CONDUCTOR: 1#4/0
DESIGN BASE: SQUARE D #NQOD442M150 | ELECTRICAL GROUND CONDUCTOR: 1#4

LOAD DESCRIPTION & LOCATION	PHASE AMPS PH. A	PH. B	PH. C	BREAKER POLES	AMPS	CKT.	PHASE	CKT.	BREAKER AMPS	POLES	PHASE AMPS PH. A	PH. B	PH. C	LOAD DESCRIPTION & LOCATION
RECEPTACLES - RM. 232	6.0			1	20	1	A	2	20	1	4.3			LIGHTS - RM. 230, 231, 232
RECEPTACLES - RM. 231		7.5		1	20	3	B	4	20	1		2.2		LIGHTS - RM. 239, 240, 242, 243
RECEPTACLES - RM. 230/CORRIDOR 238			4.5	1	20	5	C	6	20	1				
RECEPTACLES - RM. 239 & 240	3.0			1	20	7	A	8	20	1				
RECEPTACLES/CH-3 - CORRIDOR 241		9.6		1	20	9	B	10	20	1				
NAC-2/POWER SUPPLY - RM. 242			1.6	1	20	11	C	12	20	1				
DATA RACK QUADRAPLEX - RM. 242	3.0			1	20	13	A	14	20	1				
DATA RACK QUADRAPLEX - RM. 242		3.0		1	20	15	B	16	20	1				
RECEPTACLES - RM. 242			3.0	1	20	17	C	18	20	1				
	3.5					19	A	20	20	1				
MUA-2 - RM. 243		3.5		3	20	21	B	22	20	1				
			3.5			23	C	24	20	1				
AC-5 - RM. 231 CLOSET	20.6			2	30	25	A	26	20	1				
		20.6				27	B	28	20	1				
EF-4 - RM. 239			1.6	1	20	29	C	30	20	1				
EF-6 - RM. 240	1.6			1	20	31	A	32	20	1				
				1	20	33	B	34	20	1				
				1	20	35	C	36	20	1				
				1	20	37	A	38	20	1				
				1	20	39	B	40	20	1				
				1	20	41	C	42	20	1				
TOTAL AMPS	37.7	44.2	14.2								4.3	2.2	0.0	TOTAL AMPS

	PH. A	PH. B	PH. C
TOTAL PHASE AMPS	42.00	46.40	14.20
TOTAL PHASE KVA	5.04	5.57	1.70
TOTAL 3-PHASE KVA		12.31	

NOTES:

PANEL: EP-BN

VOLTAGE: 208Y/120V | LOCATION: BASEMENT MECH/ELECT RM.
PHASE: 3 | FED FROM: MDP
WIRE: 4 | UL LISTED EQUIPMENT SHORT CIRCUIT RATING: 22,000
MAIN BUS AMPS: 225 | MAXIMUM AVAILABLE SHORT CIRCUIT CURRENT:
MAIN CIRCUIT BREAKER: MLO | PHASE CONDUCTOR: 3#4/0
MOUNTING: SURFACE | NEUTRAL CONDUCTOR: 1#4/0
DESIGN BASE: SQUARE D #NQOD442L225 | ELECTRICAL GROUND CONDUCTOR: 1#4

LOAD DESCRIPTION & LOCATION	PHASE AMPS PH. A	PH. B	PH. C	BREAKER POLES	AMPS	CKT.	PHASE	CKT.	BREAKER AMPS	POLES	PHASE AMPS PH. A	PH. B	PH. C	LOAD DESCRIPTION & LOCATION
RECEPTACLES - RM. B03 & B04	6.0			1	20	1	A	2	20	1	0.0			PARKING LOT EAST POLES
RECEPTACLES - RM. B03, B06/CRDR. B01		4.5		1	20	3	B	4	20	1		0.0		PARKING LOT WEST POLES
RECEPTACLES - RM. B06			3.0	1	20	5	C	6	20	1			0.0	COURTYARD POLES
RECEPTACLES - RM. B06	3.0			1	20	7	A	8	20	1	8.2			BUILDING MOUNTED DOOR/CANOPY
RECEPTACLES - RM. B06		3.0		1	20	9	B	10	20	1		7.6		BUILDING MOUNTED LIGHTS
RECEPTACLES - RM. B06			3.0	1	20	11	C	12	20	1			5.4	LIGHTS - RM. B05
SECURITY/ACCESS PANEL - RM. B06	2.0			1	20	13	A	14	20	1	3.8			LIGHTS - CORRIDOR B01
RECEPTACLES - RM. B03		4.5		1	20	15	B	16	20	1		1.1		LIGHTS - STAIRS #4
2 RECEPTACLES - RM. B07 & B08			3.0	1	20	17	C	18	20	1			8.9	LIGHTS - RM. B02, B03, & B04
SPARE	0.0			1	20	19	A	20	20	1	5.2			LIGHTS - CORRIDOR 135
SPARE		0.0		1	20	21	B	22	20	1		2.1		LIGHTS - CORRIDOR 131
SPARE			0.0	1	20	23	C	24	20	1			2.1	LIGHTS - CORRIDOR 136
SPARE	0.0			1	20	25	A	26	20	1	6.8			LIGHTS - CORRIDOR 144
SPARE		0.0		1	20	27	B	28	20	1		7.8		LIGHTS - CORRIDOR 237
SPARE			0.0	1	20	29	C	30	20	1			7.8	LIGHTS - CORRIDOR 233/230
RECEPTACLES - COURTYARD	1.5			1	20	31	A	32	20	1	7.8			LIGHTS - CORRIDOR 241
SPARE		0.0		1	20	33	B	34	20	1		7.8		LIGHTS - CORRIDOR 337
SPARE			0.0	1	20	35	C	36	20	1			7.8	LIGHTS - CORRIDOR 333/330/338
SPARE	0.0			1	20	37	A	38	20	1	7.8			LIGHTS - CORRIDOR 341
SPARE		0.0		1	20	39	B	40	20	1		0.0		SPARE
SPARE			0.0	1	20	41	C	42	20	1			0.0	SPARE
TOTAL AMPS	12.5	12.0	9.0								39.6	26.4	32.0	TOTAL AMPS

	PH. A	PH. B	PH. C
TOTAL PHASE AMPS	52.10	38.40	41.00
TOTAL PHASE KVA	6.25	4.61	4.92
TOTAL 3-PHASE KVA		15.78	

NOTES:

PANEL: EP-2N

VOLTAGE: 208Y/120V | LOCATION: 2ND FLOOR NORTH CORRIDOR
PHASE: 3 | FED FROM: EP-N1
WIRE: 4 | UL LISTED EQUIPMENT SHORT CIRCUIT RATING: 22,000
MAIN BUS AMPS: 225 | MAXIMUM AVAILABLE SHORT CIRCUIT CURRENT:
MAIN CIRCUIT BREAKER: 150 | PHASE CONDUCTOR: 3#4/0
MOUNTING: FLUSH | NEUTRAL CONDUCTOR: 1#4/0
DESIGN BASE: SQUARE D #NQOD442M150 | ELECTRICAL GROUND CONDUCTOR: 1#4

LOAD DESCRIPTION & LOCATION	PHASE AMPS PH. A	PH. B	PH. C	BREAKER POLES	AMPS	CKT.	PHASE	CKT.	BREAKER AMPS	POLES	PHASE AMPS PH. A	PH. B	PH. C	LOAD DESCRIPTION & LOCATION
RECEPTACLES/CH-3 - CORRIDOR 237	9.6			1	20	1	A	2	20	1	4.1			LIGHTS - RM. 234, 235, 236
RECEPTACLES - RM. 235		7.5		1	20	3	B	4	20	1				
RECEPTACLES - RM. 235			7.5	1	20	5	C	6	20	1				
RECEPTACLES - CRDR. 233/RM. 234, 230	6.0			1	20	7	A	8	20	1				
DRYERS - RM. 234		24.0		2	30	9	B	10	20	1				
			24.0			11	C	12	20	1				
DRYERS - RM. 234	24.0			2	30	13	A	14	20	1				
		24.0				15	B	16	20	1				
DRYERS - RM. 234			24.0	2	30	17	C	18	20	1				
	24.0					19	A	20	20	1				
DRYERS - RM. 234		24.0		2	30	21	B	22	20	1				
			24.0			23	C	24	20	1				
WASHING MACHINE - RM. 234	12.5			1	20	25	A	26	20	1				
WASHING MACHINE - RM. 234		12.5		1	20	27	B	28	20	1				
WASHING MACHINE - RM. 234			12.5	1	20	29	C	30	20	1				
WASHING MACHINE - RM. 234	12.5			1	20	31	A	32	20	1				
		3.5				33	B	34	20	1				
MUA-1 - RM. 236			3.5	3	20	35	C	36	20	1				
	3.5					37	A	38	20	1				
AC-4 - RM. 234		9.0		2	20	39	B	40	20	1				
			9.0			41	C	42	20	1				
TOTAL AMPS	92.1	104.5	104.5								4.1	0.0	0.0	TOTAL AMPS

	PH. A	PH. B	PH. C
TOTAL PHASE AMPS	96.20	104.50	104.50
TOTAL PHASE KVA	11.54	12.54	12.54
TOTAL 3-PHASE KVA		36.62	

NOTES:

PANEL: EP-3S

VOLTAGE: 208Y/120V | LOCATION: 3RD FLOOR SOUTH CORRIDOR
PHASE: 3 | FED FROM: EP-S2
WIRE: 4 | UL LISTED EQUIPMENT SHORT CIRCUIT RATING: 22,000
MAIN BUS AMPS: 225 | MAXIMUM AVAILABLE SHORT CIRCUIT CURRENT:
MAIN CIRCUIT BREAKER: 150 | PHASE CONDUCTOR: 3#4/0
MOUNTING: FLUSH | NEUTRAL CONDUCTOR: 1#4/0
DESIGN BASE: SQUARE D #NQOD442M150 | ELECTRICAL GROUND CONDUCTOR: 1#4

LOAD DESCRIPTION & LOCATION	PHASE AMPS PH. A	PH. B	PH. C	BREAKER POLES	AMPS	CKT.	PHASE	CKT.	BREAKER AMPS	POLES	PHASE AMPS PH. A	PH. B	PH. C	LOAD DESCRIPTION & LOCATION
RECEPTACLES - RM. 332	6.0			1	20	1	A	2	20	1	4.3			LIGHTS - RM. 140, 140A,B, 141
RECEPTACLES - RM. 331		7.5		1	20	3	B	4	20	1		2.2		LIGHTS - RM. 339, 340, 342, 343
RECEPTACLES - RM. 330/CORRIDOR 338			4.5	1	20	5	C	6						SPACE
RECEPTACLES - RM. 339 & 340	3.0			1	20	7	A	8						SPACE
RECEPTACLES/CH-3 - CORRIDOR 341		9.6		1	20	9	B	10						SPACE
NAC-3/POWER SUPPLY - RM. 342			1.6	1	20	11	C	12						SPACE
DATA RACK QUADRAPLEX - RM. 342	3.0			1	20	13	A	14						SPACE
DATA RACK QUADRAPLEX - RM. 342		3.0		1	20	15	B	16						SPACE
RECEPTACLES - RM. 342			3.0	1	20	17	C	18						SPACE
SPARE				1	20	19	A	20						SPACE
AC-5 - RM. 331 CLOSET		20.6		2	30	21	B	22						SPACE
			20.6			23	C	24						SPACE
EF-4 - RM. 339	1.6			1	20	25	A	26						SPACE
EF-5 - RM. 340		1.6		1	20	27	B	28						SPACE
EF-7 - RM. 343			0.7	1	20	29	C	30						SPACE
TOTAL AMPS	13.0	42.3	30.4								4.3	2.2	0.0	TOTAL AMPS

	PH. A	PH. B	PH. C
TOTAL PHASE AMPS	17.90	44.50	30.42
TOTAL PHASE KVA	2.15	5.34	3.65
TOTAL 3-PHASE KVA		11.14	

NOTES:

PANEL: EP-BN2

VOLTAGE: 208Y/120V | LOCATION: BASEMENT MECH/ELECT RM.
PHASE: 3 | FED FROM: MDP
WIRE: 4 | UL LISTED EQUIPMENT SHORT CIRCUIT RATING: 22,000
MAIN BUS AMPS: 225 | MAXIMUM AVAILABLE SHORT CIRCUIT CURRENT:
MAIN CIRCUIT BREAKER: MLO | PHASE CONDUCTOR: 3#4/0
MOUNTING: SURFACE | NEUTRAL CONDUCTOR: 1#4/0
DESIGN BASE: SQUARE D #NQOD442L225 | ELECTRICAL GROUND CONDUCTOR: 1#4

LOAD DESCRIPTION & LOCATION	PHASE AMPS PH. A	PH. B	PH. C	BREAKER POLES	AMPS	CKT.	PHASE	CKT.	BREAKER AMPS	POLES	PHASE AMPS PH. A	PH. B	PH. C	LOAD DESCRIPTION & LOCATION
CU-1 - OUTSIDE NORTH WALL	35.9			2	60	1	A	2			24.2			
		35.9			60	3	B	4	40	3		24.2		P-3 - RM. B05
CU-3 - OUTSIDE NORTH WALL			35.9	2	60	5	C	6					24.2	
	35.9				60	7	A	8			24.2			
						9	B	10	40	3		24.2		P-4 - RM. B05
						11	C	12					24.2	
B-1 - RM. B05	1.0			1	20	13	A	14			13.2			
P1-A/P1-B SERVES B-1 PUMPS - RM. B05		1.0		1	20	15	B	16	20	3		13.2		AC-1/AC-3 - RM. B05
B-2 - RM. B05			1.0	1	20	17	C	18					13.2	
P2-A/P2-B SERVES B-2 PUMPS - RM. B05	1.0			1	20	19	A	20			6.6			
FACP - B05		2.0		1	20	21	B	22	20	3		6.6		HV-1 - RM. B05
RECEPTACLES - RM. B05			6.0	1	20	23	C	24					6.6	
RECEPTACLES/EF-3 - RM. B05/OUTSIDE	4.6			1	20	25	A	26	20	1	6.1			WH-1/HWP-1/HWRP-1/HWRP-2 - RM. B09
				1	20	27	B	28	20	1				
				1	20	29	C	30	20	1				
				1	20	31	A	32	20	1				
				1	20	33	B	34	20	1				
				1	20	35	C	36	20	1				
				1	20	37	A	38	20	1				
				1	20	39	B	40	20	1				
				1	20	41	C	42	20	1				
TOTAL AMPS	78.4	38.9	42.9								74.3	68.2	68.2	TOTAL AMPS

	PH. A	PH. B	PH. C
TOTAL PHASE AMPS	152.70	107.10	111.10
TOTAL PHASE KVA	18.32	12.85	13.33
TOTAL 3-PHASE KVA		44.51	

NOTES:

PANEL: EP-3N

VOLTAGE: 208Y/120V | LOCATION: 3RD FLOOR NORTH CORRIDOR
PHASE: 3 | FED FROM: EP-N2
WIRE: 4 | UL LISTED EQUIPMENT SHORT CIRCUIT RATING: 22,000
MAIN BUS AMPS: 225 | MAXIMUM AVAILABLE SHORT CIRCUIT CURRENT:
MAIN CIRCUIT BREAKER: 150 | PHASE CONDUCTOR: 3#4/0
MOUNTING: FLUSH | NEUTRAL CONDUCTOR: 1#4/0
SQUARE D: NQOD442M150 | ELECTRICAL GROUND CONDUCTOR: 1#4

LOAD DESCRIPTION & LOCATION	PHASE AMPS PH. A	PH. B	PH. C	BREAKER POLES	AMPS	CKT.	PHASE	CKT.	BREAKER AMPS	POLES	PHASE AMPS PH. A	PH. B	PH. C	LOAD DESCRIPTION & LOCATION
RECEPTACLES/CH-3 - CORRIDOR 337	9.6			1	20	1	A	2	20	1	4.1			LIGHTS - RM. 334, 335, 336
RECEPTACLES - RM. 335		9.0		1	20	3	B	4	20	1				
RECEPTACLES - CRDR. 333/RM. 334, 330			6.0	1	20	5	C	6	20	1				
DRYERS - RM. 334	24.0			2	30	7	A	8	20	1				
		24.0				9	B	10	20	1				
DRYERS - RM. 334			24.0	2	30	11	C	12	20	1				
	24.0					13	A	14	20	1				
DRYERS - RM. 334		24.0		2	30	15	B	16	20	1				
			24.0			17	C	18	20	1				
DRYERS - RM. 334	24.0			2	30	19	A	20	20	1				
		24.0				21	B	22	20	1				
WASHING MACHINE - RM. 334			12.5	1	20	23	C	24	20	1				
WASHING MACHINE - RM. 334	12.5			1	20	25	A	26	20	1				
WASHING MACHINE - RM. 334		12.5		1	20	27	B	28	20	1				
WASHING MACHINE - RM. 334			12.5	1	20	29	C	30	20	1				
SPARE	0.0			1	20	31	A	32	20	1				
AC-4 - RM.		9.0		2	20	33	B	34	20	1				
			9.0			35	C	36	20	1				
SPARE	0.0			1	20	37	A	38	20	1				
				1	20	39	B	40	20	1				
				1	20	41	C	42	20	1				
TOTAL AMPS	94.1	102.5	88.0								4.1	0.0	0.0	TOTAL AMPS

	PH. A	PH. B	PH. C
TOTAL PHASE AMPS	98.20	102.50	88.00
TOTAL PHASE KVA	11.78	12.30	10.56
TOTAL 3-PHASE KVA		34.64	

NOTES:

PANEL: EP-BS

VOLTAGE: 208Y/120V | LOCATION: BASEMENT STORAGE
PHASE: 3 | FED FROM: MDP
WIRE: 4 | UL LISTED EQUIPMENT SHORT CIRCUIT RATING: 22,000
MAIN BUS AMPS: 225 | MAXIMUM AVAILABLE SHORT CIRCUIT CURRENT:
MAIN CIRCUIT BREAKER: MLO | PHASE CONDUCTOR: 3#4/0
MOUNTING: SURFACE | NEUTRAL CONDUCTOR: 1#4/0
DESIGN BASE: SQUARE D #NQOD430L225 | ELECTRICAL GROUND CONDUCTOR: 1#4

LOAD DESCRIPTION & LOCATION	PHASE AMPS PH. A	PH. B	PH. C	BREAKER POLES	AMPS	CKT.	PHASE	CKT.	BREAKER AMPS	POLES	PHASE AMPS PH. A	PH. B	PH. C	LOAD DESCRIPTION & LOCATION
RECEPTACLES - RM. B02	1.5			1	20	1	A	2	20	1				LIGHTS/EF-5 - RM. B06, B07, & B08
SPARE		0.0		1	20	3	B	4	20	1		2.2		LIGHTS - RM. B09 & B10
RECEPTACLES - RM. B02			1.5	1	20	5	C	6	20	1			0.3	LIGHTS - ELEVATOR PITS
RECEPTACLES - RM. B02, B11/CRDR. B01	6.0			1	20	7	A	8	20	1	0.0			SPARE
RECEPTACLES - RM. B02		4.5		1	20	9	B	10	20	1		3.8		LIGHTS - STAIRS #1
RECEPTACLES - ELEVATOR PIT			1.5	1	20	11	C	12	20	1			2.2	LIGHTS - RM. B12 & B13
RECEPTACLES/EF-3 - RM. B09 & B10	4.7			1	20	13	A	14	20	1	9.8			LIGHTS - RM. B11
RECEPTACLES - RM. B10		1.5		1	20	15	B	16	20	1		0.0		SPARE
RECEPTACLES - ELEVATOR PIT			1.5	1	20	17	C	18	20	1			0.0	SPARE
RECEPTACLES - RM. B01, B11, & B12	7.5			1	20	19	A	20			13.2			
RECEPTACLES/EF-3 - RM. B11 & B13		10.6		1	20	21	B	22	20	3		13.2		AC-2/HV-2 - RM. B13
SPARE			0.0	1	20	23	C	24					13.2	
SPACE				1	20	25	A	26	40	2	27.9			CU-2 - OUTSIDE SOUTH WALL
SPACE				1	20	27	B	28	40			27.9		
SPACE				1	20	29	C	30					27.9	
TOTAL AMPS	19.7	16.6	4.5								53.7	47.1	15.7	TOTAL AMPS

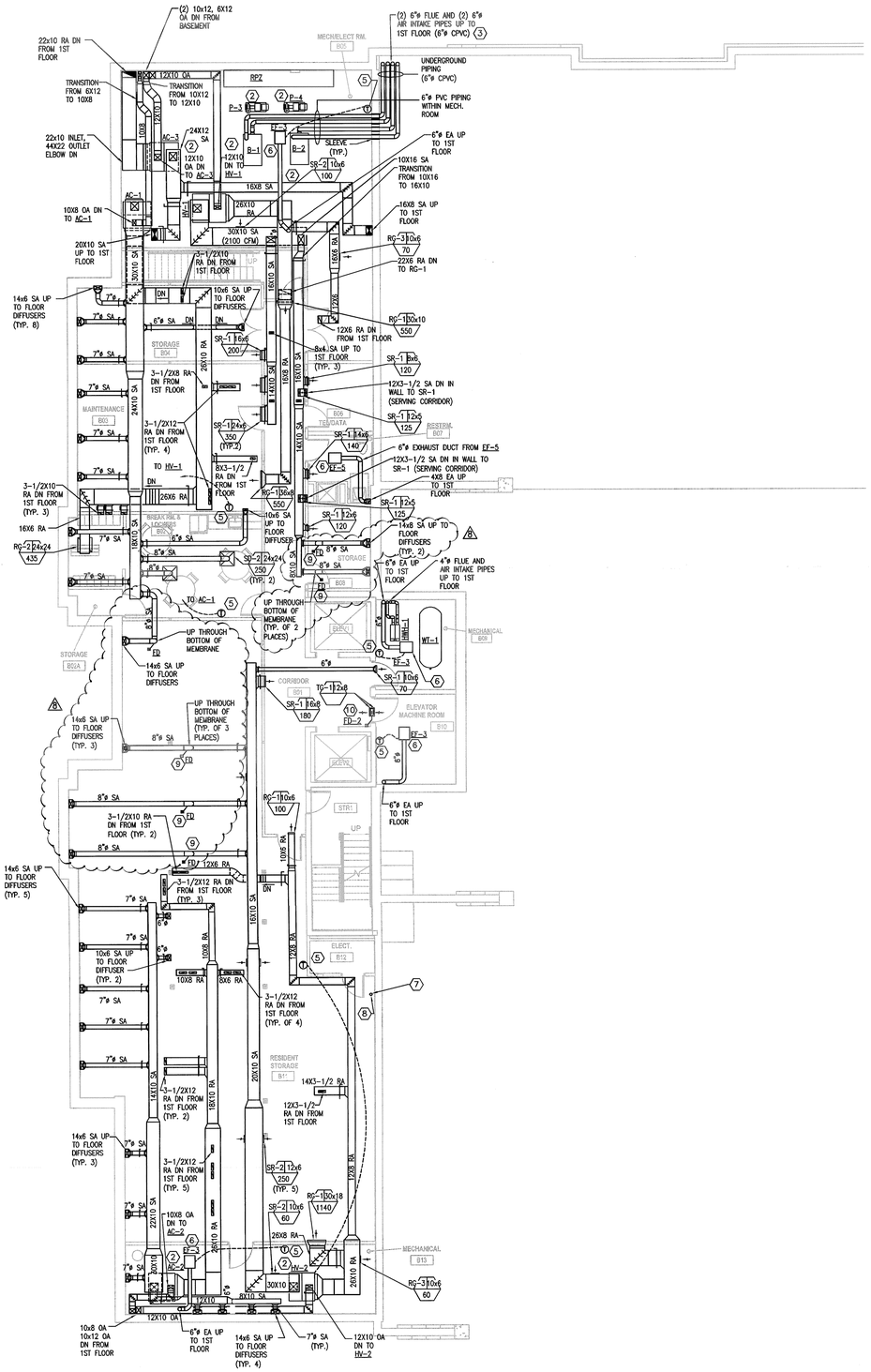
	PH. A	PH. B	PH. C
TOTAL PHASE AMPS	73.40	63.71	20.20
TOTAL PHASE KVA	8.81	7.65	2.42
TOTAL 3-PHASE KVA		18.88	

NOTES:

PANEL: EP-1S

VOLTAGE: 208Y/120V | LOCATION: 1ST FLOOR SOUTH CORRIDOR
PHASE: 3 | FED FROM: MDP
WIRE: 4 | UL LISTED EQUIPMENT SHORT CIRCUIT RATING: 22,000
MAIN BUS AMPS: 225 | MAXIMUM AVAILABLE SHORT CIRCUIT CURRENT:
MAIN CIRCUIT BREAKER: 150 | PHASE CONDUCTOR: 3#4/0
MOUNTING: FLUSH | NEUTRAL CONDUCTOR: 1#4/0
DESIGN BASE: SQUARE D #NQOD442M150 | ELECTRICAL GROUND CONDUCTOR: 1#4

| LOAD DESCRIPTION & LOCATION | PHASE AMPS PH. A | PH. B | PH. C | BREAKER POLES | AMPS | CKT. | PHASE | CKT. | BREAKER AMPS | POLES | PHASE AMPS



BASEMENT HVAC PLAN

SCALE: 1/8"=1'-0"

GENERAL NOTES:

A. HVAC CONTRACTOR IS RESPONSIBLE FOR ALL CUTTING, CORING, AND PATCHING. WORK TO BE PERFORMED BY WORKERS SKILLED IN THE MATERIAL BEING CUT AND PATCHED.

B. PROVIDE ALL WORK IN COMPLIANCE WITH ALL LOCAL, STATE, AND FEDERAL CODES. OBTAIN ALL REQUIRED PERMITS.

C. FIRE CAULK ALL FLOOR AND WALL PENETRATIONS.

D. DO NOT CUT ANY FRAMING MEMBERS WITHOUT PRIOR AUTHORIZATION BY THE ARCHITECT.

KEYNOTES:

1. NOT USED.
2. PROVIDE 4" HIGH CONCRETE EQUIPMENT PAD BELOW EQUIPMENT.
3. 6"ø FLUE AND AIR INTAKE PIPING UP TO CHASE. DO NOT EXCEED MANUFACTURER'S RECOMMENDED DISTANCES.
4. NOT USED.
5. PROGRAMMABLE THERMOSTAT WITH CLEAR PLASTIC, LOCKABLE COVER. PROVIDE INTERCONNECTING CONTROL WIRING.
6. INSTALL FAN, ROUTE 6"ø EXHAUST DUCT THRU FLOOR AS SHOWN.
7. PROVIDE 4"ø SOLID HDPE RADON VERTICAL EXHAUST STACK. CONNECT TO UNDERSLAB RADON PIPING SYSTEM. REFER TO STRUCTURAL DWGS.
8. ROUTE 4"ø CPVC RADON EXHAUST PIPE UP THRU DECK TO CHASE ABOVE.
9. PROVIDE UL CLASSIFIED CEILING RADIATION FIRE DAMPER SUITABLE FOR WOOD TRUSS CEILING APPLICATION. INSTALL DAMPER AT DUCT PENETRATION TROUGH THE BOTTOM PART OF THE MEMBRANE. DAMPER TO BE RUSKIN CFD7T OR EQUAL. REFER TO DETAIL ON DWG. H-302.
10. PROVIDE TRANSFER GRILLE WITH FIRE DAMPER. INSTALL ABOVE DOOR. REFER TO DETAIL ON DWG H303.
11. NOT USED.

LEGEND

AC	AIR CONDITIONING
CU	CONDENSING UNIT
OA	OUTSIDE AIR
RA	RETURN AIR
SA	SUPPLY AIR
RG	RETURN GRILLE
SR	SUPPLY REGISTER
SD	SUPPLY DIFFUSER
TG	TRANSFER GRILLE
T	THERMOSTAT
	VOLUME DAMPER
	SUPPLY, RETURN DUCT UP
	SUPPLY, RETURN DUCT DOWN

ELBOW RADIUS =1.5A — OR — ELBOW W/ TURNING VANES

DUCT TRANSITION FROM RECTANGULAR TO ROUND

DUCT TRANSITION

TAG NO. — NECK/FACE SIZE — CFM — REGISTER, GRILLE, DIFFUSER DESIGNATION TAG

FD — FIRE DAMPER

Eastman Commons at 1630 Dewey Ave.

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REVISIONS

NO.	DATE	DESCRIPTION	REV.	CK'D
1	1/3/10	ADDENDUM #2	LT	AM
2	3/31/10	DHCR REVIEW ISSUE	LT	AM
3	4/1/11	IB-7	LT	AM
4	4/27/11	RFI M002	LT	AM
5	5/26/11	IB-11 REV 1	LT	AM
6	7/19/11	IB-23	LT	AM
7	7/20/11	IB-24	LT	AM
8	9/9/11	IB-25	LT	AM

SUB-SLAB DEPRESSURIZATION AS-BUILT

Bergmann Associates was contracted to perform periodic site visits only. Accordingly the sub-slab depressurization system, to the best of our knowledge, based on periodic site observations, and in review of the as-built drawings as issued by the installation contractor, was installed per the as-built document.

STATE OF NEW YORK — LICENSED PROFESSIONAL ENGINEER — LICENSE NO. 085850 — JAMES A. MICHNEVICH

9/13/12

BASEMENT HVAC PLAN

Note:
Unauthorized alteration or addition to this drawing is a violation of the New York State Education Law Article 145, Section 7209.

Project Manager:
J. ISTVAN, AIA
Designed by:
L TOVBINA
Drawn by:
L.TOVBINA
Checked by:
A. MICHNEVICH
Date Issued:
11/18/09
Scale:
1/8"=1'-0"

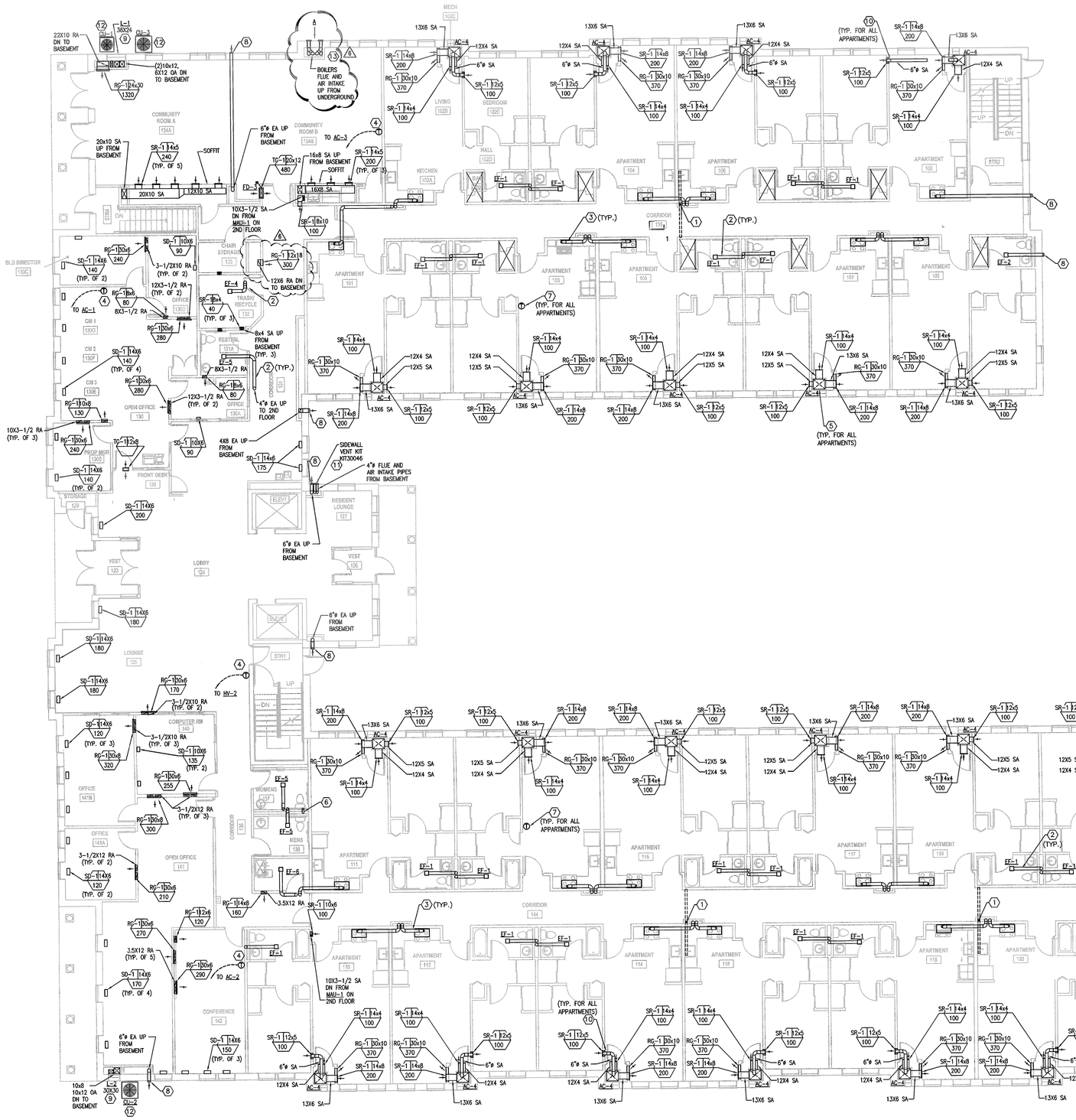
Date

Project Number: File Name:

Drawing Number:

H101

1 of



1ST FLOOR HVAC PLAN

SCALE: 1/8"=1'-0"

GENERAL NOTES:

A. HVAC CONTRACTOR IS RESPONSIBLE FOR ALL CUTTING, CORING, AND PATCHING. WORK TO BE PERFORMED BY WORKERS SKILLED IN THE MATERIAL BEING CUT AND PATCHED.

B. PROVIDE ALL WORK IN COMPLIANCE WITH ALL LOCAL, STATE, AND FEDERAL CODES. OBTAIN ALL REQUIRED PERMITS.

C. FIRE CAULK ALL FLOOR AND WALL PENETRATIONS.

D. DO NOT CUT ANY FRAMING MEMBERS WITHOUT PRIOR AUTHORIZATION BY THE ARCHITECT.

KEYNOTES:

1. 4"ø RADON EXHAUST STACK PVC PIPE UP THRU ROOF. REFER TO DETAIL DWG H-303. COORDINATE WITH STRUCTURAL SLAB AND PLUMBING TRADE.
2. CONNECT 4"ø (EF-1,2) & 6"ø (EF-4,5,6) EXHAUST AIR DUCT TO EXHAUST FAN OUTLET. TRANSITION AS REQUIRED. RUN DUCT UP TO THE ROOF.
3. CONNECT 6"ø EXHAUST AIR DUCT TO RANGE HOOD. TRANSITION AS REQUIRED. RUN DUCT UP TO THE ROOF.
4. SEVEN DAY PROGRAMMABLE THERMOSTAT WITH CLEAR PLASTIC, LOCKABLE COVER. PROVIDE INTER CONNECTING CONTROL WIRING.
5. INSTALL AIR CONDITIONING UNIT IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. REFER TO DETAIL ON DWG H-302.
6. 4"ø CPVC RADON EXHAUST PIPE FROM BASEMENT SLAB UP TO THE ROOF.
7. SEVEN DAY PROGRAMMABLE THERMOSTAT.
8. PROVIDE HOODED WALL CAP WITH BACKDRAFT DAMPER. CAULK AND SEAL WEATHER TIGHT. COLOR SELECTED BY ARCHITECT.
9. PROVIDE LOUVERS WITH MOTORIZED DAMPERS FOR OUTSIDE AIR. REFER TO SCHEDULE DWG H301 AND DETAIL DWG H302.
10. PROVIDE 90° ANGLE BOOT DOWN, 12X3-1/2 WALL STACK AND WALL GRILLE. INSTALL GRILLE AT 7'-6" A.F.F.
11. 4"ø CPVC FLUE AND AIR INTAKE PIPING, INSTALL SIDEWALL TERMINATION 30" ABOVE GRADE LINE.
12. PROVIDE CONDENSING UNITS FOR AC-1, AC-2 & AC-3, LOCATED IN THE BASEMENT. REFER TO SCHEDULE ON DWG H301. INSTALL PER MANUFACTURER'S REQUIREMENTS. ANCHOR CONDENSING UNIT TO THE CONCRETE PAD PER MANUFACTURERS RECOMMENDATIONS.
13. BOILERS (2) 6"ø FLUE AND (2) 6"ø AIR INTAKE PIPING. INSTALL PER MANUFACTURER'S RECOMMENDED DISTANCES. REFER TO VIEW "A" ON DWG H302.

LEGEND

AC	AIR CONDITIONING
OA	OUTSIDE AIR
RA	RETURN AIR
SA	SUPPLY AIR
RG	RETURN GRILLE
SR	SUPPLY REGISTER
SD	SUPPLY DIFFUSER
TG	TRANSFER GRILLE
T	THERMOSTAT
	VOLUME DAMPER
	SUPPLY, RETURN DUCT UP
	SUPPLY, RETURN DUCT DOWN
	ELBOW RADIUS =1.5A OR ELBOW W/ TURNING VANES
	DUCT TRANSITION FROM RECTANGULAR TO ROUND
	DUCT TRANSITION
TAG NO. / CFM	NECK/FACE SIZE — REGISTER, GRILLE, DIFFUSER DESIGNATION TAG

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REVISIONS

NO.	DATE	DESCRIPTION	REV.	CK'D
1	3/31/10	GEOTECH REPORT REVISIONS	MRM	AM
2	4/1/11	IB-7	LT	AM
3	4/27/11	RFI M002	LT	AM
4	5/26/11	IB-11 REV 1	LT	AM
5	6/8/11	IB-13	LT	AM
6	7/19/11	IB-23	LT	AM

SUB-SLAB DEPRESSURIZATION AS-BUILT

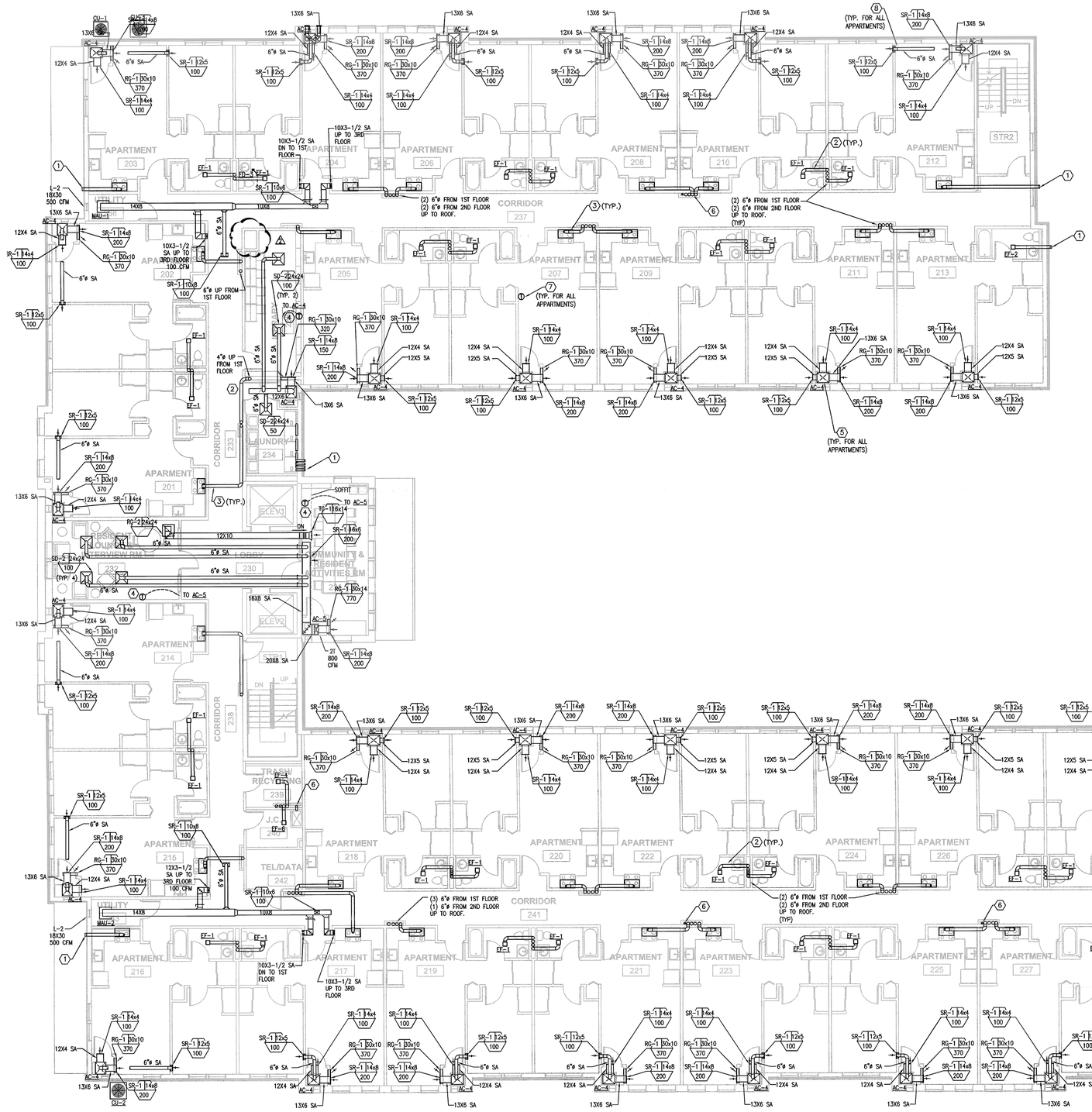
Bergmann Associates was contracted to perform periodic site visits only. Accordingly the sub-slab depressurization system, to the best of our knowledge, based on periodic site observations, and in review of the as-built drawings as issued by the installation contractor, was installed per the as-built document.

STATE OF NEW YORK — JOSEPH A. MICHNEVICH — 076676 — REGISTERED PROFESSIONAL ENGINEER
9/13/12

1ST FLOOR HVAC PLAN

Note:
Unauthorized alteration or addition to this drawing is a violation of the New York State Education Law Article 145, Section 7209.

Project Manager: **J. ISTVAN, AIA**
Designed by: **I. TOVBINA**
Drawn by: **I.TOVBINA**
Checked by: **A. MICHNEVICH**
Date Issued: 11/18/09
Scale: **1/8"= 1'-0"**
Date
Project Number:
File Name:
Drawing Number: **H102**



2ND FLOOR HVAC PLAN

SCALE: 1/8"=1'-0"

GENERAL NOTES:

A. HVAC CONTRACTOR IS RESPONSIBLE FOR ALL CUTTING, CORING, AND PATCHING. WORK TO BE PERFORMED BY WORKERS SKILLED IN THE MATERIAL BEING CUT AND PATCHED.

B. PROVIDE ALL WORK IN COMPLIANCE WITH ALL LOCAL, STATE, AND FEDERAL CODES. OBTAIN ALL REQUIRED PERMITS.

C. FIRE CAULK ALL FLOOR AND WALL PENETRATIONS.

D. DO NOT CUT ANY FRAMING MEMBERS WITHOUT PRIOR AUTHORIZATION BY THE ARCHITECT.

KEYNOTES:

1. PROVIDE HOODED WALL CAP WITH BACKDRAFT DAMPER. CAULK AND SEAL WEATHER TIGHT. COLOR SELECTED BY ARCHITECT. INSTALL CAP ABOVE WINDOW LINE. COORDINATE LOCATION WITH ARCHITECT.
2. CONNECT 4"ø (EF-1,2) & 6"ø (EF-4,5,6) EXHAUST AIR DUCT TO EXHAUST FAN OUTLET. TRANSITION AS REQUIRED. RUN DUCT UP TO THE ROOF.
3. CONNECT 10X3-1/4 EXHAUST AIR DUCT TO RANGE HOOD. TRANSITION AS REQUIRED. RUN DUCT UP TO THE ROOF.
4. SEVEN DAY PROGRAMMABLE THERMOSTAT WITH CLEAR PLASTIC, LOCKABLE COVER. PROVIDE INTER CONNECTING CONTROL WIRING.
5. INSTALL AIR CONDITIONING UNIT IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. REFER TO DETAIL ON DWG H-302.
6. 4"ø CPVC RADON EXHAUST PIPE UP TO THE ROOF.
7. SEVEN DAY PROGRAMMABLE THERMOSTAT.
8. PROVIDE 90° ANGLE BOOT DOWN, 12X3-1/2 WALL STACK AND WALL GRILLE. INSTALL GRILLE AT 7'-6" A.F.F.

LEGEND

AC	AIR CONDITIONING
CU	CONDENSING UNIT
OA	OUTSIDE AIR
RA	RETURN AIR
SA	SUPPLY AIR
RG	RETURN GRILLE
SR	SUPPLY REGISTER
SD	SUPPLY DIFFUSER
TG	TRANSFER GRILLE
	THERMOSTAT
	VOLUME DAMPER
	SUPPLY, RETURN DUCT UP
	SUPPLY, RETURN DUCT DOWN

ELBOW RADIUS =1.5A OR ELBOW W/ TURNING VANES

DUCT TRANSITION FROM RECTANGULAR TO ROUND

DUCT TRANSITION

TAG NO. — NECK/FACE SIZE — CFM

REGISTER, GRILLE, DIFFUSER DESIGNATION TAG

Eastman Commons at 1630 Dewey Ave.

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REVISIONS

NO.	DATE	DESCRIPTION	REV.	CKD
1	4/1/11	IB-7	LT	AM
2	7/19/11	IB-23	LT	AM

SUB-SLAB DEPRESSURIZATION
AS-BUILT

Bergmann Associates was contracted to perform periodic site visits only. Accordingly the sub-slab depressurization system, to the best of our knowledge, based on periodic site observations, and in review of the as-built drawings as issued by the installation contractor, was installed per the as-built document.

STATE OF NEW YORK — ANDREW J. MICKNEVICH — No. 085810 — LICENSED PROFESSIONAL ENGINEER

9/3/12

2ND FLOOR HVAC PLAN

Note:
Unauthorized alteration or addition to this drawing is a violation of the New York State Education Law Article 145, Section 7209.

Project Manager: **J. ISTVAN, AIA**
Designed By: **L TOVBINA**
Drawn by: **L.TOVBINA**
Checked by: **A. MICKNEVICH**
Date Issued: 11/18/09
Scale: **1/8"=1'-0"**

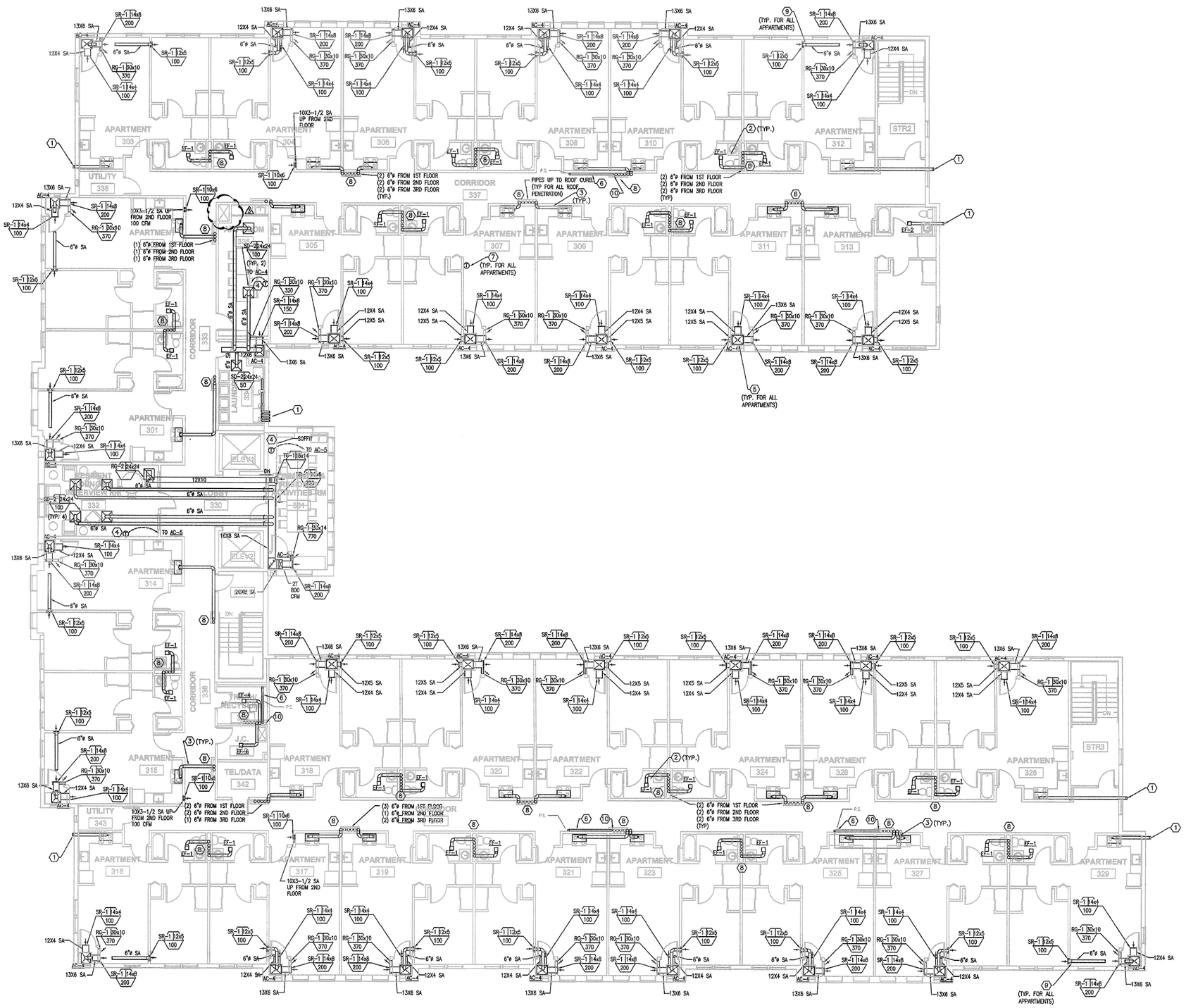
Date

Project Number: File Name:

Drawing Number:

H103

3 of



GENERAL NOTES:

A. HVAC CONTRACTOR IS RESPONSIBLE FOR ALL CUTTING, CORING, AND PATCHING. WORK TO BE PERFORMED BY WORKERS SKILLED IN THE MATERIAL BEING CUT AND PATCHED.

B. PROVIDE ALL WORK IN COMPLIANCE WITH ALL LOCAL, STATE, AND FEDERAL CODES. OBTAIN ALL REQUIRED PERMITS.

C. FIRE CAULK ALL FLOOR AND WALL PENETRATIONS.

D. DO NOT CUT ANY FRAMING MEMBERS WITHOUT PRIOR AUTHORIZATION BY THE ARCHITECT.

KEYNOTES:

1. PROVIDE HOODED WALL CAP WITH BACKDRAFT DAMPER. CAULK AND SEAL WEATHER TIGHT. COLOR SELECTED BY ARCHITECT. INSTALL CAP ABOVE WINDOW LINE. COORDINATE LOCATION WITH ARCHITECT.
2. CONNECT 4"ø (EF-1,2) & 6"ø (EF-4,5,6) EXHAUST AIR DUCT TO EXHAUST FAN OUTLET. TRANSITION AS REQUIRED. RUN DUCT UP TO THE ROOF.
3. CONNECT 10X3-1/4 EXHAUST AIR DUCT TO RANGE HOOD. TRANSITION AS REQUIRED. RUN DUCT UP TO THE ROOF.
4. SEVEN DAY PROGRAMMABLE THERMOSTAT WITH CLEAR PLASTIC, LOCKABLE COVER. PROVIDE INTER CONNECTING CONTROL WIRING.
5. INSTALL AIR CONDITIONING UNIT IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. REFER TO DETAIL ON DWG H-302.
6. 4"ø CPVC RADON EXHAUST PIPE UP TO THE ROOF.
7. SEVEN DAY PROGRAMMABLE THERMOSTAT.
8. ROUTE ALL EXHAUST PIPES TO EXHAUST TERMINAL ON ROOF. REFER TO ROOF PLAN ON DWG H105, DETAIL ON DWG H303 AND SCHEDULE ON DWG 301.
9. PROVIDE 90° ANGLE BOOT DOWN, 12X3-1/2 WALL STACK AND WALL GRILLE. INSTALL GRILLE AT 7'-6" A.F.F.
10. PROVIDE AUTORESET AIRFLOW SWITCH, ADJUSTABLE 0.05" TO 1.0" W.C., SPDT, SAMPLE LINE CONNECTOR – 1/4" O.D. INSTALL SWITCH 48" TO 60" A.F.F. INSIDE DUCT SHAFT. ACCESS DOOR BY GC; WIRING BY EC.

LEGEND

AC	AIR CONDITIONING
OA	OUTSIDE AIR
RA	RETURN AIR
SA	SUPPLY AIR
RG	RETURN GRILLE
SR	SUPPLY REGISTER
SD	SUPPLY DIFFUSER
TG	TRANSFER GRILLE
T	THERMOSTAT
	VOLUME DAMPER
	DUCT THROUGH TOP PLANE
	SUPPLY, RETURN DUCT UP
	SUPPLY, RETURN DUCT DOWN

ELBOW RADIUS =1.5A — OR — ELBOW W/ TURNING VANES

DUCT TRANSITION FROM RECTANGULAR TO ROUND

DUCT TRANSITION

TAG NO. — NECK/FACE SIZE / CFM — REGISTER, GRILLE, DIFFUSER DESIGNATION TAG

3RD FLOOR HVAC PLAN

SCALE: 1/8"=1'-0"

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REVISIONS

NO.	DATE	DESCRIPTION	REV.	CK'D
1	4/1/11	IB-7	LT	AM
2	5/20/11	IB-10, REV-1	LT	AM
3	7/19/11	IB-23	LT	AM

SUB-SLAB DEPRESSURIZATION AS-BUILT

Bergmann Associates was contracted to perform periodic site visits only. Accordingly the sub-slab depressurization system, to the best of our knowledge, based on periodic site observations, and in review of the as-built drawings as issued by the installation contractor, was installed per the as-built document.

STATE OF NEW YORK — ANDREW A. MICHINEVICH — LIC. NO. 080850 — LICENSED PROFESSIONAL ENGINEER

9/13/12

RADON EXHAUST AS-BUILT 5/7/12

3RD FLOOR HVAC PLAN

Project Manager: J. ISTVAN, AIA
Designed by: L TOVBINA
Drawn by: L.TOVBINA
Checked by: A. MICHINEVICH
Date Issued: 11/18/09
Scale: 1/8"= 1'-0"
Class
Project Number: File Name:
Drawing Number:

H104

4

3RD FLOOR HVAC PLAN

SCALE: 1/8"=1'-0"

GENERAL NOTES:

A. HVAC CONTRACTOR IS RESPONSIBLE FOR ALL CUTTING, CORING, AND PATCHING. WORK TO BE PERFORMED BY WORKERS SKILLED IN THE MATERIAL BEING CUT AND PATCHED.

B. PROVIDE ALL WORK IN COMPLIANCE WITH ALL LOCAL, STATE, AND FEDERAL CODES. OBTAIN ALL REQUIRED PERMITS.

C. FIRE CAULK ALL FLOOR AND WALL PENETRATIONS.

D. DO NOT CUT ANY FRAMING MEMBERS WITHOUT PRIOR AUTHORIZATION BY THE ARCHITECT.

KEYNOTES:

1. PROVIDE EXHAUST TERMINALS ON ROOF. REFER TO DETAILS ON DWG H303.
2. NOT USED.
3. PROVIDE 4"ø CPVC RADON EXHAUST PIPE THRU ROOF AND FAN. EXTEND STACK TO 4'-0" ABOVE ROOF LEVEL MIN. REFER TO DETAIL ON DWG H303 AND SCHEDULE ON DWG H301.

Eastman Commons at 1630 Dewey Ave.

Rochester, NY 14615

Norstar Development USA, L.P.

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Buffalo, NY 14204

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REVISIONS

NO.	DATE	DESCRIPTION	REV.	CK'D
1	5/16/11	IB-10	LT	AM
2	7/19/11	IB-23	LT	AM
3	9/13/12	CHANGED EF-8	LT	AM

SUB-SLAB DEPRESSURIZATION
AS-BUILT

Bergmann Associates was contracted to perform periodic site visits only. Accordingly the sub-slab depressurization system, to the best of our knowledge, based on periodic site observations, and in review of the as-built drawings as issued by the installation contractor, was installed per the as-built document.

STATE OF NEW YORK — LIC. NO. 090580 — REGISTERED PROFESSIONAL ENGINEER

9/13/12

ROOF HVAC PLAN

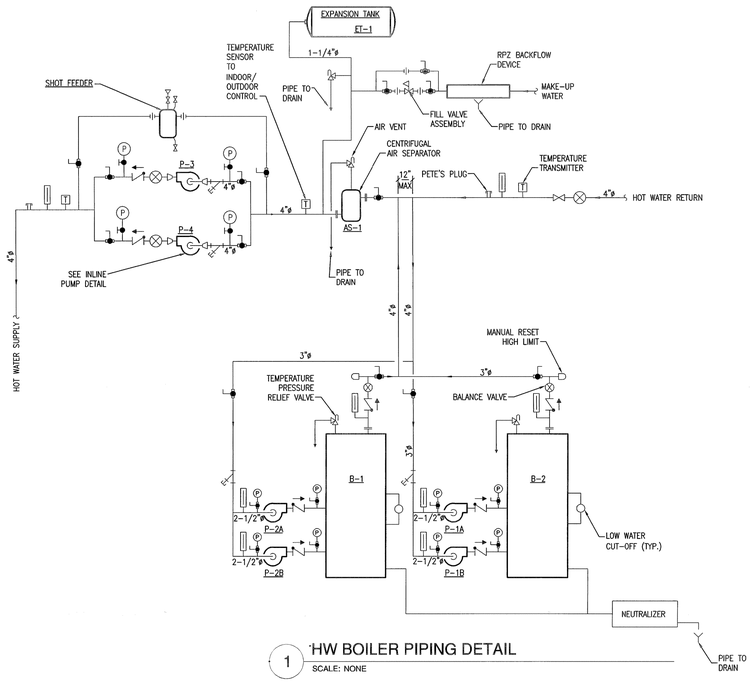
Project Manager: **J. ISTVAN, AIA**
Designed by: **L TOVBINA**
Drawn by: **L.TOVBINA**
Checked by: **A. MICHNEVICH**
Date Issued: 11/18/09
Scale: **1/8"=1'-0"**

Date

Project Number: File Name:

Drawing Number:

H105



1 HW BOILER PIPING DETAIL
SCALE: NONE

HVAC PUMP SCHEDULE

TAG	SERVES	LOCATION	BASIS OF DESIGN MANUFACTURER	MODEL	FLUID	FLUID FLOW (GPM)	HEAD (FT)	FLUID TEMP (F)	EFF (%)	IMPELLER TYPE	IMPELLER DIAMETER (IN)	CONNECTION SIZE (IN) INLET	CONNECTION SIZE (IN) OUTLET	MOTOR HP	MOTOR EFFICIENCY	MOTOR RPM	POWER SUPPLY (V/PH/HZ)	ACCESSORIES REQUIRED	NOTES	ACCESSORIES
P-1A	BOILER-1	MECH. ROOM			WATER	52	46	120									115/1/60			
P-1B	BOILER-1	MECH. ROOM	SUPPLIED BY BOILER		WATER	52	46	120									115/1/60			
P-2A	BOILER-2	MECH. ROOM	MANUFACTURER		WATER	52	46	120									115/1/60			
P-2B	BOILER-2	MECH. ROOM			WATER	52	46	120									115/1/60			
P-3	SECONDARY LOOP	MECH. ROOM	B&G	1510 3BC	WATER	300	52	140	74.1		7.625	4	3	7.5	91%	1750	208/3/60			
P-4	SECONDARY LOOP	MECH. ROOM	B&G	1510 3BC	WATER	300	52	140	74.1		7.625	4	3	7.5	91%	1750	208/3/60			
P-5	MAU-1 CIRCULATOR	2-ND FLOOR	GRUNDFOS	UP-15-18	WATER	6	5	140	x	x	x	x	x	1/25	_	x	115/1/60			
P-6	MAU-2 CIRCULATOR	2-ND FLOOR	GRUNDFOS	UP-15-18	WATER	6	5	140	x	x	x	x	x	1/25	_	x	115/1/60			

GRILLE/REGISTER/DIFFUSER/LOUVERS SCHEDULE

TAG	SERVES	LOCATION	TYPE	BASIS OF DESIGN MANUFACTURER	MODEL	FACE SIZE (IN/IN)	NECK SIZE (IN)	AIRFLOW (CFM)	MAX NC	MAX PRESSURE DROP (IN/WG)	MATERIAL	FINISH	ACCESSORIES REQUIRED	NOTES	ACCESSORIES
SR-1	SUPPLY	SEE PLAN	SURFACE MOUNT.	HART & COOLEY	A661	SEE PLAN	N/A	SEE PLAN	30	0.05	ALUMINUM	WHITE	1		1. ADJUSTABLE AND LOCABLE DAMPER
SR-2	SUPPLY	DUCT MOUNT.	SURFACE MOUNT.	TITUS	300RS	SEE PLAN	N/A	SEE PLAN	30	0.05	STEEL	WHITE	1		2. MOTORIZED DAMPER
SD-1	SUPPLY	FLOOR	FLOOR DIFFUSER	HART & COOLEY	421	SEE PLAN	N/A	SEE PLAN	30	0.05	STEEL	GOLDEN SAND	1		3. INSECT SCREEN
SD-2	SUPPLY	CEILING	LAY-IN	TITUS	TMS-AA	24X24	SEE PLAN	SEE PLAN	20	0.05	ALUMINUM W/ STEEL BAR	WHITE	1		
RG-1	RETURN	SEE PLAN	SURFACE MOUNT.	HART & COOLEY	A650	SEE PLAN	N/A	SEE PLAN	30	0.05	ALUMINUM	WHITE	1		
RG-2	RETURN	CEILING	LAY-IN	TITUS	350FL	24X24	N/A	SEE PLAN	20	0.05	ALUMINUM	WHITE	1		
RG-3	RETURN	DUCT MOUNTED	SURFACE MOUNT.	TITUS	350FL	SEE PLAN	N/A	SEE PLAN	15	0.05	ALUMINUM	WHITE	1		
TG-1	TRANSFER	WALL	SURFACE MOUNT.	HART & COOLEY	A650	SEE PLAN	N/A	N/A	30	0.05	ALUMINUM	WHITE	1		
L-1	OA	WALL	FIXED	HART & COOLEY	1530ZF	SEE PLAN	N/A	SEE PLAN	30	0.05	ALUMINUM	ARCHITECT SELECTED	2,3		
L-2	OA	WALL	FIXED	HART & COOLEY	1530ZF	SEE PLAN	N/A	SEE PLAN	30	0.05	ALUMINUM	ARCHITECT SELECTED	2,3		

FAN SCHEDULE

TAG	SERVES	LOCATION	TYPE	BASIS OF DESIGN MANUFACTURER	MODEL	AIR FLOW (CFM)	SONES	MOTOR BRAKE (HP)	DRIVE TYPE	POWER SUPPLY (V/PH/HZ)	ACCESSORIES REQUIRED	ACCESSORIES
EF-1	APARTMENTS	CEILING	VENTILATING FAN WITH RADIATION DAMPER	NUTONE	RDAH060RDB	50	1.5	FRACTIONAL	DIRECT	120/1/60	1,2,4	1. INTEGRAL STARTER AND DISCONNECT
EF-2	APARTMENTS	CEILING		NUTONE	RDAH060RDB	50	1.5	FRACTIONAL	DIRECT	120/1/60	1,2,3,4.	2. STEEL INLET GRILLE
EF-3	ELEV. MACH. RM, MECH/ELEC ROOMS	CEILING		NUTONE	RDW110RDB	110	4	FRACTIONAL	DIRECT	120/1/60	1,2,4.	3. HOODED WALL CAP WCR6
EF-4	TRASH ROOM	CEILING		NUTONE	RDW110RDB	110	4	FRACTIONAL	DIRECT	120/1/60	1,2,4.	4. RADIATION DAMPER
EF-5	PUBLIC BATH RM.	CEILING		NUTONE	RDA080RDB	80	2.5	FRACTIONAL	DIRECT	120/1/60	1,2,3,4.	
EF-6	JUNITOR CLOSET	CEILING		NUTONE	RDA080RDB	80	2.5	FRACTIONAL	DIRECT	120/1/60	1,2,4	
EF-7	RADON EXHAUST	ROOF		FANTECH	FR 110			FRACTIONAL	DIRECT	120/1/60		
EF-8	RADON EXHAUST	ROOF		RADON AWAY	RP-265			FRACTIONAL	DIRECT	120/1/60		

EXPANSION TANK SCHEDULE

EQUIP. TAG	SERVES	LOCATION	TYPE	BASIS OF DESIGN MANUFACTURER	MODEL NUMBER	TOTAL VOLUME (GALS)	ACCEPTANCE VOLUME (GALS)	DIAMETER (INCH)	HEIGHT (INCH)	NOTES
ET-1	HEATING HOT WATER	BASEMENT	DIAFRAGM	B&G	HFT-110V	62.0	34.0	22	46.75	

AIR HANDLING UNIT SCHEDULE

TAG	SERVES	LOCATION	BASIS OF DESIGN MANUFACTURER	MODEL	OUTSIDE AIR (CFM) MIN	OUTSIDE AIR (CFM) MAX	HEATING COIL CAPACITY (MBH)	HEATING COIL WATER FLOW (GPM)	HEATING COIL AIR TEMP (F) ENTERING	HEATING COIL AIR TEMP (F) LEAVING	HEATING COIL WATER TEMP (F) ENTERING	HEATING COIL WATER TEMP (F) LEAVING	COOLING COIL CAPACITY (MBH)	COOLING COIL REFRIGERANT TYPE	COOLING COIL REFRIGERANT CHARGE	COOLING COIL EVAPORATOR AIR TEMP (F) ENTERING DB	COOLING COIL EVAPORATOR AIR TEMP (F) ENTERING WB	COOLING COIL EVAPORATOR AIR TEMP (F) LEAVING DB	COOLING COIL EVAPORATOR AIR TEMP (F) LEAVING WB	AIRFLOW (CFM)	ESP (IN/WG)	FAN SPEED (RPM)	MOTOR POWER (HP) MOTOR	MOTOR POWER (HP) BRAKE	MOTOR SPEED (RPM)	MOTOR EFF (%)	POWER SUPPLY (V/PH/HZ)	CONDENSER	ACCESSORIES REQUIRED	ACCESSORIES
AC-1	OFFICES	BASEMENT	IEC	VBY20	235	2000	28	2.6	61.9	74.3	140	120	43.1	R-410A		77.4	65.5	59.5	58.3	2000	1.3	1117	1.5	0.96	1750	86.5%	208/3/60	YCJF48	1,2,3,5	1. MIXING BOX
AC-2	OFFICES	BASEMENT	IEC	VBY20	235	2100	25	2.5	61.6	73	140	120	48.9	R-410A		77.5	66.6	60	59	2100	1.6	1219	1.5	1.18	1750	86.5%	208/3/60	YCJF60	1,2,3,5	2. CONDENSER, 14.5 SEER. BASIS OF DESIGN - YORK, POWER SUPPLY - 208/1/60
AC-3	COMMUNITY RM.	BASEMENT	IEC	VBY20	480	1800	43.6	4.38	50.6	74.7	140	120	52.8	R-410A		79.8	68	59.2	58.1	1800	1.3	1095	1.5	0.81	1750	86.5%	208/3/60	YCJF60	1,2,3,5	
HV-1	COMMON SPACES	BASEMENT	IEC	VBY20	630	2100	59	5.9	49	75	140	120	x	x	x	x	x	x	x	2100	1.6	1206	1.5	1.16	1750	86.5%	208/3/60		1,3,5	3. 7-DAY PROGRAMMABLE T-STAT
HV-2	COMMON SPACES	BASEMENT	IEC	VBY20	630	2100	59	5.9	49	75	140	120	x	x	x	x	x	x	x	2100	1.6	1206	1.5	1.16	1750	86.5%	208/3/60		1,3,5	4. DUCT TEMPERATURE SENSOR
MAU-1	MAKE UP AIR	2ND FLOOR	IEC	VBY06		100%	56.16	3.7	0	80	140	110	x	x	x	x	x	x	x	650	1.25	1467	0.75	0.48	1750	PREMIUM	208/3/60		4,5	5. FILTER MERV7
MAU-2	MAKE UP AIR	2ND FLOOR	IEC	VBY06		100%	56.16	3.7	0	80	140	110	x	x	x	x	x	x	x	650	1.25	1467	0.75	0.48	1750	PREMIUM	208/3/60		4,5	

HEATING & COOLING SELF CONTAINED UNITS

TAG	SERVES	LOCATION	BASIS OF DESIGN MANUFACTURER	MODEL	HEATING COIL CAPACITY (MBH)	HEATING COIL # ROWS	HEATING COIL WATER FLOW (GPM)	HEATING COIL PRES DROP (FT)	HEATING COIL FACE VEL (FPM)	HEATING COIL WATER TEMP (F) ENTERING	HEATING COIL WATER TEMP (F) LEAVING	COOLING COIL CAPACITY (MBH)	COOLING COIL EFFICIENCY (SEER)	COOLING COIL COMPRESSOR TYPE	COOLING COIL REFRIGERANT TYPE	COOLING COIL REFRIGERANT CHARGE	AIRFLOW (CFM)	ESP (IN/WG)	MOTOR POWER SUPPLY (V/PH/HZ)	MOTOR CURRENT (AMP)	NOTES	ACCESSORIES
AC-4	APARTMENTS	CLOSET	SKYMARK	SWAD018	23	2	3		165	140	120	18000	11.5	SCROLL	R - 410A		600	0.3	208/1/60	14.8	1. GRILLE COLOR IS SELECTED BY ARCHITECT	1. 12" BOTTOM AIR RETURN PLENUM
AC-5	COMMUNITY RM.	CLOSET	SKYMARK	SWAD024	38	2	3		400	140	120	24.4	11	SCROLL	R - 410A		800	0.3	208/1/60	20.63		2. 7-DAY PROGRAMMABLE T-STAT
																						3. OUTDOR TEMPERATURE LOCKOUT
																						4. VENTILATION AIR KIT.
																						5. WALL SLEEVE AND GRILLE

HYDRONIC CABINET UNIT HEATER SCHEDULE

TAG	SERVES	LOCATION	TYPE	BASIS OF DESIGN MANUFACTURER	MODEL	HEATING COIL CAPACITY (MBH)	HEATING COIL WATER FLOW (GPM)	HEATING COIL PRES DROP (FT)	HEATING COIL AIR TEMP (F) ENTERING	HEATING COIL AIR TEMP (F) LEAVING	HEATING COIL WATER TEMP (F) ENTERING	HEATING COIL WATER TEMP (F) LEAVING	FAN AIRFLOW (CFM)	FAN FAN SPEED (RPM)	MOTOR (HP)	POWER SUPPLY (V/PH/HZ)	ACCESSORIES REQUIRED	ACCESSORIES
CH-1	BASEMENT STAIRS	UPPER LANDING	FLOOR TYPE (F)	STERLING	F-1020, SIZE - 02	6.85	0.5	0.02	60	94	140	120	185	LOW	1/15	115/1/60	1	1. SPEED CONTROL
CH-2	STAIR CASES	LOW. LANDING	FLOOR TYPE (F)	STERLING	F-1020, SIZE - 02	10.1	2	0.24	60	100	140	120	230	HIGH	1/15	115/1/60	1	2. 25% OUTSIDE AIR DAMPER KIT
CH-3	CORRIDORS	SEE PLANS	FLOOR TYPE (F)	STERLING	F-1030, SIZE - 02	8.32	0.5	0.02	48	82	140	120	230	HIGH	1/15	115/1/60	1, 2	

GAS-FIRED HOT WATER BOILER SCHEDULE

TAG	SERVES	LOCATION	TYPE	BASIS OF DESIGN MANUFACTURER	MODEL	CAPACITY (MBH) INPUT	CAPACITY (MBH) OUTPUT	AFUE	SUPPLY GAS PRES (INW)	AIR SIZE (IN)	VENT SIZE (IN)	WATER TEMP (F) ENTERING	WATER TEMP (F) LEAVING	POWER SUPPLY (V/PH/HZ)	NOTES	ACCESSORIES
B-1	HEATING	BASEMENT	CONDENSING	LOCHINVAR	SYNC SBN 1300	1,300	1237	95.20%	6-8	6	6	120	140	120/1/60		1. ROOF TERMINATION FITTINGS
B-2	HEATING	BASEMENT	CONDENSING	LOCHINVAR	SYNC SBN 1300	1300	1237	95.20%	6-8	6	6	120	140	120/1/60		2. CIRCULATING PUMPS

NOTE:

* RATING IS BASED ON STANDARD TEST PROCEDURES PRESCRIBED BY THE US DOE.

HYDRONIC BASEBOARD SCHEDULE

TAG	BASIS OF DESIGN MANUFACTURER	MODEL	TUBE MATERIAL	TUBE # TIERS	TUBE SIZE	TUBE ACTIVE LENGTH	FIN MATERIAL	FIN FIN SIZE	FIN # PER FT	ENCLOSURE STYLE	ENCLOSURE MODEL	ENCLOSURE MOUNTING HEIGHT	WATER TEMP (F) ENTERING	WATER TEMP (F) LEAVING	CAPACITY (BTU/H) PER FT (BTU/H/FT)	CAPACITY (BTU/H) TOTAL	ACCESSORIES REQUIRED	ACCESSORIES
FT-1	STERLING	VERSA-LINE	COOPER	1	3/4	PER PLAN	ALUMINUM	2-3/4 x 3-3/4	50	KS	JWK-S14	16	140	120	468	PER PLAN		1. BACK PLATES
																		2. BRACKETS

FIRE DAMPER SCHEDULE

TAG	SERVES	LOCATION	TYPE	BASIS OF DESIGN MANUFACTURER	MODEL	FIRE RATING (HR)	ACTUATOR	ACTUATOR MOUNTING	ACCESSORIES REQUIRED	NOTES	ACCESSORIES
FD-1	NOT USED										
FD-2	ELEVATOR MACHINE RM.	RM B10	STATIC	RUSKIN	IBDTG	1 1/2	SPRING	IN AIR STREAM	3	OUT OF FLOOR INSTALLATION	2. SLEEVE
FD-3	COMMUNITY ROOM A	RM 134A	STATIC	RUSKIN	IBDTG	1 1/2	SPRING	IN AIR STREAM	3	OUT OF FLOOR INSTALLATION	3. MOUNTING ANGLE.

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REVISIONS

NO.	DATE	DESCRIPTION	REV.	CK'D
1	1/3/10	ADDENDUM #2	LT	AM
2	3/31/10	DHCR REVIEW ISSUE	LT	AM
3	7/6/10	POST-BID ADD #5	MRM	AM
4	5/16/11	IB-10	LT	AM
5	6/8/11	IB-13	LT	AM
6	9/9/11	IB-25	LT	AM
7	9/13/12	ADDED EF-8	LT	AM

SUB-SLAB DEPRESSURIZATION AS-BUILT

Bergmann Associates was contracted to perform periodic site visits only. Accordingly the sub-slab depressurization system, to the best of our knowledge, based on periodic site observations, and in review of the as-built drawings as issued by the installation contractor, was installed per the as-built document.

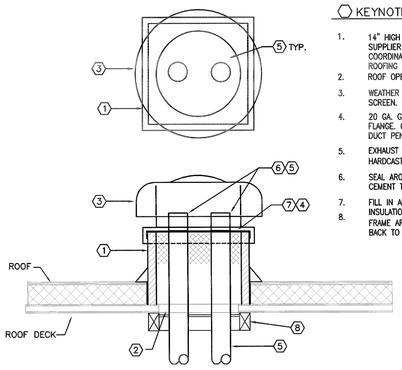
STATE OF NEW YORK — THOMAS A. MCINNEVICH — NO. 085881 — LICENSED PROFESSIONAL ENGINEER

9/13/12

HVAC SCHEDULES AND DETAILS

Project Manager: **J. ISTVAN, AIA**
Designed by: **L.TOVBINA**
Drawn by: **L.TOVBINA**
Checked by: **A. MCINNEVICH**
Date Issued: 11/18/09
Scale: **1/8"= 1'-0"**
Date
Project Number:
File Name:
Drawing Number:

H301

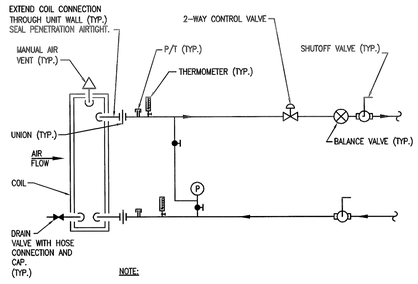


KEYNOTES

1. 14" HIGH INSULATED ROOF CURB, AS FURNISHED BY SUPPLIER OF WEATHER CAP. FLASH TO ROOF, COORDINATE WITH ROOFING CONTRACTOR. MAINTAIN ROOFING WARRANTIES.
2. ROOF OPENING, BY HVAC CONTRACTOR.
3. WEATHER CAP, COOK NO. PR OR EQUAL WITH BIRD SCREEN. SIZE 16.
4. 20 GA. GALV. CURB CAP, BELOW WEATHER CAP FLANGE. CUT OPENINGS FOR EXHAUST DUCT SO THE DUCT PENETRATIONS ARE TIGHT TO CURB CAP.
5. EXHAUST DUCT PER PLANS. EXTEND UP THRU CURB CAP. HARDCAST DUCT TO CURB CAP, 4" DUCTS
6. SEAL AROUND DUCT AND CURB CAP WITH ROOFING CEMENT TO SEAL OPEININGS, WEATHER TIGHT.
7. FILL IN AROUND DUCTWORK IN CURB WITH FIBERGLASS INSULATION.
8. FRAME AROUND ROOF OPENING, WOOD FRAME TIE BACK TO ROOF JOISTS.

EXHAUST TERMINAL DETAIL (ET-2)

SCALE: NONE

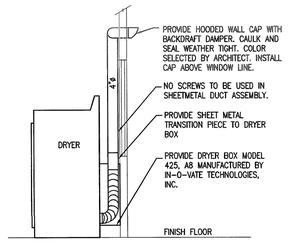


NOTE:

SEE PLANS FOR PIPE SIZES.

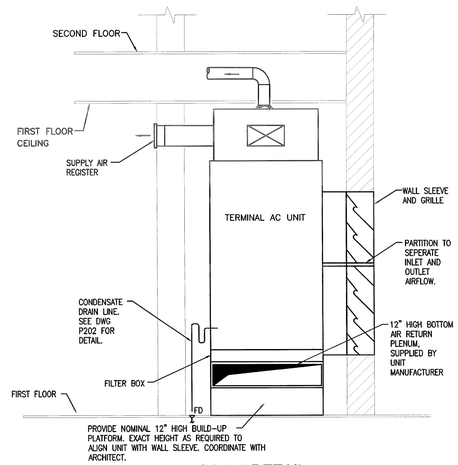
HOT WATER COIL PIPING DETAIL (AC UNITS AC-1,2,3; HV-1,2)

SCALE: NONE



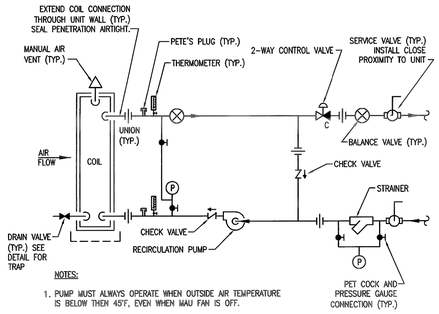
DRYER VENT DETAIL

SCALE: NONE



AC-4,5 DETAIL

SCALE: NONE

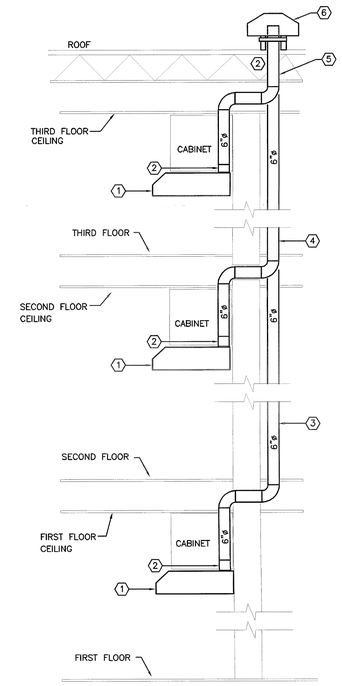


NOTES:

1. PUMP MUST ALWAYS OPERATE WHEN OUTSIDE AIR TEMPERATURE IS BELOW THEN 45°F, EVEN WHEN MAU FAN IS OFF.
2. SEE PLANS FOR PIPE SIZES.

MAKE UP UNITS (MAU-1, MAU-2) PUMPED COIL DETAIL

SCALE: NONE

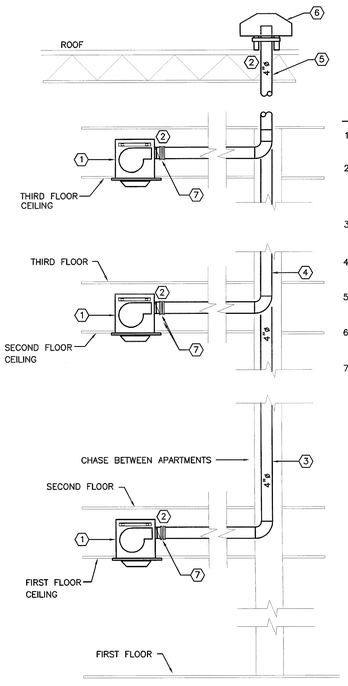


KEYNOTES

1. KITCHEN RANGE HOOD. PROVIDE 75W LIGHT BULB.
2. EXHAUST DUCT, TO MATCH HOOD OUTLET, TRANSITION TO ROOF CAP INLET AS REQUIRED. ROOF PENETRATION BY HVAC CONTRACTOR – COORDINATE WITH ROOFING CONTRACTOR.
3. EXHAUST DUCT FROM FIRST FLOOR UP IN WALL CHASE.
4. EXHAUST DUCT FROM SECOND FLOOR UP IN WALL CHASE.
5. EXHAUST DUCT FROM THIRD FLOOR UP TO ROOF.
6. ROOF CAP AND ROOF CURB FOR EXHAUST DUCTS. FLASH AND SEAL WEATHER TIGHT – COORDINATE WITH ROOFING CONTRACTOR. REFER TO SPECIFICATIONS.

KITCHEN EXHAUST DETAIL

SCALE: NONE

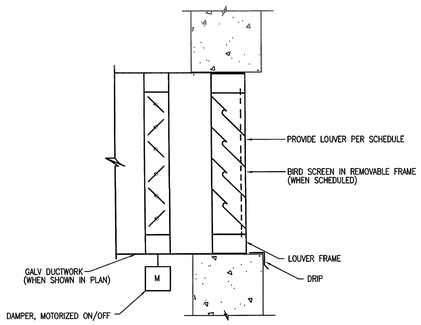


KEYNOTES

1. CEILING MOUNTED EXH. FAN WITH INTEGRAL BACKDRAFT DAMPER AND CEILING RADIATION DAMPER.
2. 4"ø ALUMINUM SHEET METAL EXHAUST DUCT, TRANSITION TO MATCH FAN OUTLET, TRANSITION TO ROOF CAP INLET AS REQUIRED. ROOF PENETRATION BY HVAC CONTRACTOR – COORDINATE WITH ROOFING CONTRACTOR.
3. 4"ø EXHAUST DUCT FROM FIRST FLOOR UP IN CHASE. TRANSITION TO ROOF JACK INLET IN ATTIC.
4. 4"ø EXHAUST DUCT FROM SECOND FLOOR UP IN CHASE. TRANSITION TO ROOF JACK INLET IN ATTIC.
5. 4"ø EXHAUST DUCT FROM THIRD FLOOR UP IN CHASE. TRANSITION TO ROOF JACK INLET IN ATTIC.
6. ROOF CAP FOR GROUP EXHAUST FANS, FLASH AND SEAL WEATHER TIGHT – COORDINATE WITH ROOFING CONTRACTOR.
7. FLEX CONNECTOR.

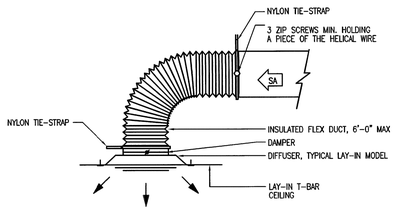
TOILET ROOM EXHAUST DETAIL

SCALE: NONE



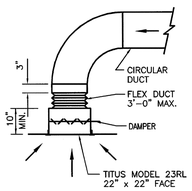
WALL LOUVER DETAIL

SCALE: NO SCALE



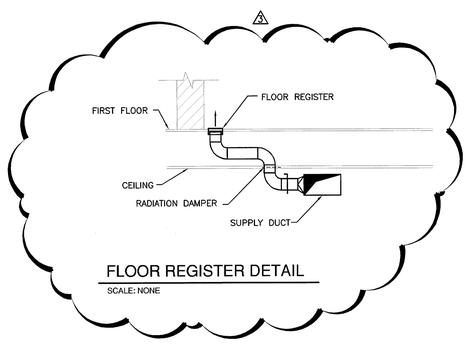
TYPICAL DIFFUSER INSTALLATION DETAIL

SCALE: NO SCALE



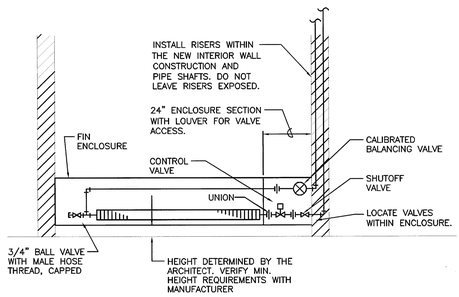
RETURN GRILLE INSTALLATION DETAIL

SCALE: NONE



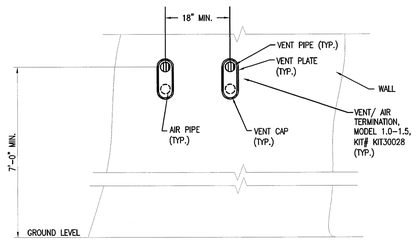
FLOOR REGISTER DETAIL

SCALE: NONE



FINNED TUBE RADIATOR DETAIL

SCALE: NONE



VIEW "A" (DWG H102)

SCALE: NONE

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REVISIONS

NO.	DATE	DESCRIPTION	REV.	CK'D
1	3/31/10	DHCR REVIEW ISSUE	LT	AM
2	7/19/11	IB-23	LT	AM
3	9/9/11	IB-25	LT	AM

SUB-SLAB DEPRESSURIZATION AS-BUILT

Bergmann Associates was contracted to perform periodic site visits only. Accordingly the sub-slab depressurization system, to the best of our knowledge, based on periodic site observations, and in review of the as-built drawings as issued by the installation contractor, was installed per the as-built document.

STATE OF NEW YORK — JOSEPH A. MICHNEVICH — LICENSED PROFESSIONAL ENGINEER — NO. 085830

9/13/12

HVAC DETAILS

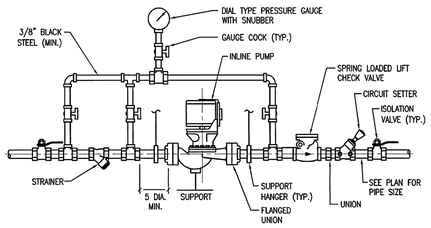
Project Manager: **A. ISTVAN, AIA**
Designed by: **L TOVBINA**
Drawn by: **L.TOVBINA**
Checked by: **A. MICHNEVICH**
Date Issued: 11/18/09
Scale: **AS NOTED**

Date

Project Number: File Name:

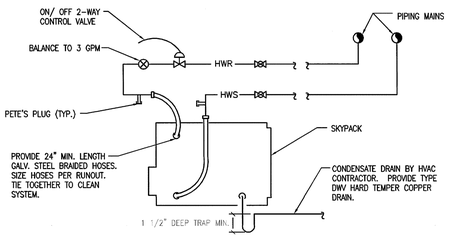
Drawing Number:

H302



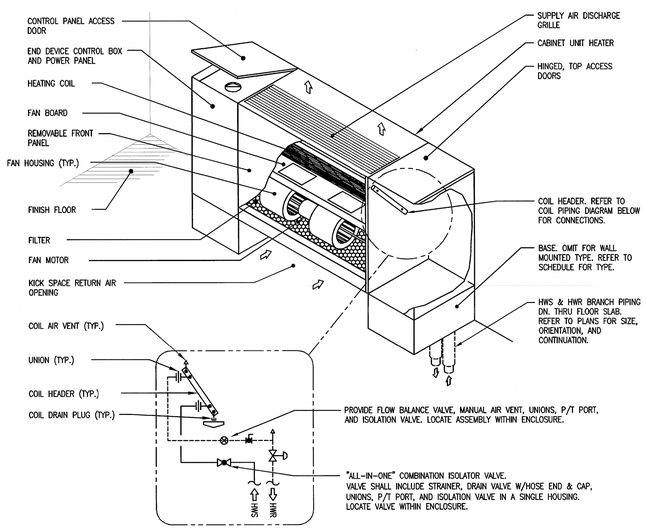
1 INLINE PUMP DETAIL

SCALE: NONE 232123-040-0



TYPICAL TERMINAL UNIT (AC-4,5) DETAIL

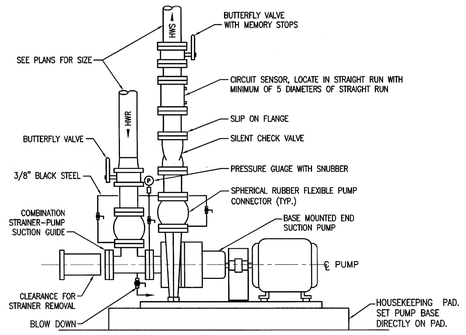
SCALE: NONE



GENERAL NOTES:
A. MAINTAIN MANUFACTURERS RECOMMENDED CLEARANCES.
B. FOLLOW MANUFACTURERS INSTALLATION INSTRUCTIONS EXPLICITLY. SECURE UNIT TO BLDG. STRUCTURE AS RECOMMENDED BY MFR.
C. UNIT COMPONENTS ARE GENERIC IN ARRANGEMENT AND NOT ALL REQUIRED COMPONENTS ARE SHOWN. REFER TO SPECIFICATIONS.

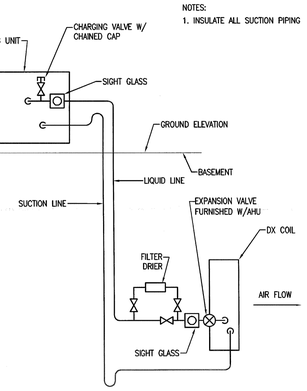
VERTICAL CABINET UNIT HEATER PIPING DETAIL - HOT WATER

SCALE: NONE



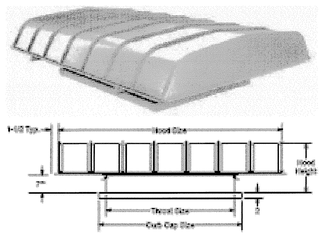
END SUCTION PUMP DETAIL

SCALE: NONE



TYPICAL REFRIGERANT PIPING DIAGRAM

SCALE: NONE

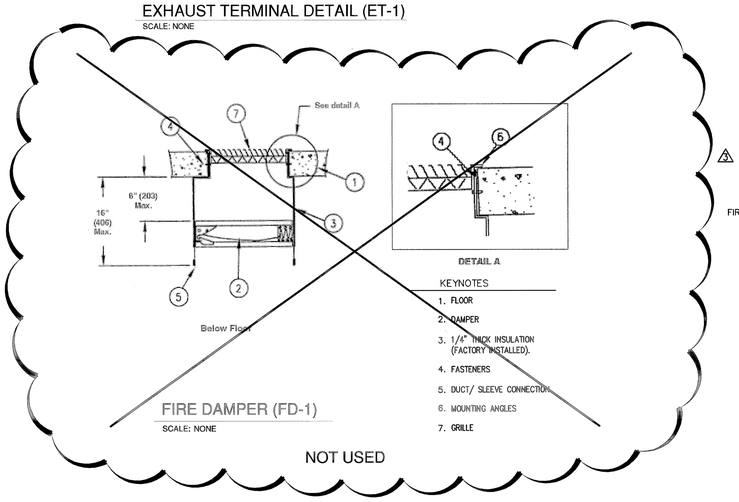


GENERAL NOTES:

A. PROVIDE GRAVITY VENTILATOR COOK MODEL GR, THROAT SIZE: 12X48 WITH ROOF CURB 17.5 X 53.5 CURB CAP SIZE.

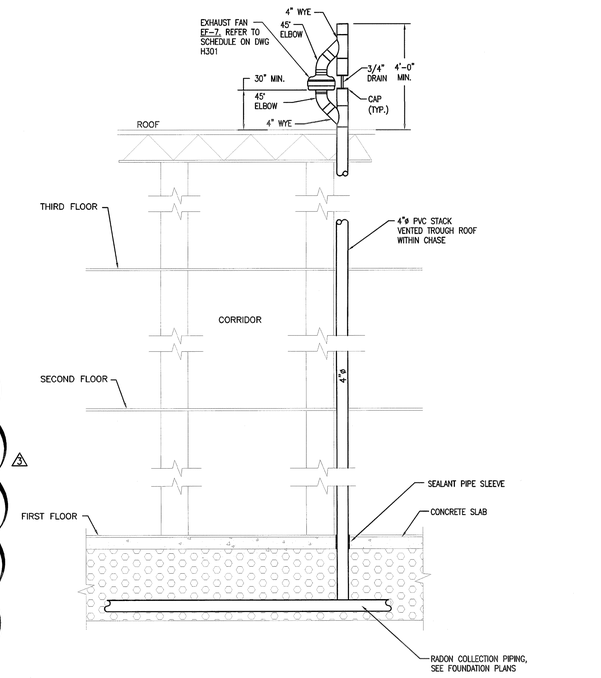
EXHAUST TERMINAL DETAIL (ET-1)

SCALE: NONE



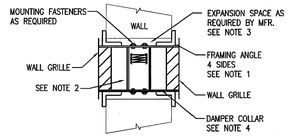
FIRE DAMPER (FD-1)

SCALE: NONE



RADON COLLECTION PIPING DEPRESSURIZATION SYSTEM DETAIL

SCALE: NONE



GENERAL NOTES:

1. ANGLES SHALL BE A MINIMUM OF 1 1/2" X 1 1/2" X 1/8". FASTEN TO COLLAR ONLY WITH 1/4" DIA. STEEL FASTENERS, 8" ON CENTERS FOR "AIR BALANCE" FIRE DAMPERS. COLLARS MAY BE OF THE SAME GAUGE AS DUCT TO WHICH IT IS ATTACHED. FOR DAMPERS OF OTHER MANUFACTURE GAUGES TO CONFORM TO SMACNA, ASHRAE, OR MANUFACTURER'S REQUIREMENTS FOR U.L. DAMPERS.
2. DUCT COLLAR CONNECTION SHALL BE SHOWN IN SMACNA MANUAL FOR U.L. DAMPERS OR AS RECOMMENDED BY DAMPER MANUFACTURER FOR U.L. DAMPERS.
3. DAMPERS SHALL HAVE A CLEARANCE OF 1/8" PER FOOT ON HEIGHT AND WIDTH SO THAT THERE WILL BE MINIMUM OF 1" OF OVERLAP ON THE PARTITION.
4. AS WITH ALL JOINTS, CONTRACTOR MUST SEAL COLLAR IN THE FIELD, AFTER INSTALLATION.

FIRE DAMPER, TRANSFER GRILL MOUNTED (FD-2)

SCALE: NONE

Eastman Commons at 1630 Dewey Ave.

Rochester, NY 14615

Norstar Development USA, L.P.

200 South Division Street
Buffalo, NY 14204

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28 East Main Street
200 First Federal Plaza
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fax: 585.232.4652

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REVISIONS

NO.	DATE	DESCRIPTION	REV.	CKD
1	3/31/10	GEOTECH REPORT REVISIONS	MRM	AM
2	5/16/11	IB-10	LT	AM
3	9/9/11	IB-25	LT	AM

SUB-SLAB DEPRESSURIZATION AS-BUILT

Bergmann Associates was contracted to perform periodic site visits only. Accordingly the sub-slab depressurization system, to the best of our knowledge, based on periodic site observations, and in review of the as-built drawings as issued by the installation contractor, was installed per the as-built document.

STATE OF NEW YORK — MICHAEL R. MCGINNEVICH — LICENSED PROFESSIONAL ENGINEER

9/13/12

HVAC DETAILS

Note:
Unauthorized alteration or addition to this drawing is a violation of the New York State Education Law Article 145, Section 7209.

Project Manager: J. ISTVAN, AIA
Designed by: L TOYBINA
Drawn by: L.TOYBINA
Checked by: A. MICHNEVICH
Date Issued: 11/18/09
Scale: AS NOTED

Date

Project Number: File Name:

Drawing Number:

H303

3 of

Bergmann associates

28 East Main Street, Rochester, NY 14614 (585) 232-5135 Fax: (585) 232-4652

INFORMATION BULLETIN

PROJECT: 1630 Dewey Ave.

INFORMATION BULLETIN NO. : **IB-10-Rev1.**

OWNER: Norstar Development
200 South Division Street
Buffalo, NY 14204

DATE: **May 20, 2011**

ARCHITECT'S PROJECT NO. : **8222.00**

DESCRIPTION:

Per owner's request, the passive radon mitigation system shall be changed to an active radon system. Provide an exhaust fan (EF-7) on each radon exhaust pipe that penetrates the roof. Provide airflow switch on the third floor on each radon exhaust pipe. Install lockable steel access door (min 12"h x 10"w) at each switch location; paint to match the adjacent wall.

ATTACHMENTS: H-104, E-104.

ACTION:

☑ 1. **PROPOSAL REQUEST: Submit an itemized quotation for changes (adds or deducts) in the Contract Sum and/or time required to implement the above proposed modifications to the Contract Documents. This is not authorization to proceed with the work.**

☐ 2. **SUPPLEMENTAL INSTRUCTIONS: Implement the above instructions without change to the Contract Sum and/or Contract Time. Prior to proceeding, indicate acceptance below and return one copy to the Architect.**

☐ 3. **CONSTRUCTION CHANGE AUTHORIZATION: Proceed with the above described changes to the Contract Documents immediately. Submit final costs and/or change in Contract Time for inclusion in a subsequent Change Order.**

METHOD: ☑Lump Sum ☐ Unit Price ☐ Time and Material Not-to-Exceed

Change in Contract Sum of
Change in Contract Time of days.

ISSUED:		AUTHORIZED:		ACCEPTED:	
BY: Steve Feuerstein Bergmann Assoc.	5/20/11 Date	BY: _____	_____ Date	BY: _____ Contractor	_____ Date
(Required for Actions 1, 2, 3)		(Required for Action 3)		(Required for Actions 2, 3)	

☑ OWNER ☑ ARCHITECT ☑ CONSTRUCTION MANAGER ☐ OTHER

STATE OF NEW YORK
STEVEN A. MCHENEY
LIC. NO. 066960
LICENSED PROFESSIONAL ENGINEER

SUB-SLAB DEPRESSURIZATION AS-BUILT

Bergmann Associates was contracted to perform periodic site visits only. Accordingly the sub-slab depressurization system, to the best of our knowledge, based on periodic site observations, and in review of the as-built drawings as issued by the installation contractor, was installed per the as-built document.

Bergmann associates

28 East Main Street, Rochester, NY 14614 (585) 232-5135 Fax: (585) 232-4652

INFORMATION BULLETIN

PROJECT: 1630 Dewey Ave.

INFORMATION BULLETIN NO. : 23

OWNER: Norstar Development
200 South Division Street
Buffalo, NY 14204

DATE: July 20, 2011

ARCHITECT'S PROJECT NO. : 8222.00

DESCRIPTION:

Change routing for the heating boilers Air Intakes and Vents:

1. Rotate boilers 180 degrees and route 6" air intakes and vents to a new enclosure in the community room.
2. Terminate air intakes and vents with PVC/CPVC Sidewall Termination Cap, which will be installed on the north wall at approximately 7'-0" from ground level.
3. Use 6" PVC piping inside the mechanical room. Use 6" CPVC piping for underground and within the enclosure.
4. Provide one-hour fire rated enclosure for piping in Community Rm. B as shown on A101. Align enclosure with interior of exterior wall.

ATTACHMENTS: Drawings H101 Rev 6, H102 Rev 6, H103 Rev 2, H104 Rev 3, H105 Rev 2, H302 Rev 2, A101 Rev 4

ACTION:

■ 1. **PROPOSAL REQUEST: Submit an itemized quotation for changes (adds or deducts) in the Contract Sum and/or time required to implement the above proposed modifications to the Contract Documents. This is not authorization to proceed with the work.**

☐ 2. **SUPPLEMENTAL INSTRUCTIONS: Implement the above instructions without change to the Contract Sum and/or Contract Time. Prior to proceeding, indicate acceptance below and return one copy to the Architect.**

☐ 3. **CONSTRUCTION CHANGE AUTHORIZATION: Proceed with the above described changes to the Contract Documents immediately. Submit final costs and/or change in Contract Time for inclusion in a subsequent Change Order.**

METHOD: Lump Sum ☐ Unit Price ☐ Time and Material Not-to-Exceed

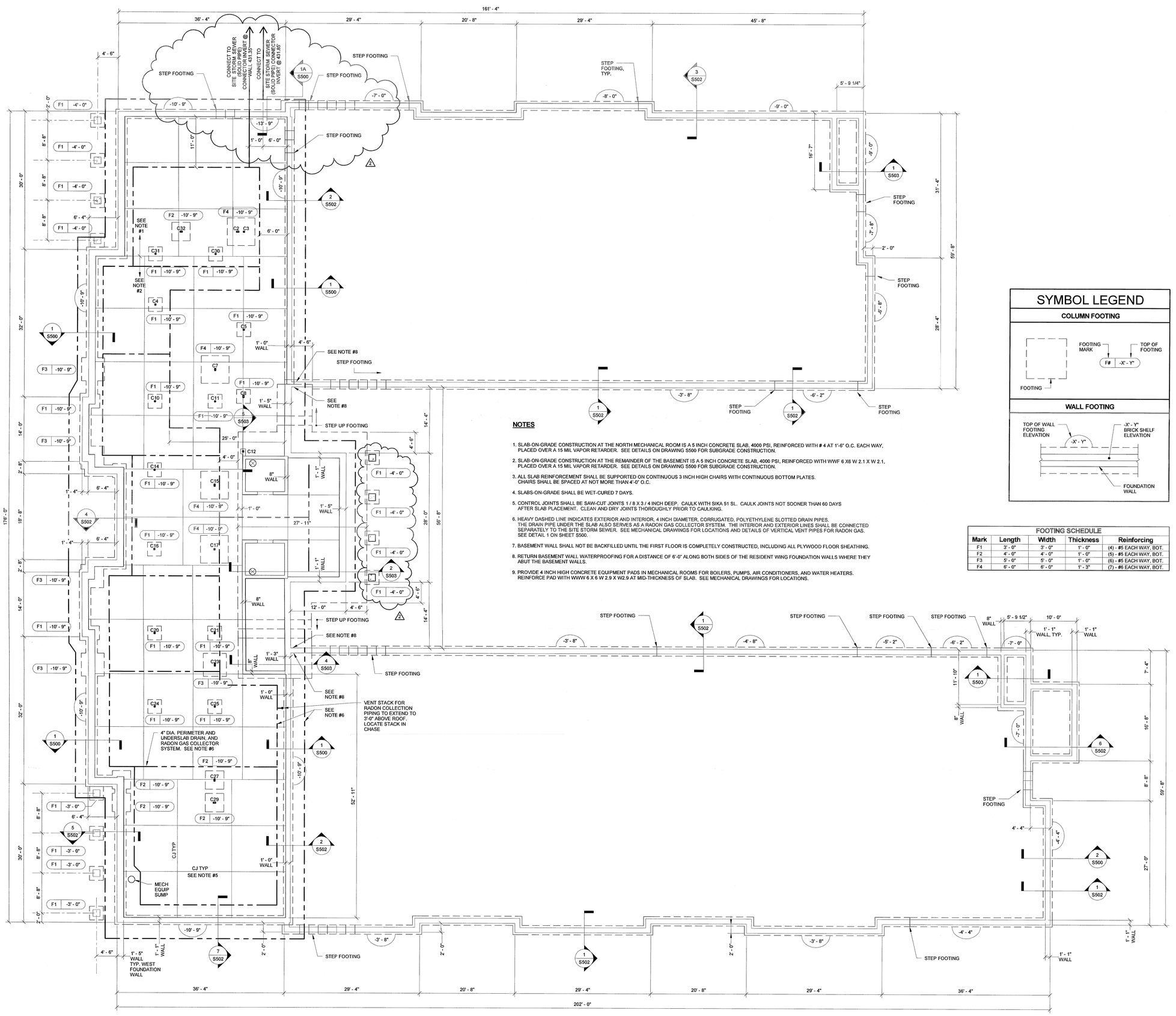
Change in Contract Sum of
Change in Contract Time of days.

ISSUED:		AUTHORIZED:		ACCEPTED:	
BY: Alex Michnevich	7/20/11	BY: _____	_____	BY: _____	_____
Bergmann Assoc.	Date		Date	Contractor	Date
(Required for Actions 1, 2, 3)		(Required for Action 3)		(Required for Actions 2, 3)	

☑ OWNER ☑ ARCHITECT ☑ CONSTRUCTION MANAGER ☐ OTHER

SUB-SLAB DEPRESSURIZATION AS-BUILT

Bergmann Associates was contracted to perform periodic site visits only. Accordingly the sub-slab depressurization system, to the best of our knowledge, based on periodic site observations, and in review of the as-built drawings as issued by the installation contractor, was installed per the as-built document.



NOTES

1. SLAB-ON-GRADE CONSTRUCTION AT THE NORTH MECHANICAL ROOM IS A 5 INCH CONCRETE SLAB, 4000 PSI, REINFORCED WITH # 4 AT 1'-6" O.C. EACH WAY, PLACED OVER A 15 MIL VAPOR RETARDER. SEE DETAILS ON DRAWING S500 FOR SUBGRADE CONSTRUCTION.
2. SLAB-ON-GRADE CONSTRUCTION AT THE REMAINDER OF THE BASEMENT IS A 5 INCH CONCRETE SLAB, 4000 PSI, REINFORCED WITH WWF 6 X6 W 2.1 X W 2.1, PLACED OVER A 15 MIL VAPOR RETARDER. SEE DETAILS ON DRAWING S500 FOR SUBGRADE CONSTRUCTION.
3. ALL SLAB REINFORCEMENT SHALL BE SUPPORTED ON CONTINUOUS 3 INCH HIGH CHAIRS WITH CONTINUOUS BOTTOM PLATES. CHAIRS SHALL BE SPACED AT NOT MORE THAN 4'-0" O.C.
4. SLABS-ON-GRADE SHALL BE WET-CURED 7 DAYS.
5. CONTROL JOINTS SHALL BE SAW-CUT JOINTS 1 / 8 X 3 / 4 INCH DEEP. CAULK WITH SIKA 51 SL. CAULK JOINTS NOT SOONER THAN 60 DAYS AFTER SLAB PLACEMENT. CLEAN AND DRY JOINTS THOROUGHLY PRIOR TO CAULKING.
6. HEAVY DASHED LINE INDICATES EXTERIOR AND INTERIOR, 4 INCH DIAMETER, CORRUGATED, POLYETHYLENE SLOTTED DRAIN PIPES. THE DRAIN PIPE UNDER THE SLAB ALSO SERVES AS A RADON GAS COLLECTOR SYSTEM. THE INTERIOR AND EXTERIOR LINES SHALL BE CONNECTED SEPARATELY TO THE SITE STORM SEWER. SEE MECHANICAL DRAWINGS FOR LOCATIONS AND DETAILS OF VERTICAL VENT PIPES FOR RADON GAS. SEE DETAIL 1 ON SHEET S500.
7. BASEMENT WALL SHALL NOT BE BACKFILLED UNTIL THE FIRST FLOOR IS COMPLETELY CONSTRUCTED, INCLUDING ALL PLYWOOD FLOOR SHEATHING.
8. RETURN BASEMENT WALL WATERPROOFING FOR A DISTANCE OF 6'-0" ALONG BOTH SIDES OF THE RESIDENT WING FOUNDATION WALLS WHERE THEY ABUT THE BASEMENT WALLS.
9. PROVIDE 4 INCH HIGH CONCRETE EQUIPMENT PADS IN MECHANICAL ROOMS FOR BOILERS, PUMPS, AIR CONDITIONERS, AND WATER HEATERS. REINFORCE PAD WITH WWW 6 X 6 W 2.9 X W2.9 AT MID-THICKNESS OF SLAB. SEE MECHANICAL DRAWINGS FOR LOCATIONS.

SYMBOL LEGEND

COLUMN FOOTING

WALL FOOTING

FOOTING SCHEDULE				
Mark	Length	Width	Thickness	Reinforcing
F1	3' - 0"	3' - 0"	1' - 0"	(4) - #5 EACH WAY, BOT.
F2	4' - 0"	4' - 0"	1' - 0"	(5) - #5 EACH WAY, BOT.
F3	5' - 0"	5' - 0"	1' - 0"	(6) - #5 EACH WAY, BOT.
F4	6' - 0"	6' - 0"	1' - 3"	(7) - #6 EACH WAY, BOT.

SUB-SLAB DEPRESSURIZATION AS-BUILT

Bergmann Associates was contracted to perform periodic site visits only. Accordingly the sub-slab depressurization system, to the best of our knowledge, based on periodic site observations, and in review of the as-built drawings as issued by the installation contractor, was installed per the as-built document.

9/17/12

1 FOUNDATION PLAN
1/8" = 1'-0"

Eastman Commons at 1630 Dewey Ave.

Rochester, NY 14615

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REVISIONS

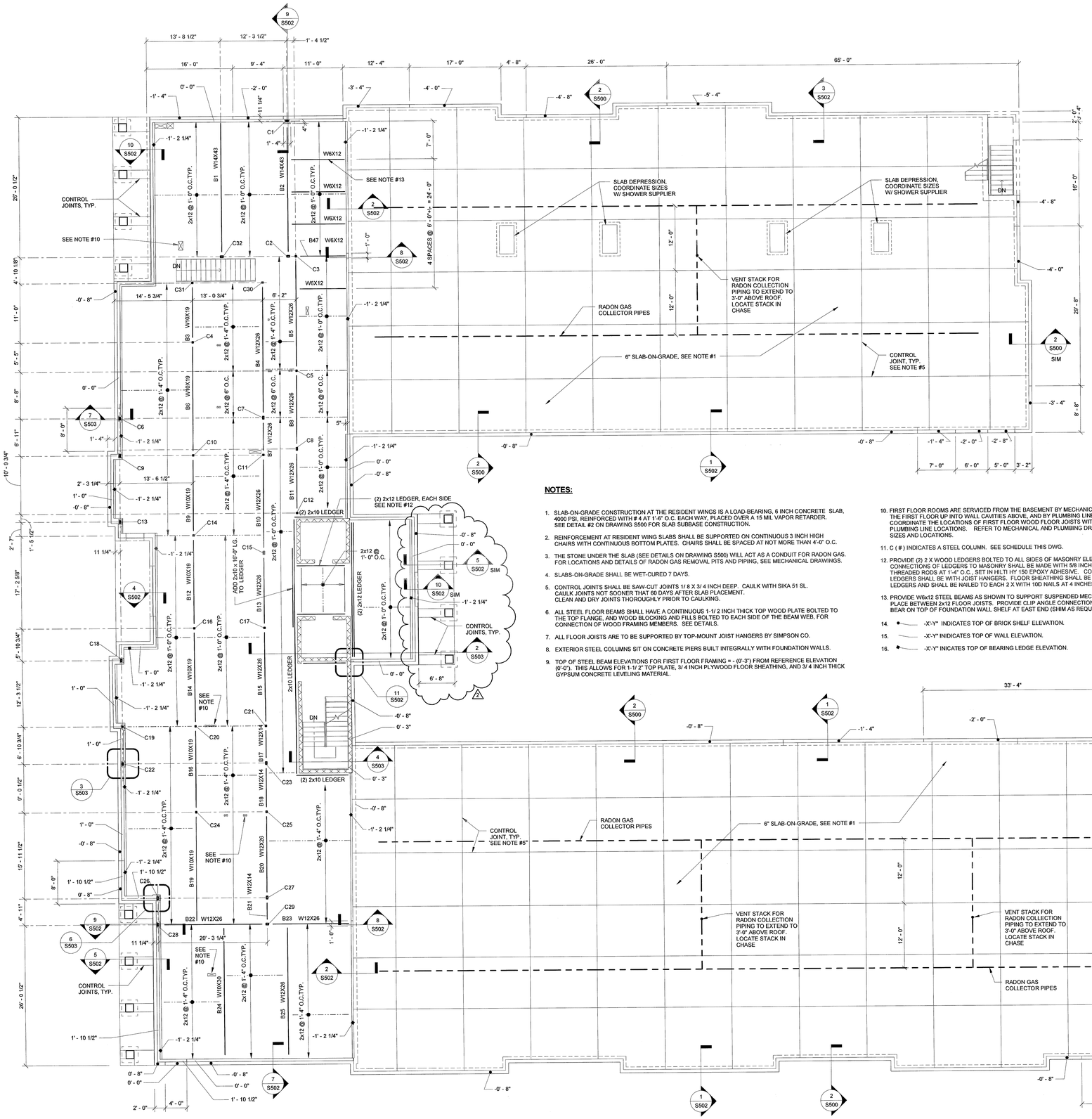
NO.	DATE	DESCRIPTION	REV.	CK'D
1	3/31/10	GEOTECH REPORT REVISIONS	JRC	RLZ
2	6/4/10	POST BID ADDENDUM #3	JRC	RLZ

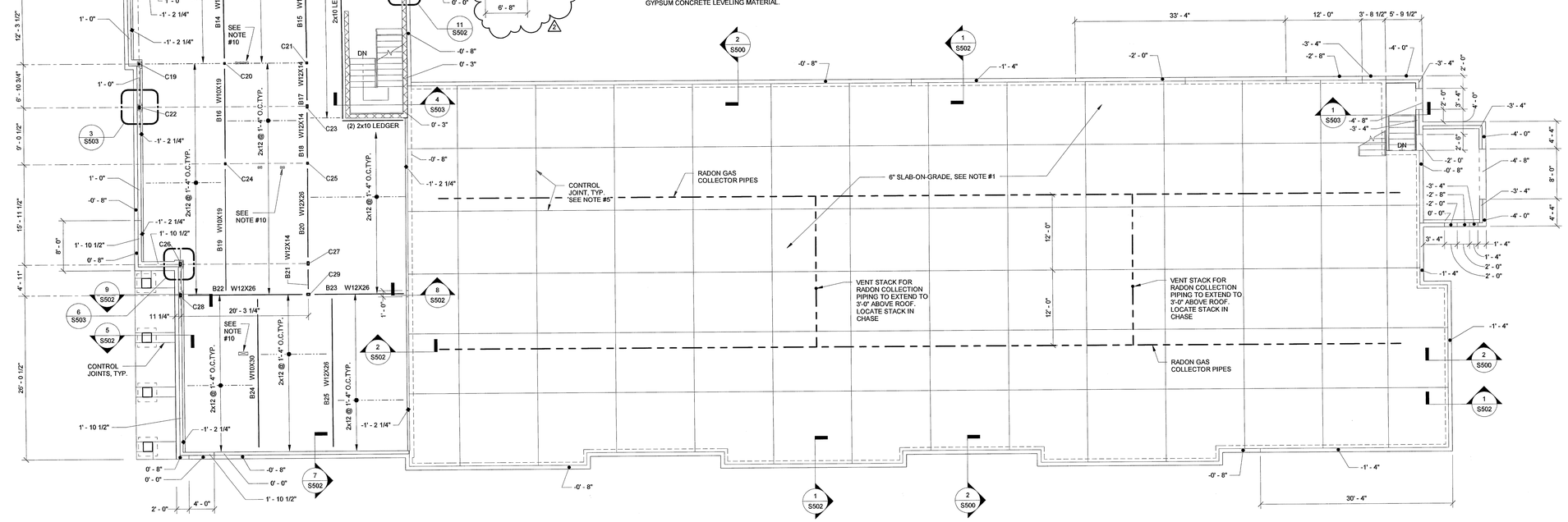
FOUNDATION PLAN

Project Manager: JJI
Designed By: RLZ/PCAK
Drawn By: JJCOLE
Checked By: Checker
Date Issued: 11/18/09
Scale: As indicated
Date:
Project Number: 8222.00
File Name: I:\Norstar Development\8222.00 1630 Dewey Ave \3.0 Dwgs\3.3 Struct

Drawing Number:

S100





NOTES:

1. SLAB-ON-GRADE CONSTRUCTION AT THE RESIDENT WINGS IS A LOAD-BEARING, 6 INCH CONCRETE SLAB, 4000 PSI, REINFORCED WITH # 4 AT 1'-6" O.C. EACH WAY, PLACED OVER A 15 MIL VAPOR RETARDER. SEE DETAIL #2 ON DRAWING S500 FOR SLAB SUBBASE CONSTRUCTION.
2. REINFORCEMENT AT RESIDENT WING SLABS SHALL BE SUPPORTED ON CONTINUOUS 3 INCH HIGH CHAIRS WITH CONTINUOUS BOTTOM PLATES. CHAIRS SHALL BE SPACED AT NOT MORE THAN 4'-0" O.C.
3. THE STONE UNDER THE SLAB (SEE DETAILS ON DRAWING S500) WILL ACT AS A CONDUIT FOR RADON GAS. FOR LOCATIONS AND DETAILS OF RADON GAS REMOVAL PITS AND PIPING, SEE MECHANICAL DRAWINGS.
4. SLABS-ON-GRADE SHALL BE WET-CURED 7 DAYS.
5. CONTROL JOINTS SHALL BE SAW-CUT JOINTS 1/ 8 X 3/ 4 INCH DEEP. CAULK WITH SIKA 51 SL. CAULK JOINTS NOT SOONER THAT 60 DAYS AFTER SLAB PLACEMENT. CLEAN AND DRY JOINTS THOROUGHLY PRIOR TO CAULKING.
6. ALL STEEL FLOOR BEAMS SHALL HAVE A CONTINUOUS 1-1/ 2 INCH THICK TOP WOOD PLATE BOLTED TO THE TOP FLANGE, AND WOOD BLOCKING AND FILLS BOLTED TO EACH SIDE OF THE BEAM WEB, FOR CONNECTION OF WOOD FRAMING MEMBERS. SEE DETAILS.
7. ALL FLOOR JOISTS ARE TO BE SUPPORTED BY TOP-MOUNT JOIST HANGERS BY SIMPSON CO.
8. EXTERIOR STEEL COLUMNS SIT ON CONCRETE PIERS BUILT INTEGRALLY WITH FOUNDATION WALLS.
9. TOP OF STEEL BEAM ELEVATIONS FOR FIRST FLOOR FRAMING = - (0'-3") FROM REFERENCE ELEVATION (0'-0"). THIS ALLOWS FOR 1-1/ 2" TOP PLATE, 3/ 4 INCH PLYWOOD FLOOR SHEATHING, AND 3/ 4 INCH THICK GYPSUM CONCRETE LEVELING MATERIAL.
10. FIRST FLOOR ROOMS ARE SERVICED FROM THE BASEMENT BY MECHANICAL DUCTS WHICH PENETRATE THE FIRST FLOOR UP INTO WALL CAVITIES ABOVE, AND BY PLUMBING LINES. THE CONTRACTOR SHALL COORDINATE THE LOCATIONS OF FIRST FLOOR WOOD FLOOR JOISTS WITH MECHANICAL DUCT AND PLUMBING LINE LOCATIONS. REFER TO MECHANICAL AND PLUMBING DRAWINGS FOR DUCT AND PIPE SIZES AND LOCATIONS.
11. C (#) INDICATES A STEEL COLUMN. SEE SCHEDULE THIS DWG.
12. PROVIDE (2) 2 X WOOD LEDGERS BOLTED TO ALL SIDES OF MASONRY ELEVATORS AND STAIR SHAFTS. CONNECTIONS OF LEDGERS TO MASONRY SHALL BE MADE WITH 5/8 INCH DIAMETER X 6 INCH EMBEDMENT THREADED RODS AT 1'-4" O.C., SET IN HILTI HY 150 EPOXY ADHESIVE. CONNECTIONS OF FRAMING TO LEDGERS SHALL BE WITH JOIST HANGERS. FLOOR SHEATHING SHALL BE CONTINUOUS OVER TOPS OF LEDGERS AND SHALL BE NAILED TO EACH 2 X WITH 10D NAILS AT 4 INCHES O.C.
13. PROVIDE W6x12 STEEL BEAMS AS SHOWN TO SUPPORT SUSPENDED MECHANICAL AND PLUMBING PIPING. PLACE BETWEEN 2x12 FLOOR JOISTS. PROVIDE CLIP ANGLE CONNECTION TO STEEL BEAM AT WEST END AND BEAR ON TOP OF FOUNDATION WALL SHELF AT EAST END (SHIM AS REQUIRED).
14. -X'-Y" INDICATES TOP OF BRICK SHELF ELEVATION.
15. -X'-Y" INDICATES TOP OF WALL ELEVATION.
16. -X'-Y" INICATES TOP OF BEARING LEDGE ELEVATION.

COLUMN SCHEDULE

Mark	Type	Base Level	Top Level
C1	HSS6X3X5/16	FIRST FLOOR	TOS 2nd Floor
C2	HSS6X3X5/16	BASEMENT	TOS 2nd Floor
C3	HSS3X3X5/16	BASEMENT	TOS 2nd Floor
C4	HSS3X3X5/16	BASEMENT	TOS 1st Floor
C5	HSS3X3X5/16	BASEMENT	TOS 2nd Floor
C6	HSS6X3X5/16	FIRST FLOOR	TOS 2nd Floor
C7	HSS6X3X5/16	BASEMENT	TOS 2nd Floor
C8	HSS6X3X5/16	BASEMENT	TOS 2nd Floor
C9	HSS6X3X5/16	FIRST FLOOR	TOS 2nd Floor
C10	HSS3X3X5/16	BASEMENT	TOS 1st Floor
C11	HSS3X3X5/16	BASEMENT	TOS 2nd Floor
C12	HSS3X3X5/16	BASEMENT	TOS 2nd Floor
C13	HSS6X3X5/16	FIRST FLOOR	TOS 2nd Floor
C14	HSS3X3X5/16	BASEMENT	TOS 1st Floor
C15	HSS6X3X5/16	BASEMENT	TOS 2nd Floor
C16	HSS3X3X5/16	BASEMENT	TOS 1st Floor
C17	HSS3X3X5/16	BASEMENT	TOS 2nd Floor
C18	HSS6X3X5/16	FIRST FLOOR	TOS 2nd Floor
C19	HSS3X3X5/16	FIRST FLOOR	TOS 2nd Floor
C20	HSS3X3X5/16	BASEMENT	TOS 1st Floor
C21	HSS3X3X5/16	BASEMENT	TOS 2nd Floor
C22	HSS6X3X5/16	FIRST FLOOR	TOS 2nd Floor
C23	HSS6X3X5/16	BASEMENT	TOS 1st Floor
C24	HSS3X3X5/16	BASEMENT	TOS 1st Floor
C25	HSS3X3X5/16	BASEMENT	TOS 1st Floor
C26	HSS6X3X5/16	FIRST FLOOR	TOS 2nd Floor
C27	HSS6X3X5/16	BASEMENT	TOS 2nd Floor
C28	HSS6X3X5/16	FIRST FLOOR	TOS 2nd Floor
C29	HSS6X3X5/16	BASEMENT	TOS 2nd Floor
C30	HSS3X3X5/16	BASEMENT	TOS 1st Floor
C31	HSS3X3X5/16	BASEMENT	TOS 1st Floor
C32	HSS6X3X5/16	BASEMENT	TOS 1st Floor

1 FIRST FLOOR FRAMING/ SLAB PLAN
1/8" = 1'-0"

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REVISIONS

NO.	DATE	DESCRIPTION	REV.	CK'D
1	3/31/10	GEOTECH REPORT & MISC. REVISIONS	JRC	RLZ
2	6/4/10	POST BID ADDENDUM #3	JRC	RLZ

SUB-SLAB DEPRESSURIZATION AS-BUILT

Bergmann Associates was contracted to perform periodic site visits only. Accordingly the sub-slab depressurization system, to the best of our knowledge, based on periodic site observations, and in review of the as-built drawings as issued by the installation contractor, was installed per the as-built document.

STATE OF NEW YORK ROBERT LOUIS ZAK 090455 LICENSED PROFESSIONAL ENGINEER
9/17/12

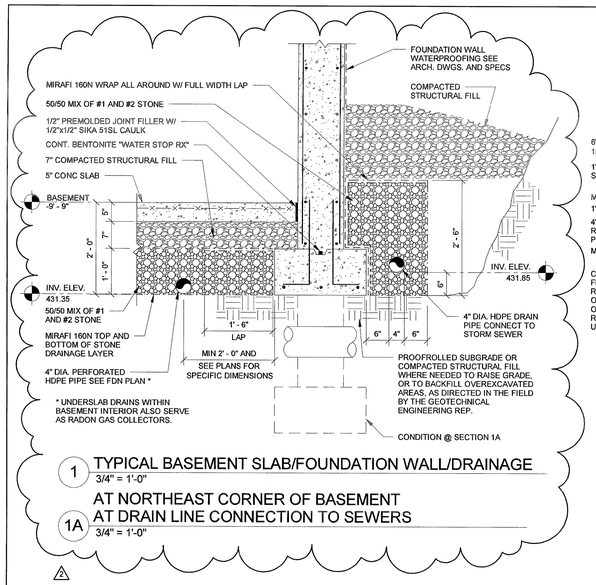
FIRST FLOOR FRAMING / SLAB PLAN

Project Manager: JJI
Designed By: RLZ/PCAK
Drawn By: JJCOLE
Checked By: Checker
Date Issued: 11/18/09
Scale: 1/8" = 1'-0"
Date:

Project Number: 8222.00
File Name: I:\Worster Development\8222.00 1630 Dewey Ave \2.0 Design\3-3 Struct\

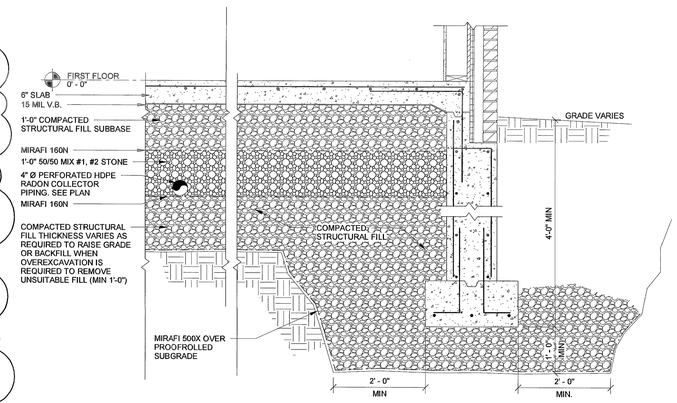
Drawing Number:

S101

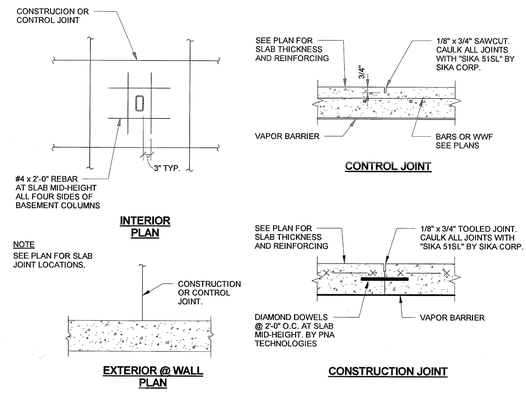


1 TYPICAL BASEMENT SLAB/FOUNDATION WALL/DRAINAGE
3/4" = 1'-0"

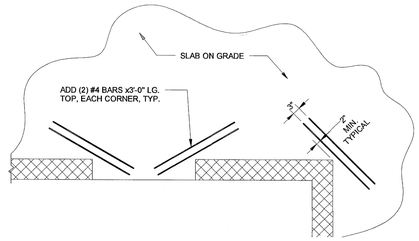
1A AT NORTHEAST CORNER OF BASEMENT AT DRAIN LINE CONNECTION TO SEWERS
3/4" = 1'-0"



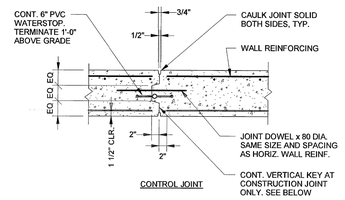
2 TYPICAL SLAB/FOUNDATION WALL @ NON-BASEMENT WINGS
3/4" = 1'-0"

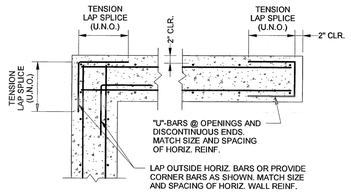


3 TYPICAL SLAB-ON-GRADE JOINTS
1/2" = 1'-0"

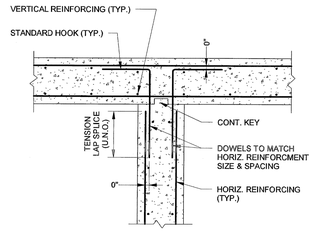


4 TYPICAL SLAB-ON-GRADE INTERIOR CORNER DETAIL
1/2" = 1'-0"

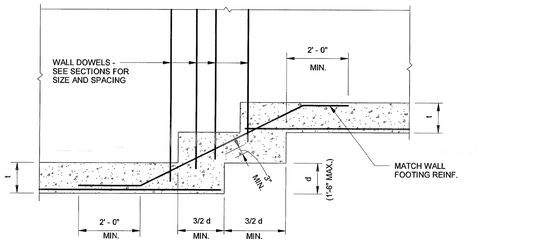




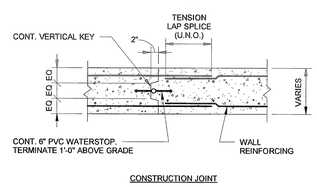
6 TYPICAL CONCRETE WALL CORNER AND END DETAIL
3/4" = 1'-0"



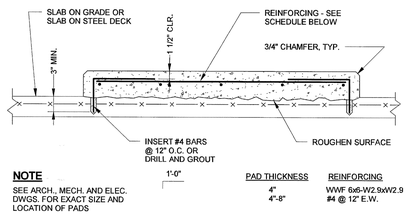
7 TYPICAL CONCRETE WALL INTERSECTION DETAIL
3/4" = 1'-0"



8 TYPICAL STEPPED FOOTING DETAIL
1/2" = 1'-0"



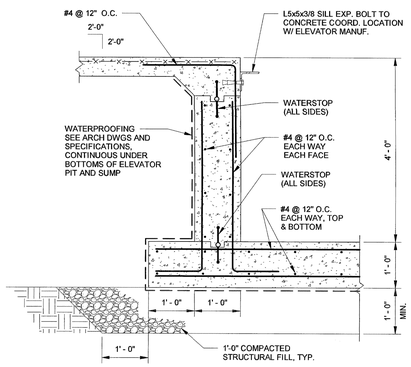
5 TYPICAL CONCRETE WALL JOINT DETAILS
3/4" = 1'-0"



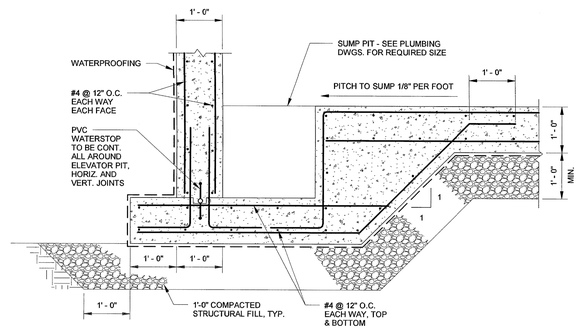
NOTE
SEE ARCH., MECH, AND ELEC. DWGS. FOR EXACT SIZE AND LOCATION OF PADS

1'-0"	PAD THICKNESS	REINFORCING
	4"	WWF 6x6-W2.9xW2.9
	4"-8"	#4 @ 12" E.W.

9 TYPICAL HOUSEKEEPING PAD
1" = 1'-0"



10 TYPICAL ELEVATOR PIT DETAIL
3/4" = 1'-0"



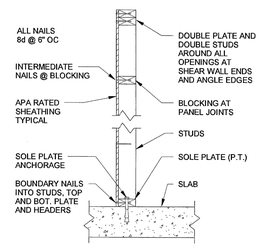
11 TYPICAL ELEVATOR SUMP PIT DETAIL
3/4" = 1'-0"

STEEL LINTEL SCHEDULE

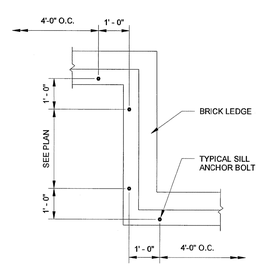
MAX. MASONRY OPENING	WALL THICKNESS			
	4" WALL	6" WALL	8" WALL	12" WALL
3'-0"	1 - L3 1/2 x 3 1/2 x 1/4	2 - L3 x 2 1/2 x 1/4	2 - L3 1/2 x 3 1/2 x 1/4	3 - L3 1/2 x 3 1/2 x 1/4
4'-0"	1 - L4 x 3 1/2 x 1/4	2 - L3 x 2 1/2 x 1/4	2 - L4 x 3 1/2 x 1/4	3 - L4 x 3 1/2 x 1/4
5'-0"	1 - L4 x 3 1/2 x 1/4	2 - L3 1/2 x 2 1/2 x 1/4	2 - L5 x 3 1/2 x 1/4	3 - L4 1/2 x 3 1/2 x 1/4
6'-0"	1 - L5 x 3 1/2 x 1/4	2 - L5 x 3 x 1/4	2 - L5 x 3 1/2 x 1/4	3 - L5 x 3 1/2 x 1/4
8'-0"	1 - L6 x 3 1/2 x 5/16	2 - L6 x 3 x 3/8	2 - L6 x 3 1/2 x 3/8	3 - L6 x 3 1/2 x 3/8

- PROVIDE AND INSTALL LINTEL ANGLES FOR MASONRY OPENINGS IN ACCORDANCE WITH THE SCHEDULE ABOVE.
- WHEN LINTEL SIZE VARIES FROM ARCH'L OR STRUCTURAL PLANS, LARGER SIZE LINTEL SHALL BE PROVIDED.
- INSTALL LONG LEG VERTICAL.
- PROVIDE 6" MINIMUM BEARING AT EACH END BUT NOT LESS THAN 1" PER FOOT OF SPAN. FILL 2 COURSES OF MASONRY BELOW BEARING WITH MORTAR.
- WHERE MINIMUM BEARING CANNOT BE PROVIDED, ATTACH SECURELY TO ADJACENT STRUCTURAL MEMBERS OR PROVIDE SEPARATE SUPPORTS.
- WHERE LINTELS OCCUR IN EXTERIOR WALLS, MINIMUM THICKNESS SHALL BE 5/16" AND ANGLES SHALL BE HOT DIPPED GALVANIZED.
- WHERE WALL THICKNESS EXCEEDS 12" PROVIDE 1 ADDITIONAL ANGLE FOR EACH ADDITIONAL 4" OF WALL.

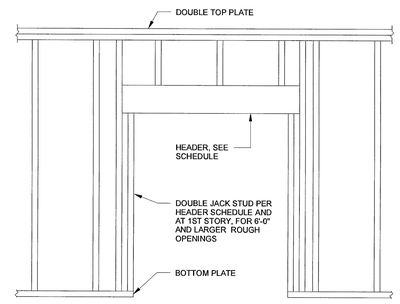
12 LINTEL SCHEDULE FOR NON-LOADBEARING MASONRY WALLS
3/4" = 1'-0"



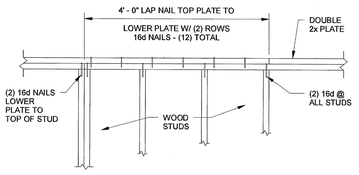
13 TYPICAL SHEAR WALL DETAIL
1" = 1'-0"



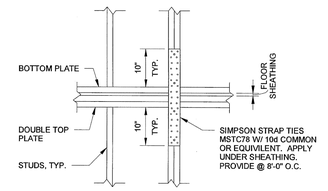
14 TYPICAL SILL ANCHOR BOLT LAYOUT
1/2" = 1'-0"



15 TYPICAL HEADER DETAIL
3/4" = 1'-0"



16 TYPICAL WALL TOP PLATE LAP SPLICE
3/4" = 1'-0"



17 TYPICAL TIE DOWN BETWEEN FLOORS AT EXTERIOR AND CORRIDOR WALLS
3/4" = 1'-0"

Eastman Commons at 1630 Dewey Ave.

Rochester, NY 14615

Norstar Development USA, L.P.

200 South Division St.
Buffalo, ny 14204

Bergmann associates
architects // engineers // planners

28 East Main Street
200 First Federal Plaza
Rochester, New York 14614 - 1909

office: 585.232.5135
fax: 585.232.4625

www.bergmannpc.com

REVISIONS

NO.	DATE	DESCRIPTION	REV.	CK'D
1	3/31/10	GEOTECH REPORT REVISIONS	JRC	RLZ
2	6/4/10	POST BID ADDENDUM #3	JRC	RLZ

SUB-SLAB DEPRESSURIZATION AS-BUILT

Bergmann Associates was contracted to perform periodic site visits only. Accordingly the sub-slab depressurization system, to the best of our knowledge, based on periodic site observations, and in review of the as-built drawings as issued by the installation contractor, was installed per the as-built document.

STATE OF NEW YORK ROBERT LOUIS ZUPCIC 085666 LICENSED PROFESSIONAL ENGINEER

9/17/12

STRUCTURAL DETAILS

Project Manager: AB
Designed By: RLZ/PCAK
Drawn By: JCOLE
Checked By: Checker
Date Issued: 11/18/09
Scale: As indicated
Date:
Project Number: 8222.00
File Name: I:\Norstar Development\8222.00 1630 Dewey Ave 13 0 Dwgs\S.3 Struct

Drawing Number:

S500

Bergmann associates
architects // engineers // planners

1630 DEWEY AVE.
ROCHESTER NY 14615

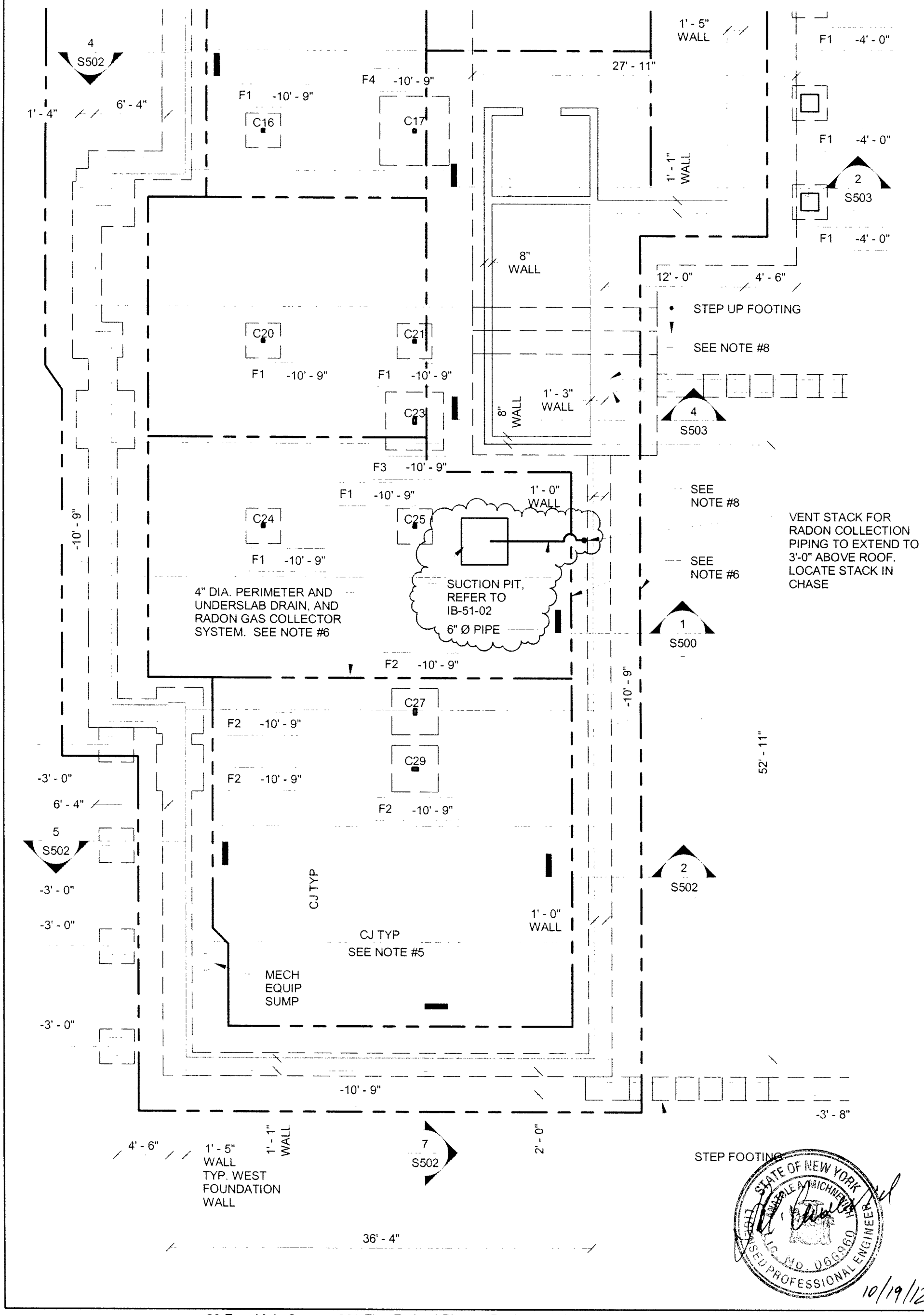
NORSTAR DEVELOPMENT USA, L.P.
200 SOUTH DIVISION ST.
BUFFALO, NY 14204

BY:	CHK'D BY:	DATE:	JOB #:	DRAWING NO.
MRM	JJI	10/4/12	8222.00	IB-51-01

DRAWING TITLE: **PARTIAL BASEMENT SLAB/FOUNDATION PLAN**

REFERENCE DRAWING: S100

SCALE: 1/8" = 1'-0"



STATE OF NEW YORK
ANABELLE A. MICHNEVICH
LIC. NO. 066960
LICENSED PROFESSIONAL ENGINEER

10/19/12

Bergmann associates
architects // engineers // planners

1630 DEWEY AVE.
ROCHESTER NY 14615

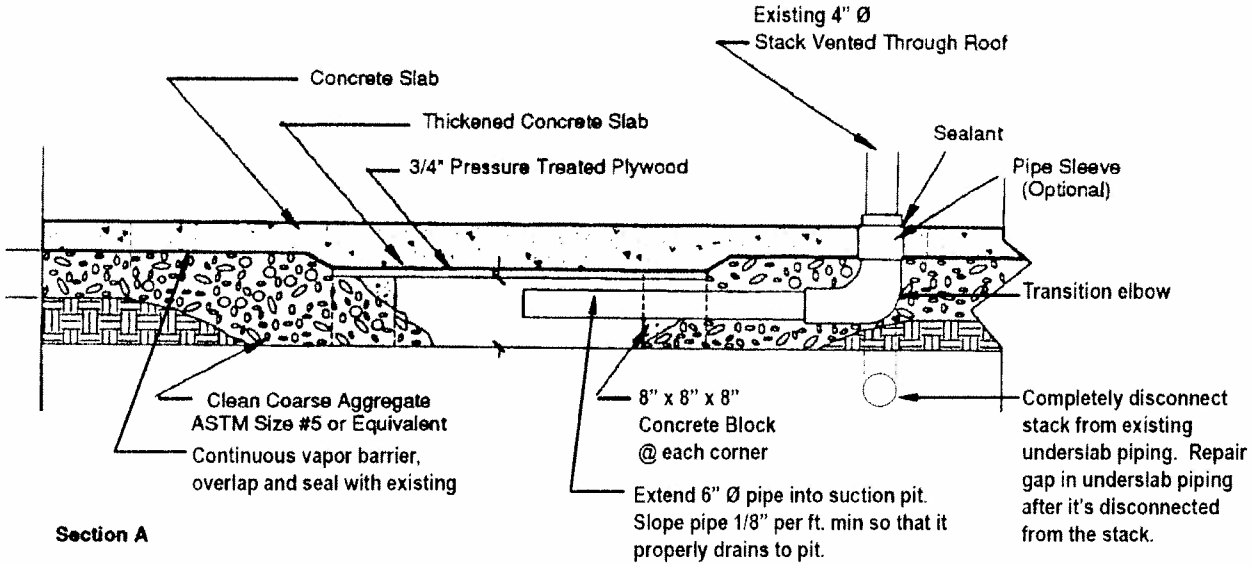
NORSTAR DEVELOPMENT USA, L.P.
200 SOUTH DIVISION ST.
BUFFALO, NY 14204

BY:	CHK'D BY:	DATE:	JOB #:	DRAWING NO.:
MRM	JJI	10/4/12	8222.00	IB-51-02

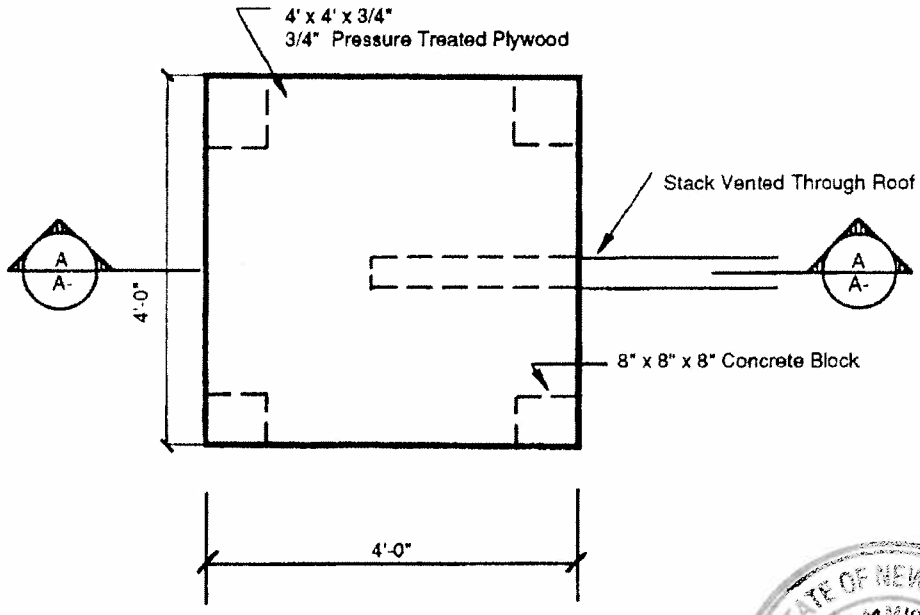
DRAWING TITLE: **SUCTION PIT DETAILS**

REFERENCE DRAWING:

SCALE: NTS



Section A



Radon suction pit. Not to scale.

10/19/12

APPENDIX F

MONITORING WELL CONSTRUCTION LOGS/FORMS

WELL PURGE AND SAMPLE LOG

SITE NAME:	SITE NUMBER:	
SAMPLERS:		
PURGE DATE:	START PURGE:	END PURGE:
SAMPLE DATE:	SAMPLE TIME:	

WELL NUMBER:	WELL ID. VOL. (GAL/FT)
1. TOTAL CASING AND SCREEN LENGTII (FT):	1 " 0.041
2. CASING INTERNAL DIAMETER (IN):	2 " 0.163
3. WATER LEVEL BELOW TOP OF CASING (FT):	3 " 0.367
4. VOLUME OF WATER IN CASING (GALLONS):	4 " 0.653
	5 " 1.020
	6 " 1.469

PARAMETERS	VOLUME PURGED (GALLONS)									
pH										
CONDUCTIVITY (limhos)										
TURBIDITY (NTU)										
TEMPERATURE (˚F)										
Eh										
TIME										

Remarks

1630 DEWEY RI GROUNDWATER SAMPLING FIELD PARAMETERS													
Well Number	**MW-RI-01**	**MW-RI-02**	**MW-RI-03**	**MW-RI-04**	**MW-RI-05**	**MW-RI-06**	**MW-RI-07**	**MW-RI-08**	**MW-RI-09**	**MW-RI-10**	**MW-RI-03A**	**MW-RI-04A**	**MW-RI-07A**
Sample Number	**DP-MW-101**	**DP-MW-102**	**DP-MW-103**	**DP-MW-104**	**DP-MW-105**	**DP-MW-106**	**DP-MW-107**	**DP-MW-108**	**DP-MW-109**	**DP-MW-110**	**MW-RI-03A**	**MW-RI-04A**	**MW-RI-07A**
Sample Date	**11/28/2011**	**11/28/2011**	**11/29/2011**	**11/28/2011**	**11/28/2011**	**11/28/2011**	**11/29/2011**	**11/29/2011**	**11/29/2011**	**11/29/2011**	**1/31/2012**	**1/31/2012**	**1/31/2012**
Field Parameters													
Turbidity (NTU)	>1000	>1000	473	>1000	>1000	>1000	>1000	283	511	>1000	2	10	13
pH	6.94	7.93	7.2	7.83	8.02	7.72	7.44	7.4	6.92	7.12	7.17	7.25	6.73
Dissolved Oxygen	36.4	45.3	43.6	25.6	41.2	35.4	45.6	28.5	38.6	43.6	0	1.5	4.56
Temp (degrees C)	13.21	12.97	13.1	12.65	13.05	13.25	12.76	12.84	13.32	13.06	9.98	8.5	7.6
Conductivity	3.085	2.965	2.774	3.103	3.004	2.976	3.207	3.064	2.964	2.879	0.177	N/A *	N/A *

DRILLING SUMMARY

Geologist: J. Ryszkiewicz

Drilling Company: Nature's Way

Driller: Eric Hiller

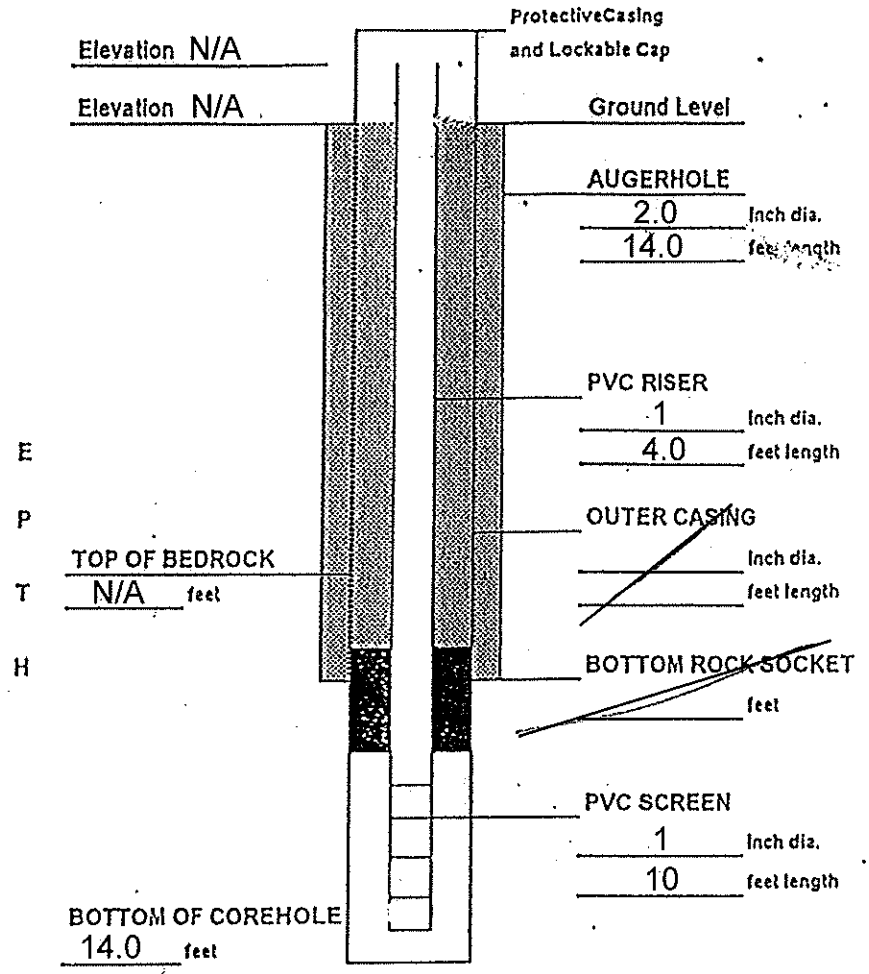
Rig Make/Model: Geoprobe

Date: November 9, 2011

GEOLOGIC LOG

Depth(ft.)	Description
	See boring log MW-RI-01

WELL DESIGN



CASING MATERIAL	SCREEN MATERIAL	FILTER MATERIAL
Surface:	Type: 1" threaded PVC	Type: Sand Setting: 2' - 14.0' bgs
Monitor:	Slot Size: 0.01	SEAL MATERIAL Type: Grout Setting:

COMMENTS	ROCK CORING	LEGEND
Grout from 2' to 0' bgs	Cored Interval: Core Diameter: Reamed Diameter:	Cement/Bentonite Grout Bentonite Seal Silica Sandpack Bedrock

Client: Norstar Development USA

Location:

Project No.: E10025

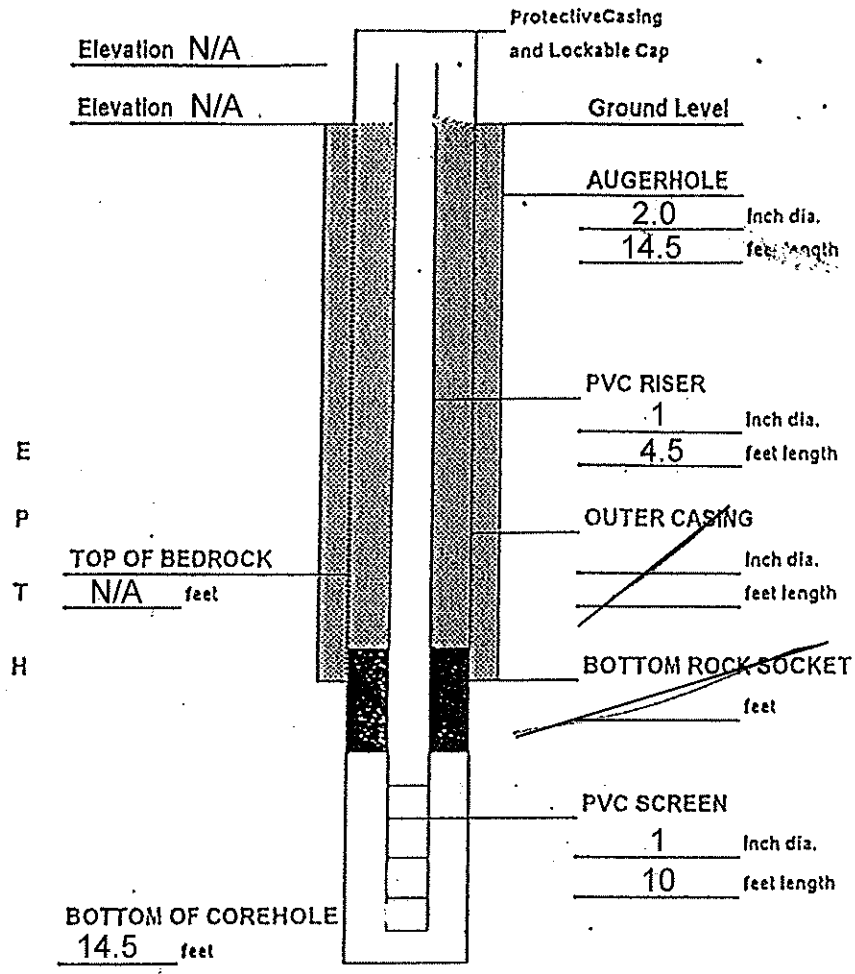
WELL CONSTRUCTION DETAILS

Well Number: MW-RI-01

DRILLING SUMMARY	
Geologist:	J. Ryszkiewicz
Drilling Company:	Nature's Way
Driller:	Eric Hiller
Rig Make/Model:	Geoprobe
Date:	November 9, 2011

GEOLOGIC LOG

Depth(ft.)	Description
	See boring log MW-RI-02



WELL DESIGN

CASING MATERIAL	SCREEN MATERIAL	FILTER MATERIAL
Surface:	Type: 1" threaded PVC	Type: Sand Setting: 2' - 14.5' bgs
Monitor:	Slot Size: 0.01	SEAL MATERIAL: Type: Grout Setting:

COMMENTS	ROCK CORING	LEGEND
Grout from 2' to 0' bgs	Cored Interval: Core Diameter: Reamed Diameter:	Cement/Bentonite Grout Bentonite Seal Silica Sandpack Bedrock

Client: Norstar Development USA	Location:	Project No.: E10025
	WELL CONSTRUCTION DETAILS	Well Number: MW-RI-02

DRILLING SUMMARY

Geologist: J. Ryszkiewicz

Drilling Company: Nature's Way

Driller: Eric Hiller

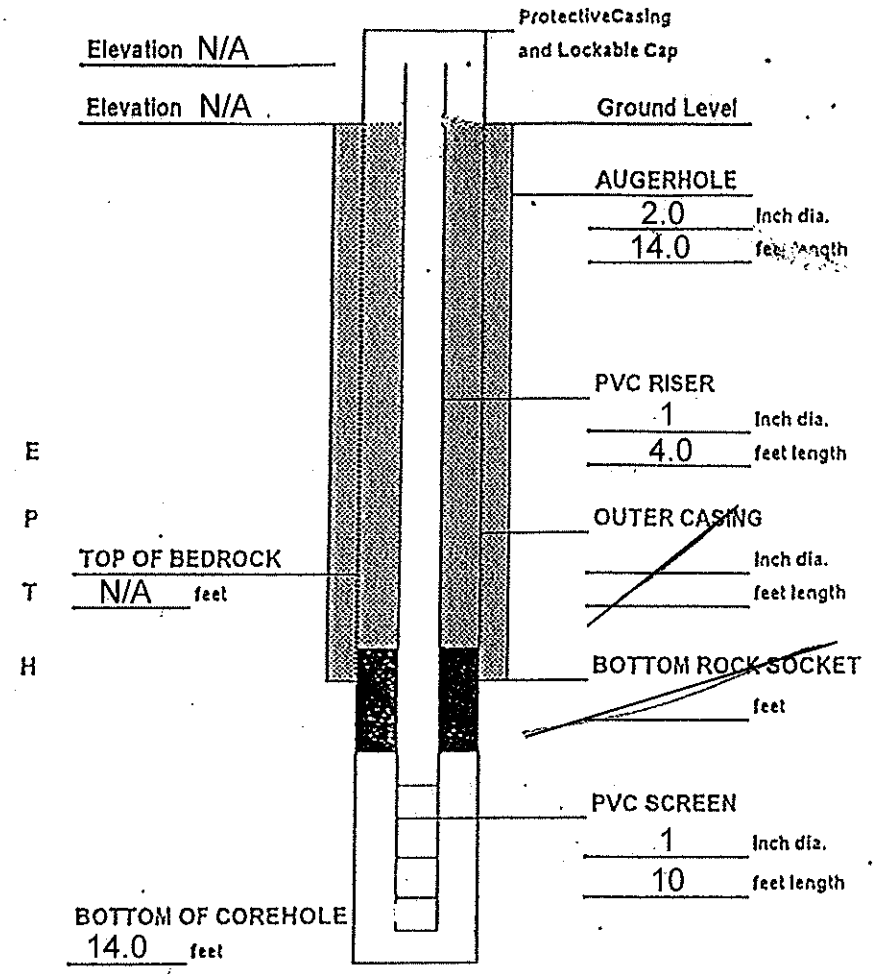
Rig Make/Model: Geoprobe

Date: November 9, 2011

GEOLOGIC LOG

Depth(ft.)	Description
	See boring log MW-RI-03

WELL DESIGN



CASING MATERIAL	SCREEN MATERIAL	FILTER MATERIAL
Surface:	Type: 1" threaded PVC	Type: Sand Setting: 2' - 14.0' bgs
Monitor:	Slot Size: 0.01	SEAL MATERIAL: Type: Grout Setting:

COMMENTS	ROCK CORING	LEGEND
Grout from 2' to 0' bgs	Cored Interval: Core Diameter: Reamed Diameter:	Cement/Bentonite Grout Bentonite Seal Silica Sandpack Bedrock

Client: Norstar Development USA

Location:

Project No.: E10025

WELL CONSTRUCTION DETAILS

Well Number: MW-RI-03

DRILLING SUMMARY

Geologist: J. Ryszkiewicz

Drilling Company: Nature's Way

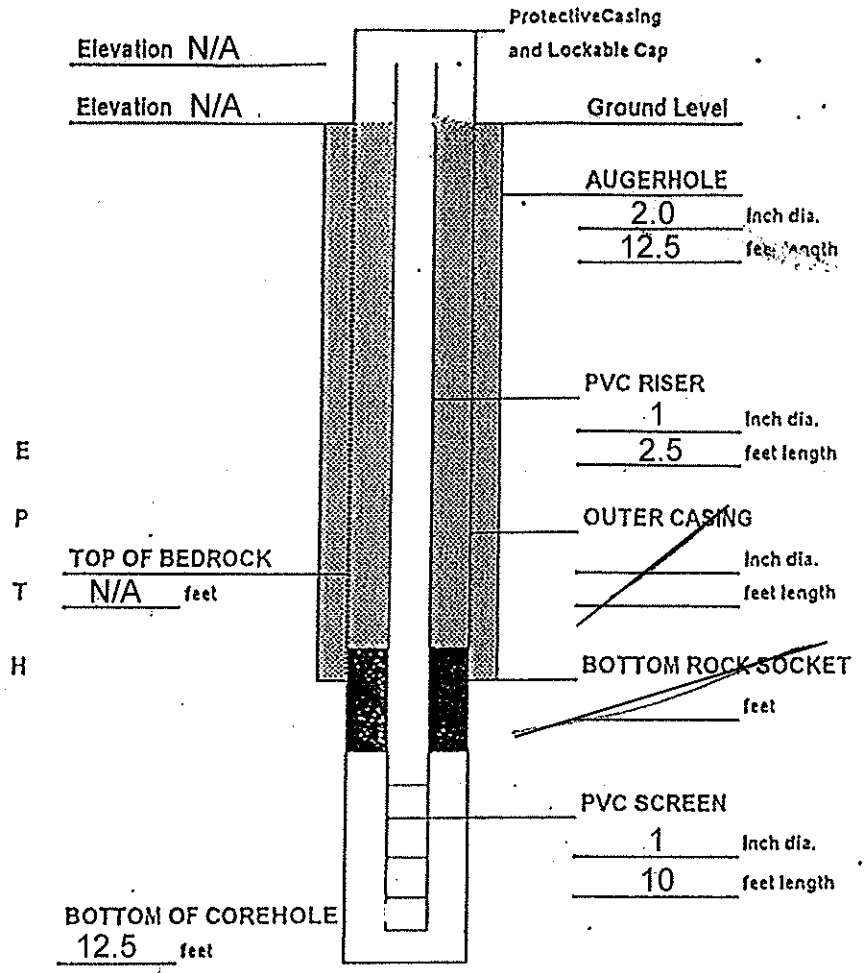
Driller: Eric Hiller

Rig Make/Model: Geoprobe

Date: November 8, 2011

GEOLOGIC LOG

Depth(ft.)	Description
	See boring log MW-RI-04



WELL DESIGN

CASING MATERIAL	SCREEN MATERIAL	FILTER MATERIAL
Surface:	Type: 1" threaded PVC	Type: Sand Setting: 2' - 12.5' bgs
Monitor:	Slot Size: 0.01	SEAL MATERIAL Type: Grout Setting:

COMMENTS	ROCK CORING	LEGEND
Grout from 2' to 0' bgs	Cored Interval: Core Diameter: Reamed Diameter:	Cement/Bentonite Grout Bentonite Seal Silica Sandpack Bedrock

Client: Norstar Development USA

Location:

Project No.: E10025

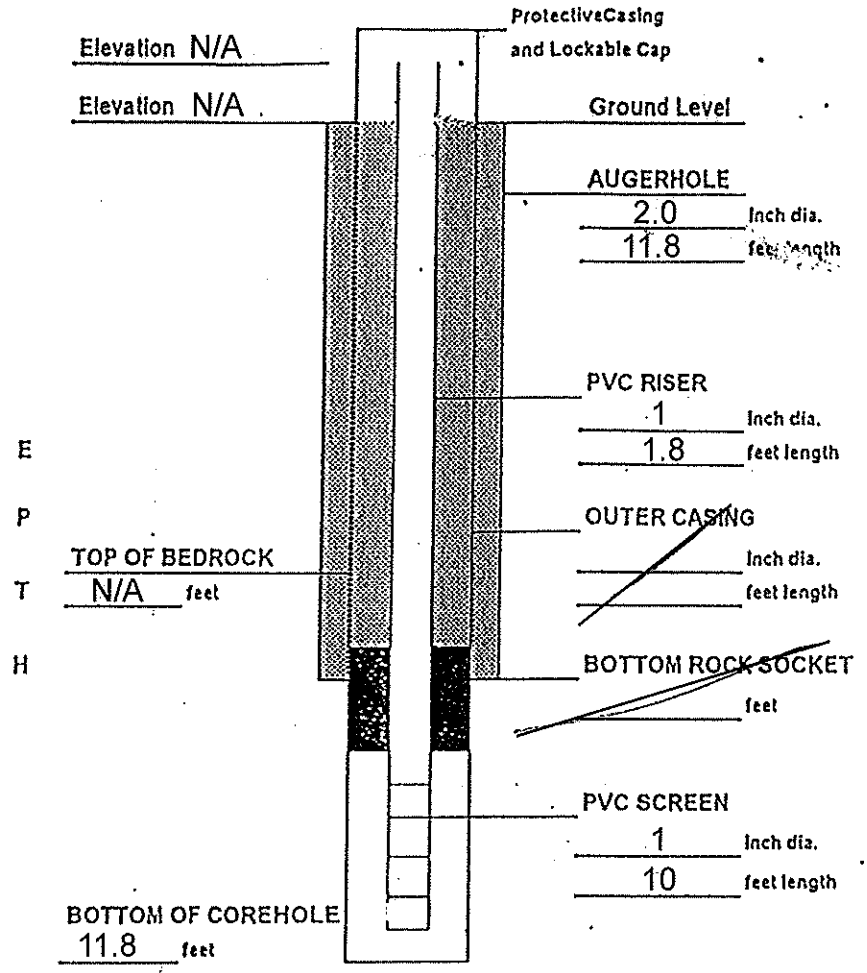
WELL CONSTRUCTION DETAILS

Well Number: MW-RI-04

DRILLING SUMMARY	
Geologist:	J. Ryszkiewicz
Drilling Company:	Nature's Way
Driller:	Eric Hiller
Rig Make/Model:	Geoprobe
Date:	November 8, 2011

GEOLOGIC LOG

Depth(ft.)	Description
	See boring log MW-RI-05



WELL DESIGN

CASING MATERIAL	SCREEN MATERIAL	FILTER MATERIAL
Surface:	Type: 1" threaded PVC	Type: Sand Setting: 2' - 11.8' bgs
Monitor:	Slot Size: 0.01	SEAL MATERIAL Type: Grout Setting:

COMMENTS	ROCK CORING	LEGEND
Grout from 2' to 0' bgs	Cored Interval: Core Diameter: Reamed Diameter:	Cement/Bentonite Grout Bentonite Seal Silica Sandpack Bedrock

Client: Norstar Development USA	Location:	Project No.: E10025
	WELL CONSTRUCTION DETAILS	Well Number: MW-RI-05

DRILLING SUMMARY

Geologist: J. Ryszkiewicz

Drilling Company: Nature's Way

Driller: Eric Hiller

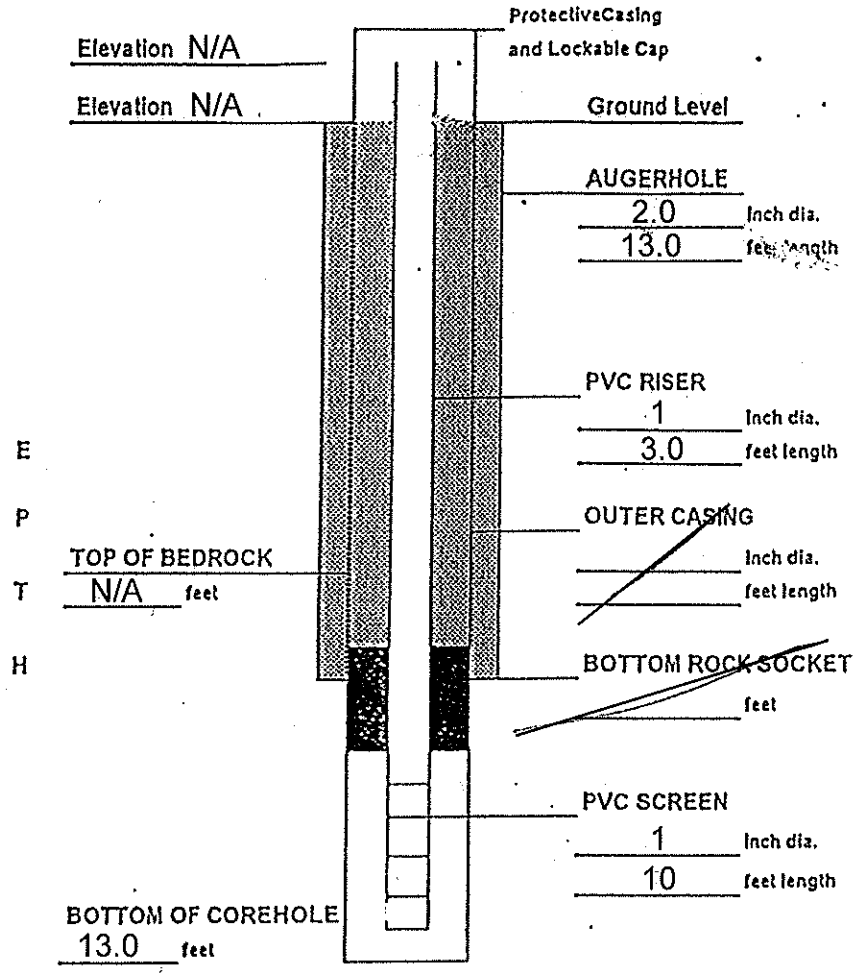
Rig Make/Model: Geoprobe

Date: November 7, 2011

GEOLOGIC LOG

Depth(ft.)	Description
	See boring log MW-RI-06

WELL DESIGN



CASING MATERIAL	SCREEN MATERIAL	FILTER MATERIAL
Surface:	Type: 1" threaded PVC	Type: Sand Setting: 2' - 13.0' bgs
Monitor:	Slot Size: 0.01	SEAL MATERIAL Type: Grout Setting:

COMMENTS	ROCK CORING	LEGEND
Grout from 2' to 0' bgs	Cored Interval: Core Diameter: Reamed Diameter:	Cement/Bentonite Grout Bentonite Seal Silica Sandpack Bedrock

Client: Norstar Development USA

Location:

Project No.: E10025

WELL CONSTRUCTION DETAILS

Well Number: MW-RI-06

DRILLING SUMMARY

Geologist: J. Ryszkiewicz

Drilling Company: Nature's Way

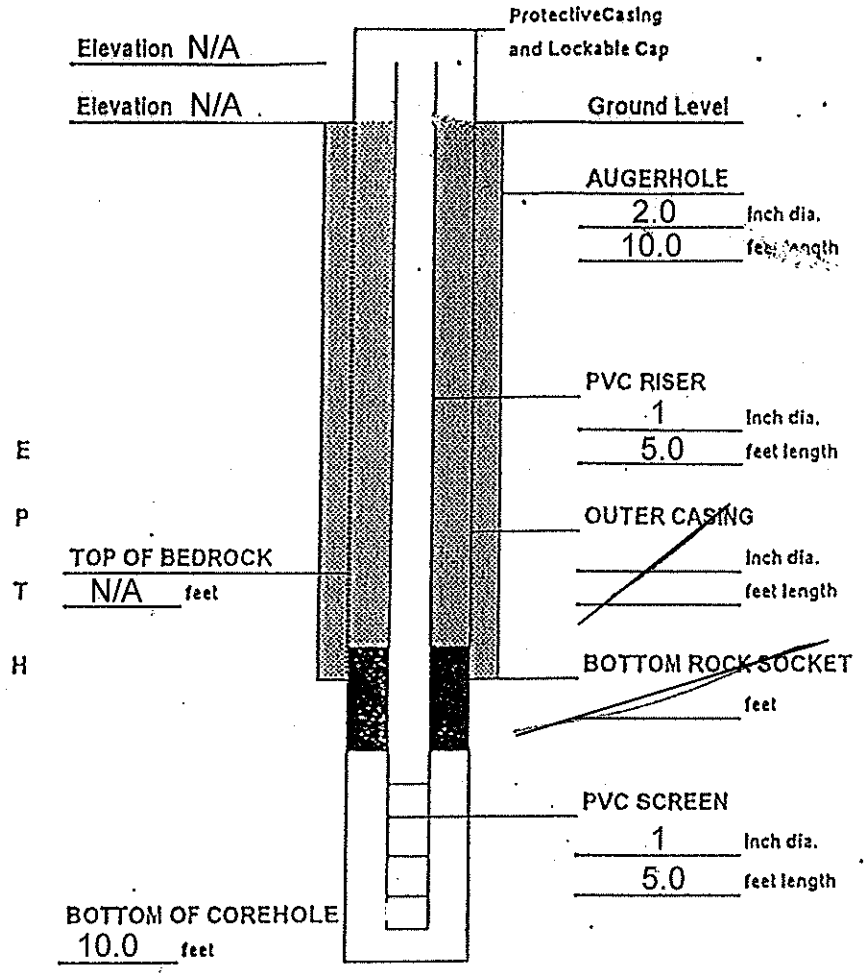
Driller: Eric Hiller

Rig Make/Model: Geoprobe

Date: November 7, 2011

GEOLOGIC LOG

Depth(ft.)	Description
	See boring log MW-RI-07



WELL DESIGN

CASING MATERIAL	SCREEN MATERIAL	FILTER MATERIAL
Surface:	Type: 1" threaded PVC	Type: Sand Setting: 2' - 10.0' bgs
Monitor:	Slot Size: 0.01	SEAL MATERIAL: Type: Grout Setting:

COMMENTS	ROCK CORING	LEGEND
Grout from 2' to 0' bgs	Cored Interval: Core Diameter: Reamed Diameter:	Cement/Bentonite Grout Bentonite Seal Silica Sandpack Bedrock

Client: Norstar Development USA

Location:

Project No.: E10025

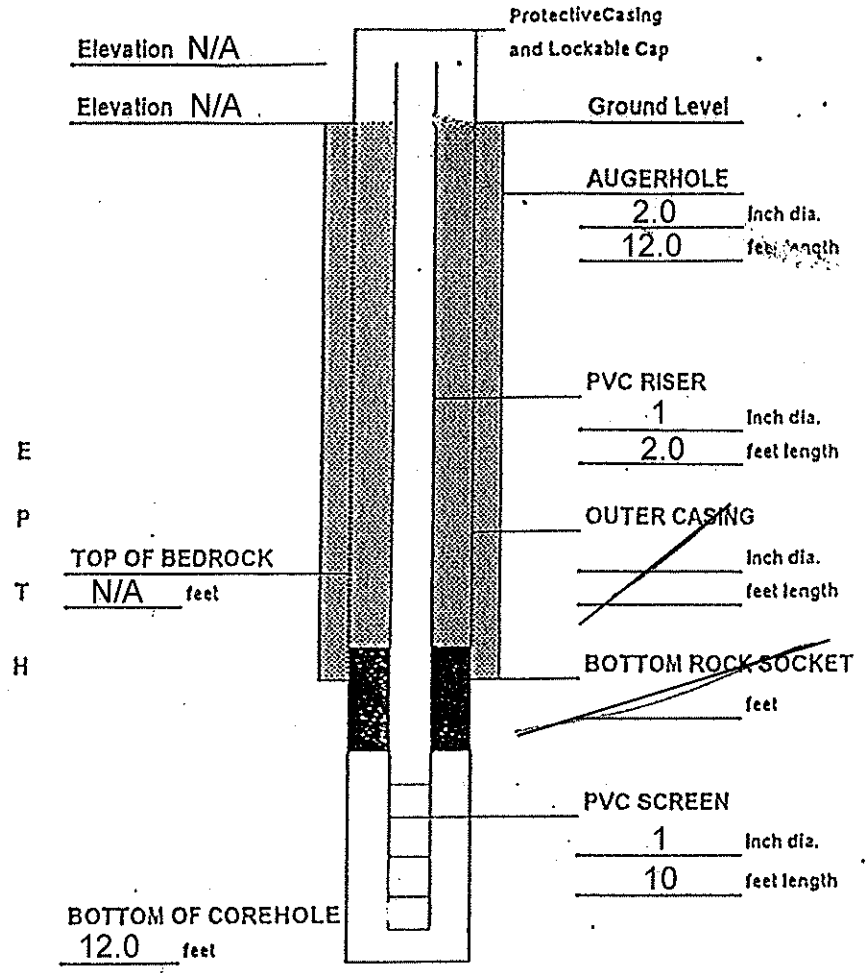
WELL CONSTRUCTION DETAILS

Well Number: MW-RI-07

DRILLING SUMMARY	
Geologist:	J. Ryszkiewicz
Drilling Company:	Nature's Way
Driller:	Eric Hiller
Rig Make/Model:	Geoprobe
Date:	November 8, 2011

GEOLOGIC LOG

Depth(ft.)	Description
	See boring log MW-RI-08



WELL DESIGN

CASING MATERIAL	SCREEN MATERIAL	FILTER MATERIAL
Surface:	Type: 1" threaded PVC	Type: Sand Setting: 2' - 12.0' bgs
Monitor:	Slot Size: 0.01	SEAL MATERIAL: Type: Grout Setting:

COMMENTS	ROCK CORING	LEGEND
Grout from 2' to 0' bgs	Cored Interval: Core Diameter: Reamed Diameter:	Cement/Bentonite Grout Bentonite Seal Silica Sandpack Bedrock

Client: Norstar Development USA	Location:	Project No.: E10025
	WELL CONSTRUCTION DETAILS	Well Number: MW-RI-08

DRILLING SUMMARY

Geologist: J. Ryszkiewicz

Drilling Company: Nature's Way

Driller: Eric Hiller

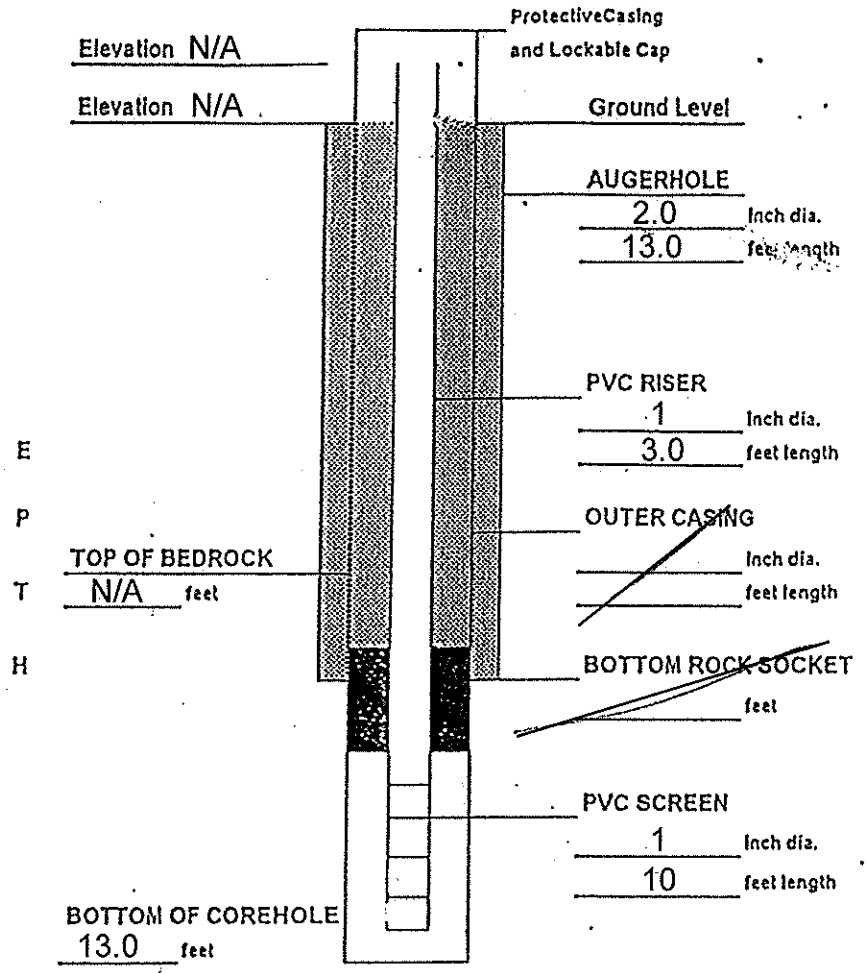
Rig Make/Model: Geoprobe

Date: November 7, 2011

GEOLOGIC LOG

Depth(ft.)	Description
	See boring log MW-RI-09

WELL DESIGN



CASING MATERIAL	SCREEN MATERIAL	FILTER MATERIAL
Surface:	Type: 1" threaded PVC	Type: Sand Setting: 2' - 13.0' bgs
Monitor:	Slot Size: 0.01	SEAL MATERIAL: Type: Grout Setting:

COMMENTS	ROCK CORING	LEGEND
Grout from 2' to 0' bgs	Cored Interval: Core Diameter: Reamed Diameter:	Cement/Bentonite Grout Bentonite Seal Silica Sandpack Bedrock

Client: Norstar Development USA | Location: | Project No.: E10025

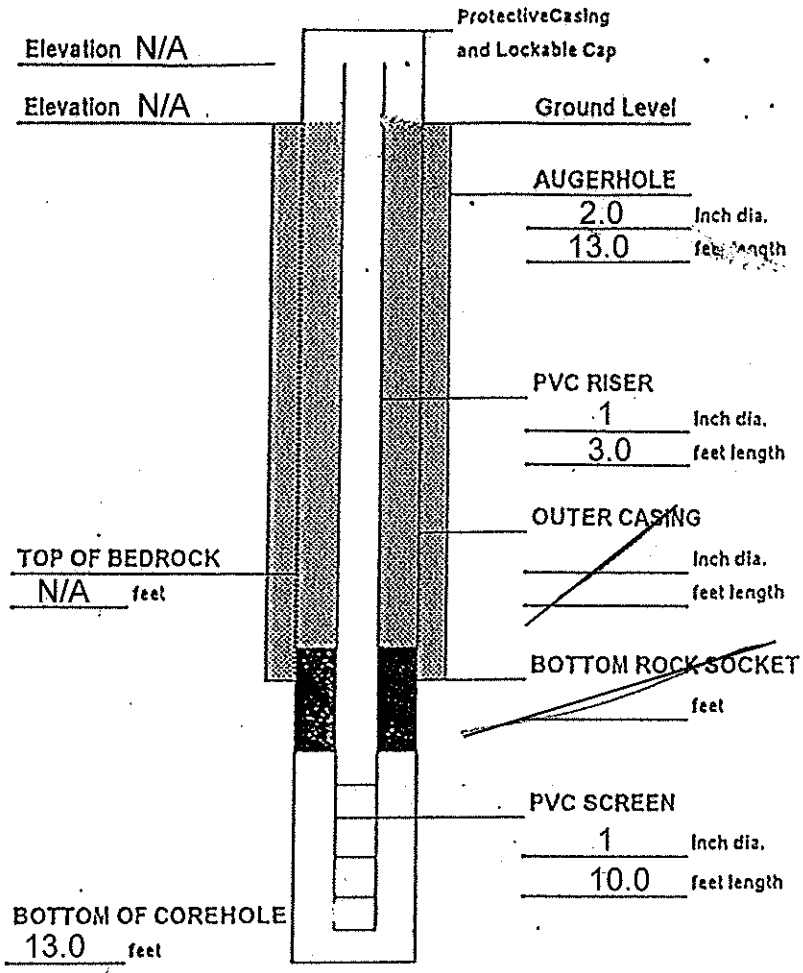
WELL CONSTRUCTION DETAILS | Well Number: MW-RI-09

DRILLING SUMMARY	
Geologist:	J. Ryszkiewicz
Drilling Company:	Nature's Way
Driller:	Eric Hiller
Rig Make/Model:	Geoprobe
Date:	November 8, 2011

GEOLOGIC LOG

Depth(ft.)	Description
	See boring log MW-RI-10

DEPTH



WELL DESIGN

CASING MATERIAL	SCREEN MATERIAL	FILTER MATERIAL
Surface:	Type: 1" threaded PVC	Type: Sand Setting: 2' - 13.0' bgs
Monitor:	Slot Size: 0.01	SEAL MATERIAL: Type: Grout Setting:

COMMENTS	ROCK CORING	LEGEND
Grout from 2' to 0' bgs	Cored Interval: Core Diameter: Reamed Diameter:	Cement/Bentonite Grout Bentonite Seal Silica Sandpack Bedrock

Client: Norstar Development USA	Location:	Project No.: E10025
	WELL CONSTRUCTION DETAILS	Well Number: MW-RI-10

DRILLING SUMMARY

Geologist: G. Zayatz

Drilling Company: Nature's Way

Driller: Eric Hiller

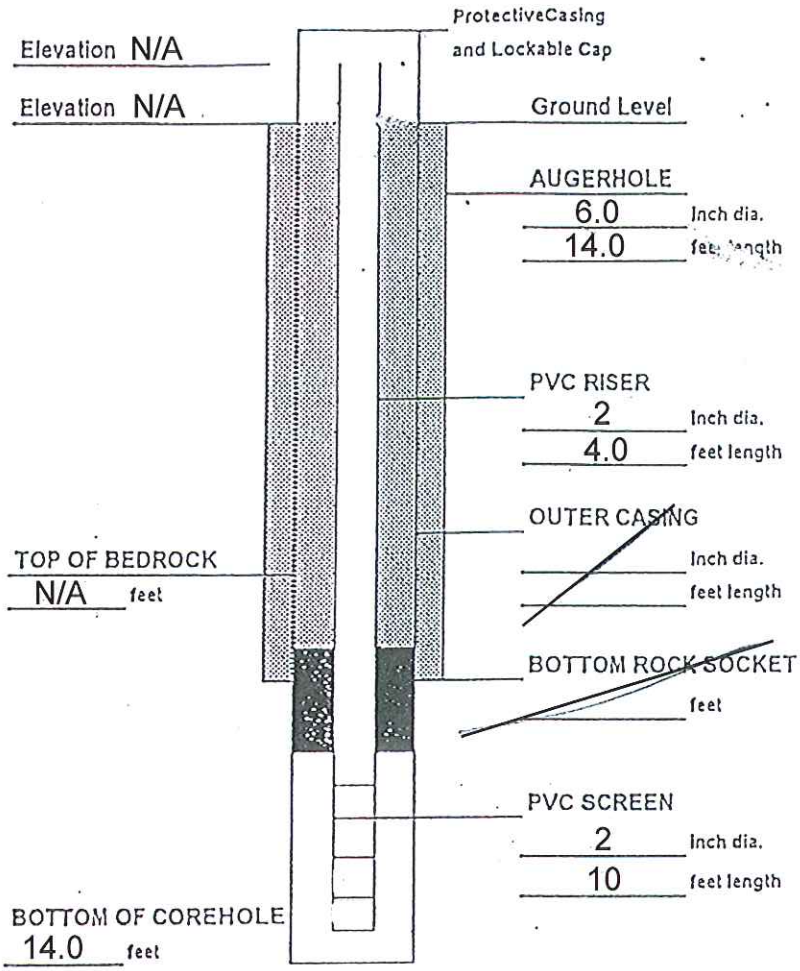
Rig Make/Model: Geoprobe

Date: January 24, 2012

GEOLOGIC LOG

Depth(ft.)	Description
	MW-RI-03A

EPTH



WELL DESIGN

CASING MATERIAL	SCREEN MATERIAL	FILTER MATERIAL
Surface:	Type: 2" threaded PVC	Type: Sand Setting: 2' - 14.0' bgs
Monitor:	Slot Size: 0.01	SEAL MATERIAL Type: Grout Setting:

COMMENTS	ROCK CORING	LEGEND
Grout from 2' to 0' bgs	Cored Interval: Core Diameter: Reamed Diameter:	Cement/Bentonite Grout Bentonite Seal Silica Sandpack Bedrock

Client: Norstar Development USA

Location:

Project No.: E10025

WELL CONSTRUCTION DETAILS

Well Number: MW-RI-03A

DRILLING SUMMARY

Geologist: G. Zayatz

Drilling Company: Nature's Way

Driller: Eric Hiller

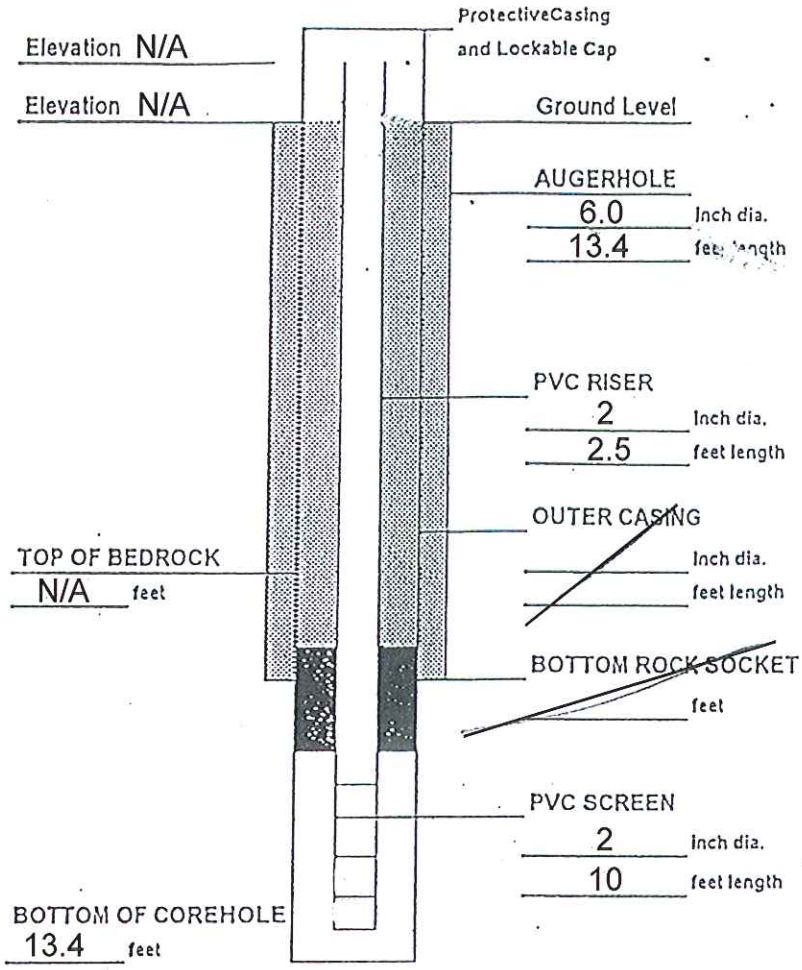
Rig Make/Model: Geoprobe

Date: January 24, 2012

GEOLOGIC LOG

Depth(ft.)	Description
	MW-RI-04A

EPTH



WELL DESIGN

CASING MATERIAL	SCREEN MATERIAL	FILTER MATERIAL
Surface:	Type: 2" threaded PVC	Type: Sand Setting: 2' - 13.4' bgs
Monitor:	Slot Size: 0.01	SEAL MATERIAL: Type: Grout Setting:

COMMENTS	ROCK CORING	LEGEND
Grout from 2' to 0' bgs	Cored Interval: Core Diameter: Reamed Diameter:	Cement/Bentonite Grout Bentonite Seal Silica Sandpack Bedrock

Client: Norstar Development USA | Location: | Project No.: E10025

WELL CONSTRUCTION DETAILS | Well Number: MW-RI-04A

DRILLING SUMMARY

Geologist: G. Zayatz

Drilling Company: Nature's Way

Driller: Eric Hiller

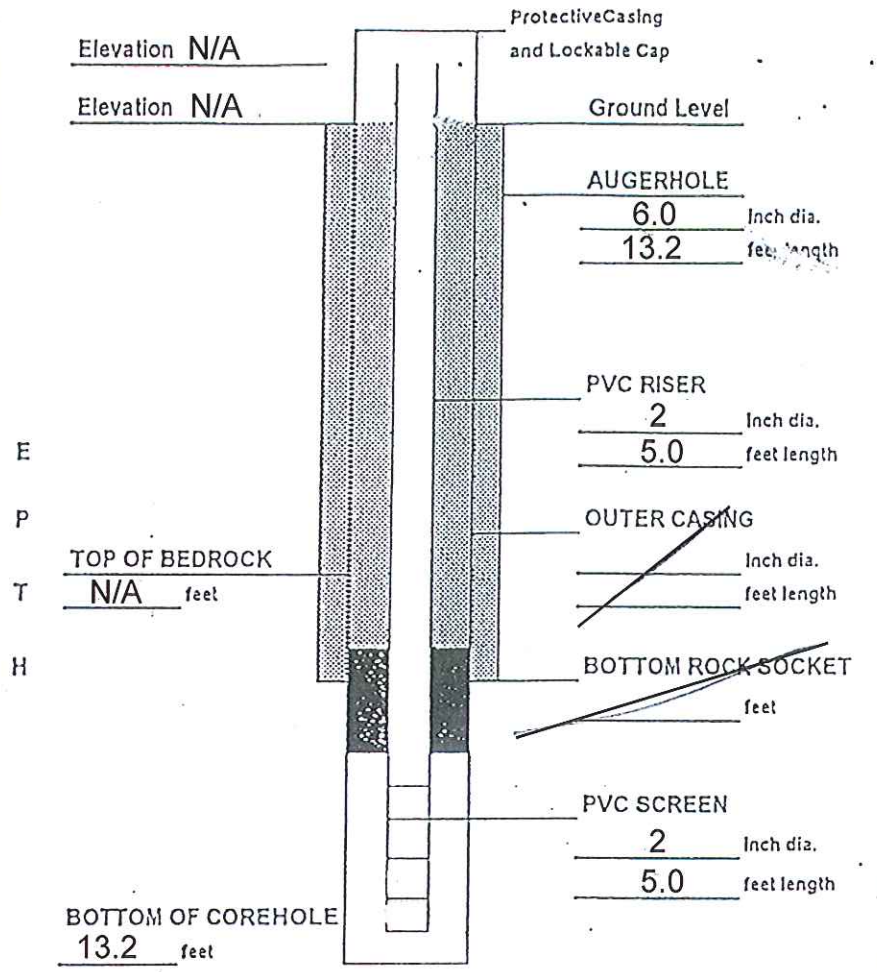
Rig Make/Model: Geoprobe

Date: January 24, 2012

GEOLOGIC LOG

Depth(ft.)	Description
	MW-RI-07A

WELL DESIGN



CASING MATERIAL	SCREEN MATERIAL	FILTER MATERIAL
Surface:	Type: 2" threaded PVC	Type: Sand Setting: 2' - 13.2' bgs
Monitor:	Slot Size: 0.01	**SEAL MATERIAL**
		Type: Grout Setting:

COMMENTS	ROCK CORING	LEGEND
Grout from 2' to 0' bgs	Cored Interval:	Cement/Bentonite Grout
	Core Diameter:	Bentonite Seal
	Reamed Diameter:	Silica Sandpack
		Bedrock

Client: Norstar Development USA

Location:

Project No.: E10025

WELL CONSTRUCTION DETAILS

Well Number: MW-RI-07A

APPENDIX G

FIELD SAMPLING PLAN

Page No.

FIELD SAMPLING PLAN

FIELD SAMPLING PLAN (SOIL AND WATER)

1.0 INTRODUCTION

This Field Sampling Plan (FSP) is designed to provide procedures for the field activities outlined in the Work Plan where soil and groundwater investigation/sampling may be required at the Former Crescent Purity Laundry site under the BCP. It will serve as the field procedures manual to be strictly followed by all personnel. Adherence to these procedures will ensure the quality and usability of the field data collected. In addition to the field procedures outlined in this document, all personnel performing field activities must comply with:

- The appropriate Health and Safety guidelines found in the Health and Safety Plan (HASP) Appendix A;
- The Quality Assurance/Quality Control measures outlined in Appendix C; and
- The scope of work outlined in the Work Plan.

2.0 SOIL SAMPLING/INVESTIGATIONS

2.1 Soil Sampling

This section discusses the procedures for collecting an aliquot of sample for chemical analysis. Soil samples will be obtained as outlined in the Work Plan. The detailed procedure is outlined below:

1. Inspect test pit and/or boring core stratigraphy, sample soil and records depth interval. Record any physical characteristics (e.g., obvious contamination, odor, or discoloration) in the field logbook. Simultaneously place the probe of a calibrated PID into the exposed soil. Record the instrument readings in the field logbook.
2. Samples are to be collected at locations and frequency as discussed in the Work Plan and the Appendix C QA/QC Plan.
3. If not dedicated, decontaminate sampling implements after use and between sample locations (in most cases dedicated sampling equipment will be used).
4. Record field sampling information in the field logbook. Label each sample container with the appropriate sample identification data and place sample in a cooler (cooled to 4 degrees C.) for shipment to the laboratory.
5. Initiate chain-of-custody procedures.

2.1.1 Test Pit Procedures

Summary

Test pit sampling is a standard method of soil sampling to obtain representative samples for identification as well as to serve as a means of obtaining a large amount of information about the subsurface.

The following steps describe the procedures for test pit operations.

Field Preparation

1. Verify underground utilities have been found.
2. Review scope of work, safety procedures and communication signals with all site personnel. Identify local suppliers of sampling expendable and overnight delivery services. Pre-clean the sampling equipment prior to use, as necessary.
3. Mark/review trench locations. The specific locations will be determined in the field. Trench locations will be selected based on several factors, including areas of visible potential surface contamination/debris, pre-determined locations to examine representative areas across the site, and vegetative obstructions.
4. After completing each trench and sampling (as described above), subsurface soil will be backfilled. Backfilling will occur in the order in which the soil was removed. The backhoe will then be decontaminated over the test pit. The pit will then be filled in with clean overburden/topsoil and/or the fill that was previously on the surface, as available.

Excavation and Sample Collection

1. Maneuver the backhoe into position
2. Commence excavation with the backhoe positioned upwind of the excavation. Conduct continuous air monitoring with appropriate air monitoring equipment. Screen the soil for volatile organic compounds as it is placed on the soil pile.
3. Test trenching will be carried out in the following manner and as directed by PEI's site representative:
    - For each test trench, topsoil and/or cover soil (if any) will be excavated and placed on plastic sheeting.
    - Soil/fill below the topsoil will be excavated to the depth directed by PEI's site representative and placed on plastic sheeting separate from the topsoil/cover soil.
    - At completion of excavation all equipment in contact with the soil/fill will be steam cleaned over the trench after backfilling.
    - All trenches will be backfilled with indigenous soil in the order in which the material was removed with the topsoil/cover soil placed last to cover the trench.
4. A geologic log will be recorded as each trench is excavated. Upon completing the excavation of the pit, visually inspect the horizons of the soil for discoloration or staining and photo document the pit. The following information will be recorded for each test pit on the Test Pit Log:
    - The total depth, length, and width of the excavation.
    - The depth and thickness of distinct soil or lithologic units.
    - A lithologic description of each unit.
    - A description of any man-made materials or apparent contamination.
    - Elevation of incoming water, if encountered.
    - Depth to groundwater and/or bedrock.
    - Using dedicated stainless steel spoons collect soil samples as detailed in Section 2.1. Soil samples will be collected directly from the bucket of the backhoe.

The backhoe will collect a sample from a specific soil horizon and bring the sample back to the ground surface. **No personnel shall enter the excavation to collect samples unless a confined permit has been obtained.** Each soil sample will be placed directly into appropriate sample bottles/jars.

5. Carefully and clearly label the sample bottles and jars with the appropriate bottle label.
6. Place each jar in an ice-filled cooler.
7. Use the chain-of-custody form to document the types and numbers of test pit samples collected and logged.
8. Record the time and date of sample collection as well as a description of the sample and any associated air monitoring measurements in the field logbook.
9. All excavated soil will be returned to the trench following completion of excavation activities at each individual trench location. Each test pit will be backfilled and compacted prior to moving to the next. During the test pit operations an attempt will be made to segregate clean from dirty soil using visual observations and PID screening. When the test pit is being filled, if dirty soil was encountered, it will be placed in the bottom of the pit and covered with clean soil.
10. Decontamination sampling equipment-Decontaminate backhoe bucket prior to commencing and between locations.

Post Operations

1. Organize field notes. All relevant information recorded in the field logbook and the Test Pit Log.
2. All samples should be shipped to the laboratory as soon as possible, but no more than 24 hours after being collected.

2.1.2 Geoprobe Drilling Program

Soil sampling may also be conducted using Geoprobe drilling methods.

Macro Core Drilling Procedures:

Summary

Geoprobe Macro Core direct push sampling is a standard method of soil sampling to obtain representative samples for identification as well as to serve as a means of obtaining a specific amount of information about the subsurface.

The following steps describe the procedures for Macro Core direct push drilling operations.

Field Preparation

1. Verify underground utilities have been found.

2. Review scope of work, safety procedures and communication signals with all site personnel. Identify local suppliers of sampling expendable and overnight delivery services. Pre-clean the sampling equipment prior to use, as necessary.

3. Mark/review boring locations. The specific locations will be determined in the field. Boring locations will be selected based on several factors, including areas of visible potential surface contamination, pre-determined locations to examine representative areas across the site, and vegetative obstructions.
4. After completing each boring hole, subsurface soil will be backfilled. The boring hole will then be filled in with spoils and/or clean sand, if any available.

Excavation and Sample Collection

1. Maneuver the Geoprobe rig into position.
2. Commence drilling with the Geoprobe rig positioned upwind of the excavation. Conduct continuous air monitoring with appropriate air monitoring equipment. Screen the soil for volatile organic compounds as it is placed in a staged area.
3. Geoprobe borings will be carried out in the following manor and as directed by PEI's site representative:
    1. Start up drill rig and raise mast.
    2. If there is pavement use star bit with rig in rotary setting to penetrate pavement.
    3. If you are setting a road box excavate a hole large enough to set the road box before you advance the borehole.
    4. Unthread the bottom of the sample tube and inset a new sample liner. Thread the shoe on the bottom of the sample tube.
    5. Thread the drive cap on the top of the sample tube.
    6. Align the sample tube so it is plumb in both directions. The will assure you drill a straight borehole. It is important to drill a straight borehole.
    7. Drive the top of the sample tube to ground surface.
    8. Unthread the drive cap and thread on the pull cap.
    9. Pull the sample tube from the ground. Use caution so as not to pinch your hand between the drill rods, pull cap or rig during any of these steps.
    10. With the sample tube from the ground unthread the cutting shoe and pull the sample liner from the sample tube. You may need to use needle nose pliers to reach in the sample tube and grab the liner. Cut the sample liner lengthwise in two places and take it to the client.
    11. Insert a new liner and thread on the cutting shoe.
    12. Align the sample tube so it is plumb in both directions. The will assure you drill a straight borehole. It is important to drill a straight borehole.
    13. Push the sample tube to ground surface and thread a four-foot long drill rod onto the top of the sample tube. Thread on the drive cap and drive the top of the drill rod to ground surface.
    14. Unthread the drive cap and thread on the pull cap.
    15. Pull the drill rod from the ground.

16. Remove the pull cap from the drill rod and thread it on the sample tube
17. Pull the sample tube from the ground.
18. Repeat step 14, 15, 16 and 17.
19. After completing 17 add a second drill rod and drive it to ground surface. The borehole should now be 12 feet deep.
20. This procedure is repeated until the desired depth or refusal is reached.
21. For each Geoprobe boring, the sleeve/core will be placed on plastic sheeting.
22. The soil stratigraphy will be excavated to the depth directed by PEI's site representative and placed on plastic sheeting.
23. At completion of probe excavation all equipment in contact with the soil/fill will be cleaned in a decontamination area using Alconox and water.
24. All probe holes will be backfilled with indigenous soil in the order in which the material was removed with the topsoil/sand/cover soil placed last to cover the hole.

4. A geologic log will be recorded as each borehole is excavated. Upon completing the excavation of the borehole, visually inspect the horizons of the soil for discoloration or staining and photo document the pit. The following information will be recorded for each boring on the Geoprobe Log:
   -The total depth, length, and width of the excavation.
   -The depth and thickness of distinct soil or lithologic units.
   -A lithologic description of each unit.
   -A description of any man-made materials or apparent contamination.
   -Elevation of incoming water, if encountered.
   -Depth to groundwater and/or bedrock.
5. Using dedicated stainless steel spoons, collect soil samples as detailed in Section 2.1. Soil samples will be collected directly from the plastic sleeve of the probe core. Each soil sample will be placed directly into appropriate sample bottles/jars.
6. Carefully and clearly label the sample bottles and jars with the appropriate bottle label. Place each jar in an ice-filled cooler.
7. Use the chain-of-custody form to document the types and numbers of borehole samples collected and logged.
8. Record the time and date of sample collection as well as a description of the sample and any associated air monitoring measurements in the field logbook.
9. All excavated soil will be returned to the probe hole following completion of excavation activities at each individual trench location. Each probe hole will be backfilled and compacted prior to moving to the next.
10. Decontamination sampling equipment - Decontaminate all rods, shoes, and other geoprobe tools prior to commencing and between locations.

<u>Post Operations</u>

1. Organize field notes. All relevant information recorded in the field logbook and the Boring Log.
2. All samples should be shipped to the laboratory as soon as possible, but no more than 24 hours after being collected.

Reference: American Society for Testing Material (ASTM), 1992, ASTM D1586-84, Standard Method for Penetration Test and Split Barrel Sampling of Soils.

3.0 GROUNDWATER INVESTIGATION

3.1 Monitoring Well Installation Procedures

Summary

The following procedure outlines a NYSDEC-approved method of constructing groundwater monitoring wells within unconsolidated material which enables monitoring of groundwater elevation and acquiring groundwater samples for laboratory testing. The open hole method means you simply place the well screen and riser inside the drilled borehole. For this method to be used the borehole must remain open to the required total depth of the well. Stick-up or road box will be installed at completion. The following is a step-by-step method for the open-hole method of installing a monitoring well.

Procedure

1. Thread a cap on the bottom section of well screen.
2. If more than one section of well screen is required, thread it to the bottom section
3. Having the riser section close at hand lower the screen into the borehole.
4. Add the riser sections to the screen. Do not drop the screen in the borehole.
5. Add riser sections as required until the bottom screen section touches the bottom of the borehole.
6. If completing the well with a road box, mark the riser so it will be two inches below the lid of the road box and then cut the riser.
7. Place a slip cap over the top of the rise section.
8. Place sand in the space between the borehole and the PVC screen and riser to the depth the inspector request. Place the sand in very slowly so it does not bridge in the well bore.
9. Place bentonite and cement above the sand-pack.
10. Grout in the road box with concrete mix.

3.2 Well Development Procedures

Summary

Following completion of drilling and well installation, and no sooner than 24 hours after installation, each well will be developed by a surge block method followed by pumping or bailing until the discharged water is relatively sediment free and the indicator parameters (pH, temperature, and specific conductivity) have reached steady-state. Developing the well not only removes any sediment, but may improve the hydraulic properties of the sand pack. Well development water will be placed on the ground surface downgradient of the well.

The effectiveness of the development measures will be closely monitored in order to keep the volume of discharged waters to the minimum necessary to obtain sediment-free samples. Steady-state pH, temperature, and specific conductivity readings will be used as a guide for discontinuing well development.

Procedure

1) An appropriate well development method should be selected, depending on water level depth, well productivity, and sediment content of the water. Well development options include: (a) bailing; (b) manual pumping; and (c) submersible pumps. Any of these options may be exercised in concert with surging of the well screen using an appropriately sized surge block.

2) Equipment should be assembled, decontaminated, if necessary, and installed in the monitoring well. Care should be taken not to introduce contaminants to the equipment during installation.

3) Well development should proceed by repeated removal of water from the well until the discharged water is relatively sediment-free. Volume of water removed, pH and conductivity measurements, are recorded on the Well Development/Purging Logs.

4) Well development will occur no sooner than 24 hours after installation. Well development will continue until readings of <50 NTUs are obtained.

3.3 Groundwater Well Purging/Sampling

Summary

To collect representative groundwater samples, groundwater wells must be adequately purged to sampling. Purging will require removing three to five volumes of standing water in rapidly recharging wells and at least one volume from wells with slow recharge rates. Sampling should commence as soon as adequate recharge has occurred.

The wells will be sampled following procedures found in Section 3.5. The samples will be labeled and shipped following procedures outlined in Sections 6.0 and 7.0 and analyzed according to the program outlined in the QA/QC Plan (Appendix C).

3.4 Well Purging Procedures

Procedure

1) The well cover will be carefully removed to avoid any foreign material enter the well. The interior of the riser pipe will be monitored for organic vapors using a PID. If reading of greater than 5 ppm is recorded, the well will be vented until levels are below 5 ppm before pumping is started.

2) Using an electronic water level indicator, the water level below top of casing will be measured. Knowing the total depth of the well, it will be possible to determine the volume of water in the well. The end of the probe will be washed with soap and rinsed with deionized-water between wells.

3) Dedicated new polyethylene discharge and intake tubing (½ inch diameter HDPE) will be used for each well. Evacuation of the well will be accomplished using bailers. Bailing will continue until the required volumes are removed. If the well purges to dryness and recharges rapidly (within 15 minutes), water will continue to be removed as it recharges until the required volumes are removed. If the well purges to dryness and is slow recharge (greater than 15 minutes), evacuation will be terminated.

4) Purging will continue until three volumes of water have been removed. Well volumes will be calculated. Measurements for pH, temperature, turbidity, and conductivity will be recorded during the purging along with physical observations.

5) Well purging data are to be recorded in the field notebook and on the Well Development/Purging Log.

6) Groundwater monitoring well purge and development waters, will be handled, transported and disposed in accordance with applicable local, State, and Federal regulations. Dewatering, purge and development fluids will not be recharged back to the land surface or subsurface of the site, but will be managed off-site.

3.5 Groundwater Sampling Procedures

Procedure

1) Well sampling may be performed on the same date as purging at any time after the well has recovered sufficiently to sample, or within 24 hours after evacuation, if the well recharges slowly. If a well does not contain or yield sufficient volume for all required laboratory analytical testing, then a decision will be made to prioritize analyses. If a well takes longer than 24 hours to recharge, then a decision will be made after consultation with NYSDEC whether the sample will be considered valid.

2) After well purging is complete and the well has recharged sufficiently per the previous item, a sample will be collected by use of bailers into appropriate containers.

3) All sample bottles will be labeled in the field using a waterproof permanent marker. Procedures outlined in Section 6.0 will be followed.

4) Samples will be collected into verifiably clean sample bottles (containing required preservatives) and placed on ice in coolers for transport to the analytical laboratory. Chain-of-custody will be initiated. The analytical laboratory will certify that the sample bottles are analyte-free.

5) A separate sample will be collected into a 120 milliliter (mL) plastic specimen cup to measure pH, conductivity, turbidity, and temperature off the well in the field.

6) Well sampling data are to be recorded in the field notebook and on the Well Development/Purging Log.

4.0 SAMPLE DOCUMENTATION-SOIL/WATER

Summary

Each subsurface test pit and boring core will be logged in a bound field notebook during drilling by the supervising geologist. Field notes will include descriptions of subsurface material encountered during test pit and drilling, sample numbers and types of samples recovered from the test pits and wells. Additionally, the geologist will note time and material expenditures for later verification of contractor invoices.

Upon completion of daily drilling activities, the geologist will complete the Daily Drilling Record and initiate chain-of-custody on any samples recovered for geotechnical or chemical testing. Following completion of the drilling program, the geologist will transfer field logs onto standard boring log forms and well completion logs for the site investigation report.

5.0 SAMPLING CONTAINER SELECTION-SOIL/WATER

The selection of sample containers is based on both the media being sampled and the analysis of interest.

6.0 SAMPLE LABELING-SOIL/WATER

Summary

In order to prevent misidentification and to aid in the handling of environmental samples collected during the field investigation, the procedures listed below will be followed:

Procedure: Affixed to each sample container will be a non-removable (when wet) label. The sample bottle will be wrapped with 2-inch cellophane tape. Apply label and wrap with tape to cover label. The following information will be written with permanent marker:

1. Site name
2. Sample identification
3. Project number
4. Date/time
5. Sampler's initials
6. Sample preservation
7. Analysis required
8. Site name
9. Sample identification

10. Project number
11. Date/time
12. Sampler's initials
13. Sample preservation
14. Analysis required

Each sample of each matrix will be assigned a unique identification alpha-numeric code. An example of this code and a description of its components is presented below:

Examples:

1. PEI-BI-ss1
   Where: PEI= Panamerican Environmental, Inc.
   BI = Bush Industries
   SS-1 = surface soil sample 1

2. PEI-BI-TP1-2-3
   Where: TP1 = Test Pit 1
   2-3 = Sample Depth in feet

List of Abbreviations

Sample Type

TP	=	Test Pit
BH	=	Geoprobe Borehole
SW	=	Surface Water
SED	=	Sediment
SB	=	Soil Boring
SS	=	Surface Soil (0-2" depth)
MSB	=	Matrix Spike Blank
NSS	=	Near Surface Soil (1' - 2' depth)
EB	=	Equipment Rinse Blank
HW	=	Hydrant Water (Decon/Drilling Water)
GW	=	Groundwater
TB	=	Trip Blank
RB	=	Rinse Blank
MS/MSD	=	Matrix Spike/Matrix Spike Duplicate

7.0 SAMPLE SHIPPING-SOIL/WATER

Summary

Proper documentation of sample collection and the methods used to control these documents are

referred to as chain-of-custody procedures.

Chain-of-custody procedures are essential for presentation of sample analytical chemistry results as evidence in litigation or at administrative hearings held by regulatory agencies. Chain-of-custody procedures also serve to minimize loss or misidentification of samples and to ensure that unauthorized persons do not tamper with collected samples.

The procedures used in the pre-design field activities follow the chain-of-custody guidelines outlined in *NEIC Policies and Procedures*, prepared by the National Enforcement Investigations Center (NEIC) of the USEPA Office of Enforcement,

Procedure:

1) The chain-of-custody record should be completely filled out with all relevant information.
2) The white original travels with the samples and should be placed in a Ziplock bag and taped inside the sample cooler.
3) Place about 3 inches of inert cushioning material (such as vermiculite or zonolite) in bottom of cooler.
4) Place bottles in cooler so they do not touch (use cardboard dividers).
5) Put VOA vials in Ziplock bags and place them in the center of the cooler.
6) Pack bottles, especially VOA vials, in ice in plastic bags.
7) Pack cooler with ice in Ziplock plastic bags.
8) Pack cooler with cushioning material.
9) Put paperwork in plastic bags and tape with masking tape to inside lid of cooler.
10) Tape drain shut.
11) Wrap cooler completely with strapping tape at two locations. Secure lid by taping. Do not cover any labels.
12) Place lab address on top of cooler.
13) Ship samples via overnight carrier the same day that they are collected.
14) Put "This side up" labels on all four sides and "Fragile" labels on at least two sides.
15) Affix numbered custody seals on front right and left of cooler. Cover seals with wide, clear tape.

8.0 INDOOR/OUTDOOR AIR SAMPLING PROCEDURES

The indoor air and outdoor air sampling procedures are summarized below:

- Place the indoor air Summa canister/flow controller inlet at breathing height in the approximate center of the space being sampled, or, for the outdoor air sample, elevated on a table or other object in a location upwind of the building being sampled. The breathing height is defined as four to six feet above the floor or ground. As an option, a length of Teflon tubing can be attached to the Summa canister/flow controller inlet and raised to breathing zone height.

- Record the canister and flow controller serial numbers on the canister identification tag, COC and the Summa Canister Data Sheet
- Assign sample identification to the canister identification tag, and record on the COC and the Summa Canister Data Sheet.
- Remove brass plug from canister fitting and save.
- Attach a pre-calibrated/certified 8-hour flow controller and particulate filter to the Summa canister. For the outside air sample, also connect the laboratory supplied "candy cane" fitting to the flow controller.
- Open canister valve to initiate sample collection and record start time, date and gauge vacuum reading on the canister identification tag and on the Summa Canister Data Sheet provided by the laboratory..
- Take a photograph of canister setup and surrounding area.
- After 8 hours, record the gauge vacuum reading, close the Summa canister valve completely and record the end time on the Summa Canister Data Sheet. There should still be a slight vacuum in the Summa canister. If no vacuum remains in the canister, or the canister does not show a significant net loss in vacuum after sampling, the sample should be re-collected using a new Summa canister and flow controller.
- Disconnect any tubing and candy cane fittings from the Summa canister and remove the flow controller.
- Replace the brass plug on the canister.
- Ship canister, with COCs, overnight, to the selected laboratory

8.1 Quality Control

Field duplicates for indoor air and outdoor air samples will be collected by attaching the T-fitting supplied by the laboratory to two Summa canisters with attached regulators For indoor and outdoor air samples, any tubing used to raise the sampling height will also be attached to the inlet of the T fitting. For sampling, both Summa canister valves are opened and closed simultaneously.

8.2 Sample Labeling

Summary: In order to prevent misidentification and to aid in the handling of environmental samples collected during the field investigation, the following procedures will be used:

Procedure: Each sample will have the following information placed on the laboratory supplied sample label:

- Site name
- Sample identification – see below
- Date/time
- Sampler's initials
- Analysis required

The serial number of the canister and regulator used during sampling will also be noted on the Summa canister identification tag and on the COC.

Each indoor air and outdoor air sample will be assigned a unique alpha-numeric code. An example of this code and a description of its components is presented below (see also Section C7.0).

Field duplicate samples will be assigned a unique identification alphanumeric code that specifies the date of collection, the letters FD (for field duplicate) and an ascending number that records the number of duplicate samples collected that day. For example, the first field duplicate collected on February 22, 2009 would be assigned the following sample number using the code shown below:

YYYYMMDD-FD-1 = 20090222-FD-1

Subsequent duplicates collected on the same day will be assigned FD-2, FD-3 etc. Field sampling crew will record the duplicate sample information on the Summa Canister Data Sheets and also in the field book.

8.3 Field Documentation

Field notebooks will be used during all on-site work. A dedicated field notebook will be maintained by the field technician overseeing the site activities. Sampling procedures should be photo-documented.

The field sampling team will maintain sampling records that include the following data:

- Sample Identification
- Date and time of sample collection
- Identity of samplers
- Sampling methods and devices
- Purge volumes (soil vapor)
- Volume of soil vapor sample extracted
- The Summa canister vacuum before and after samples collected
- Chain of Custody and shipping information

The proper completion of the following forms/logs will be considered correct procedure for documentation during the indoor air-sampling program:

1. Field Log Book - weather-proof hand-bound field book
2. Summa Canister Data Sheet
3. Chain of Custody Form

8.4 Sample Shipping

Summary: Proper documentation of sample collection and the methods used to control these

documents are referred to as chain-of-custody procedures. Chain-of-custody procedures are essential for presentation of sample analytical chemistry results as evidence in litigation or at administrative hearings held by regulatory agencies. Chain-of-custody procedures also serve to minimize loss or misidentification of samples and to ensure that unauthorized persons do not tamper with collected samples.

The procedures used in this off-site vapor intrusion study follow the chain-of-custody guidelines outlined in NEIC Policies and Procedures, prepared by the National Enforcement Investigations Center (NEIC) of the U.S. Environmental Protection Agency Office of Enforcement.

Procedure:

- The chain-of-custody (COC) record should be completely filled out, with all relevant information.
- The original COC goes with the samples. It should be placed in a Ziplock bag and placed inside the box containing a Summa canister. The sampler should retain a copy of the COC.
- Summa canisters are shipped in the same boxes the laboratory used for shipping.
- Place the lab address on top of sample box/cooler. Affix numbered custody seals across box lid flaps and cooler lid. Cover seals with wide, clear tape.
- Ship samples via overnight carrier within three days of sample collection if possible.

8.5 Field Sampling Instrumentation

Owned and rented field sampling equipment will require no maintenance beyond decontamination between sampling locations. The use of disposable filters for photoionization detectors, if used, is recommended. Calibration procedures for electronic instruments can be found in the equipment operating manuals. Calibration and maintenance procedures for the common instrumentation that will be used during field investigations are discussed in the equipment operating manuals. A copy of the manufacturer's operating manual for each instrument will be kept with the instrument or the operator. All field sampling equipment will be calibrated as recommended by the manufacturer. The calibration procedures and results will be recorded in the field notebook.

9.0 Sub-Slab Soil Vapor Sampling Procedures

Sub-slab soil vapor samples will be collected through Teflon tubing connected to existing sub-slab extension test ports or inserted through separate holes in the slab that drilled with an electric hammer drill. Tubing through separate holes will be sealed to the slab floor with modeling clay. The integrity of the clay seal will be tested using helium tracer gas inserted into an enclosure placed above the clay seal. Prior to sample collection, approximately ½ liter of sub slab soil vapor will be collected from the sub slab and checked for the presence of helium. Samples will be collected over a targeted 8-hour time period using 6-liter Summa® canisters equipped with flow controller valves pre-calibrated at the laboratory. Sample collection will be initiated by turning on a valve built into the Summa canister. Sample collection will be terminated by shutting off the valve after the vacuum in the canisters had reached approximately minus 3 inches of mercury.

Sub slab soil vapor sample collection and helium testing procedures will follow those described in the October 2006, New York State Department of Health *Guidance for Evaluating Soil Vapor Intrusion in the State of New York.*

Sections 8.1 through 8.5 above will apply to the sub-slab soil vapor sampling Procedures as applicable.

APPENDIX H

SITE WIDE INSPECTION & MAINTENANCE FORMS

Panamerican Environmental. Inc
2390 Clinton Street
Buffalo, New York

SITE WIDE INSPECTION FORM

Date:
Site Name:
Location:
General Site Conditions:
Weather Conditions:
Compliance/Evaluation ICs and ECs :
Site management Activities (sampling, H & S Inspection, etc.) :
Compliance With Permits and O & M Plan:
Records Compliance:
General Comments:
INSPECTOR'S NAME:

ROUTINE SUB SLAB DEPRESSURIZTION SYSTEM MAINTENANCE FORM

Date: _____

1-Name, company, and position of person(s) conducting maintenance activities:

2-Maintenance Activities Conducted:

3-Any Modifications to the System Noted:

4-Location of Any Problems or Incidents Noted (attached sketches photos as appropriate):

5-Other documentation such as copies of invoices for maintenance work, receipts for replacement equipment, etc., (attached to this form)

NON-ROUTINE SUB SLAB DEPRESSURIZTION SYSTEM MAINTENANCE FORM

Date: _____

1-Name, company, and position of person(s) conducting maintenance activities:

2-System Alarm Triggered Maintenance Yes or No:

3-Location of Any Problems or Incidents Noted (attached sketches photos as appropriate):

4-Maintenance Required to Re-Activate System (fan repair, electrical problem, pipe leak, other):

5-Any Modifications to the System Noted:

6-Other documentation such as copies of invoices for maintenance work, receipts for replacement equipment, etc., (attached to this form)

SSDS-GENERAL EQUIPMENT MONITORING AND TESTING FORM

Date: _____

1-Name, company, and position of person(s) performing Monitoring activities:

2-Complete a visual inspection of the SSDS system (e.g., vent fan, piping, pressure switches, autodialer, labeling on systems, vacuum monitoring points, etc.) Yes or No- For problems noted complete 6 below:

3-Identification of leaks or system malfunctions -Yes or No (if yes, complete 6 below):

4-Verified no air intakes have been located nearby SSDS exhaust or discharge points -Yes or No (if nearby air intakes are noted notify Building superintendent and complete 6 below):

5-The alarm system and pressure switches were tested during each monitoring event by disconnecting the tubing from each pressure switch and verified that an alarm is activated and the autodialer calls the correct phone - Yes or No – System problems-Complete 6 below:

6-Location/Maintenance Required of Any Problems or Incidents Noted Above (attached sketches, photos, maintenance forms as appropriate):

APPENDIX I

DEPRESSURIZATION SYSTEM – EQUIPMENT MANUFACTURING MANUALS, GUIDES AND MAINTENANCE INFORMATION

GUARD-IT®

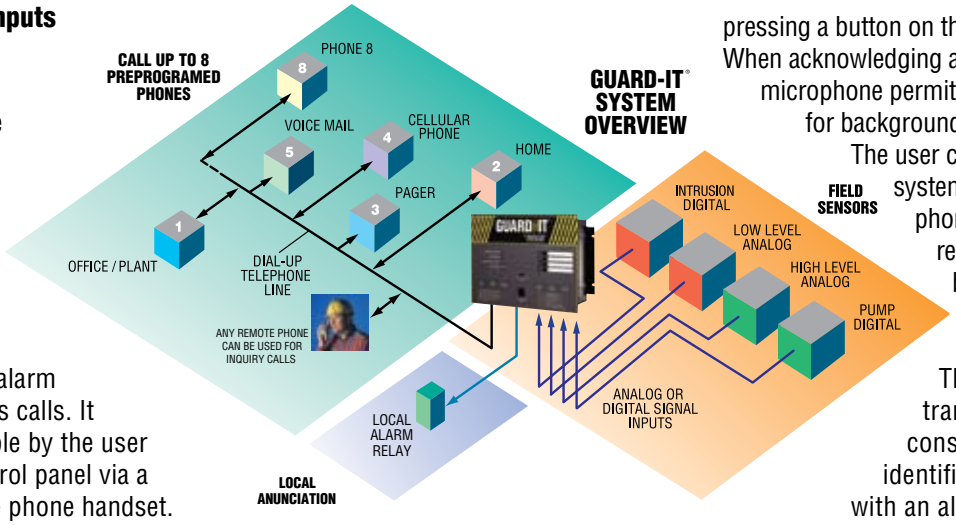
SINCE 1948
RACO®
REMOTE ALARMS AND CONTROLS

...a new low-cost autodialer with flexible features for dependable Alarm Autodialing and Remote Monitoring.

GUARD-IT® delivers the functionality you need, and it's backed by RACO's reputation for dependability, quality, service and factory support.

Analog or Digital Inputs

GUARD-IT monitors four input channels. Each channel can be configured for an analog or digital signal input. The system utilizes the public telephone network as a basic medium for transmission of alarm messages and status calls. It is field-programmable by the user at the system's control panel via a standard touch-tone phone handset.



Automatic Alarm Reporting

Upon detection of an alarm condition, GUARD-IT automatically calls a list of up to eight preprogrammed phone numbers over the standard dial-up telephone network, calling until it gets an acknowledgement. When a connection is made, the system reports the station identity and the specific alarm condition in the form of a digitally prerecorded voice message. In addition to standard phones in office, plant or home, the alarm calling sequence can also include calls to pagers, cellular phones and voice mail.

Alarm Acknowledgement

An alarm is acknowledged simply by pressing a button on the called phone. When acknowledging an alarm, a built-in microphone permits the caller to listen for background sounds at the site. The user can also call the system from any remote phone for a status report of all points being monitored.

Voice Messaging

The voice transmission consists of a station identification, together with an alarm message, giving details on the fault. The station identification and alarm messages are digitally recorded by the user. RACO pioneered the concept of using digitally recorded and synthesized voice messages in autodialers. By using electronic voice reporting technology, GUARD-IT eliminates the need for often unreliable audio tape autodialers.

GUARD-IT®

Set-up and Programming

System set-up, voice recording and programming is accomplished via an external touch-tone phone that plugs into a standard phone jack on the system's front panel. The user simply follows voice instructions given over the phone.

System Controls

System operating status is provided by front panel LED indicators. System off / disarm / ready controls are provided on front panel. Surge protection and noise suppression are standard.

A Truly Modern Autodialer

GUARD-IT fills the requirement of a modern autodialer — it should be extremely reliable and able to tell the called party as much information about the nature of an alarm as possible, so the right personnel can respond quickly and appropriately. Many other autodialers don't meet these requirements.

Compare GUARD-IT with all the others and you will see that this multi-featured system offers a way to get RACO flexibility, quality and dependability at a price you'd expect to pay for one of the budget models.

Specifications

ELECTRICAL

Power Requirements: User supplied 10–14 VDC, 500 mA max.

Power Consumption:
200 mA minimum standby
500 mA maximum active

Power Failure: Automatic alarm for external power failure.

Battery Charging: Precision voltage controlled, automatic rapid recharge after drain.

Universal Signal Inputs:
Digital Inputs: Open contacts see 5 VDC; closed contacts see 5 mA DC.

Analog Inputs: 4–20 mA, single-ended. Maximum voltage drop 10 VDC. Resolution 0.2%; absolute accuracy 0.5%.

Local Alarm Relay: Transistor output for TTL or relay drive (500 mA 24 VDC max) activated during unacknowledged alarm.

RJ11 Telephone line jack for connection to public telephone network.

PHYSICAL

Surge Protection: Solid state protectors on phone, power and signal lines.

Enclosure: Single circuit card in durable steel cabinet designed for mounting on control panel wall or flush-mounted inside a larger control panel with faceplate visible.
Weight: 4 lbs., 6 lbs. with battery
Dimensions: 6.85" H × 8.85" W × 2.85" D
Mounting Centers: 3.6" H × 9" W

ENVIRONMENTAL

Temperature Range: 20° to 130°F.

Humidity: 0 to 95%, noncondensing.

TELEPHONE

Rotary pulse or tone dialing.

Dials up to eight different numbers, each up to 60 digits long.

Time between alarm phone calls programmable to 0.1 to 99.9 minutes.

Smart calling call progress monitoring detects dial tone, basic ringback and busy signal.

Alarm acknowledgement by touch-tone key or callback.

Compatible with most pager, cellular and voice mail systems.

FCC-registered.

PROGRAMMING

Standard phone jack on front panel for programming phone. Voice menu instructions guide programming.

SPEECH MESSAGES

User digitally records five messages, station ID and four channel alarm messages. High-definition digital recordings up to 12 seconds per message. Resident synthesized voice vocabulary for programming guidance.

FACTORY OPTIONS

Power Supply: UL Class 2 120 VAC 50/60 Hz adaptor.

Backup Battery: Internal 6 volt; 4 AH gel cell provides 20 hours operation during power failure.

NEMA 4X enclosure.

Cellularm® cellular communication system.

WARRANTY

Two-year parts and labor warranty. See separate warranty card for details.

CLICK ON THE LINKS BELOW TO ACCESS MORE INFORMATION

- Product Info
- Manuals
- CAD Drawings
- Order Online
- Tech Support

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RACO®
REMOTE ALARMS AND CONTROLS

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#155 7.5M 1/11 Printed in USA

RACO - Remote Alarms & Controls

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Website www.racoman.com

Project name RACO_GUARD-IT
Drawing Number DRW050708
Project description **RACO Guard-IT**

Number of pages 3

GUARD-IT

Phone Jack

PLAIN OLD TELEPHONE
FOR PROGRAMMING

NOTE: THE INPUT CHANNELS ON TERMINALS X1 THRU X8 ARE USER PROGRAMMABLE TO ALARM ON ANY OF THE FOLLOWING:
1. OPEN CIRCUIT,
2. CLOSED CIRCUIT,
OR
3. ANALOG HIGH AND/OR LOW ALARM SETPOINTS (4-20mA).

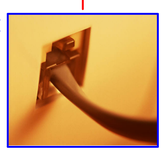
ALARMS ARE CAPABLE OF BEING INDEPENDENTLY PROGRAMMED.

SAMPLE WIRING SHOWN BELOW

INP1 C1 INP2 C2 INP3 C3 INP4 C4 DAO BAT 12V COM
1 2 3 4 5 6 7 8 9 10 11 12

PE

REMOTE PHONE



USER DEFINED FIELD WIRING

X1
1 INP1(+) 1
2 COM 2
3 INP2(+) 3
4 COM 4
5 INP3(+) 5
6 COM 6
7 INP4(+) 7
8 COM 8
9 DAO(+) 9
10 BAT(+) 10
11 +12VDC 11
12 COM 12

FS01 18 17
TYPICAL: 5VDC, 5mA WHEN CLOSED

LS02 12 11

ANALOG INPUT
(4-20mA) FIELD POWERED
5
6

CR01 13 14

CUSTOMER SUPPLIED
12VDC POWER

DIGITAL ALARM
OUTPUT (DAO)
1
2

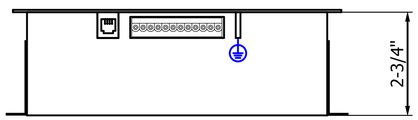
X1
COM
BATTERY

OPTIONAL USER
SUPPLIED 6VDC
EXTERNAL BATTERY

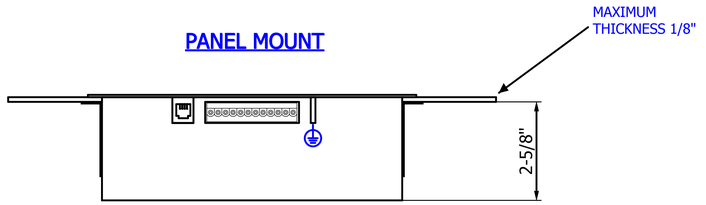
NOTE: **ALL COMMONS ARE EQUAL, NOT ISOLATED**

SINCE 1948 RACO REMOTE ALARMS AND CONTROLS	Project name: RACO_GUARD-IT	Page Description: Guard-It Wiring	Customer: RACO - Remote Alarms & Controls 1400 62nd Street Emeryville, CA 94608	Modification	Date	Name	Ed. by	Date	Name	Original:	Guard-It Wiring	Higher-level function: =	Mounting location: +
										Approved by:			
							Appr	2008.11.06	PYH	Checked by:	Commission: ???		Page: 2
										Previous page: 1	Total no. of pages: 3	Page Group: 3	Next page: 3

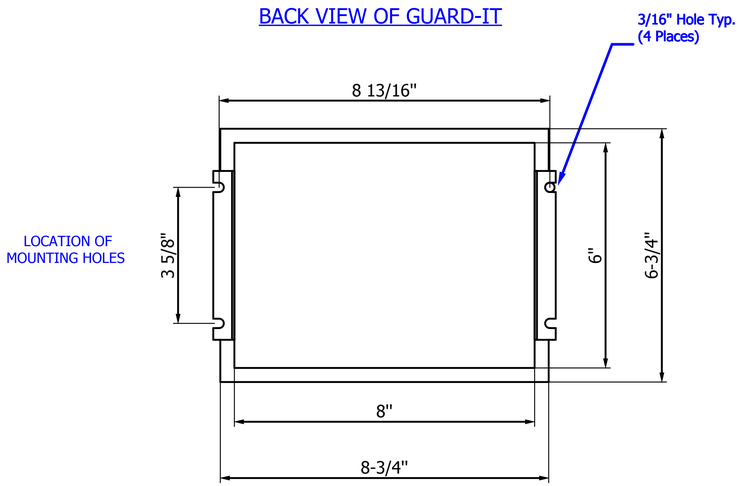
WALL MOUNT



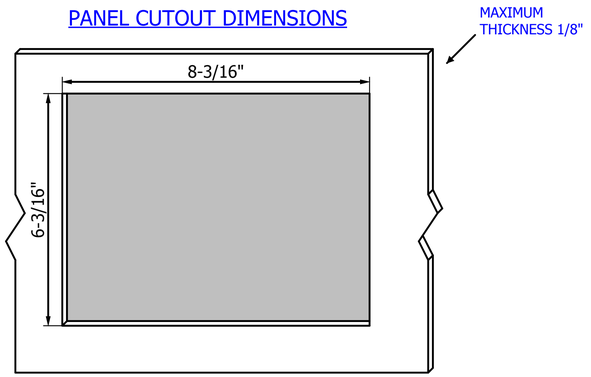
PANEL MOUNT



BACK VIEW OF GUARD-IT



PANEL CUTOUT DIMENSIONS



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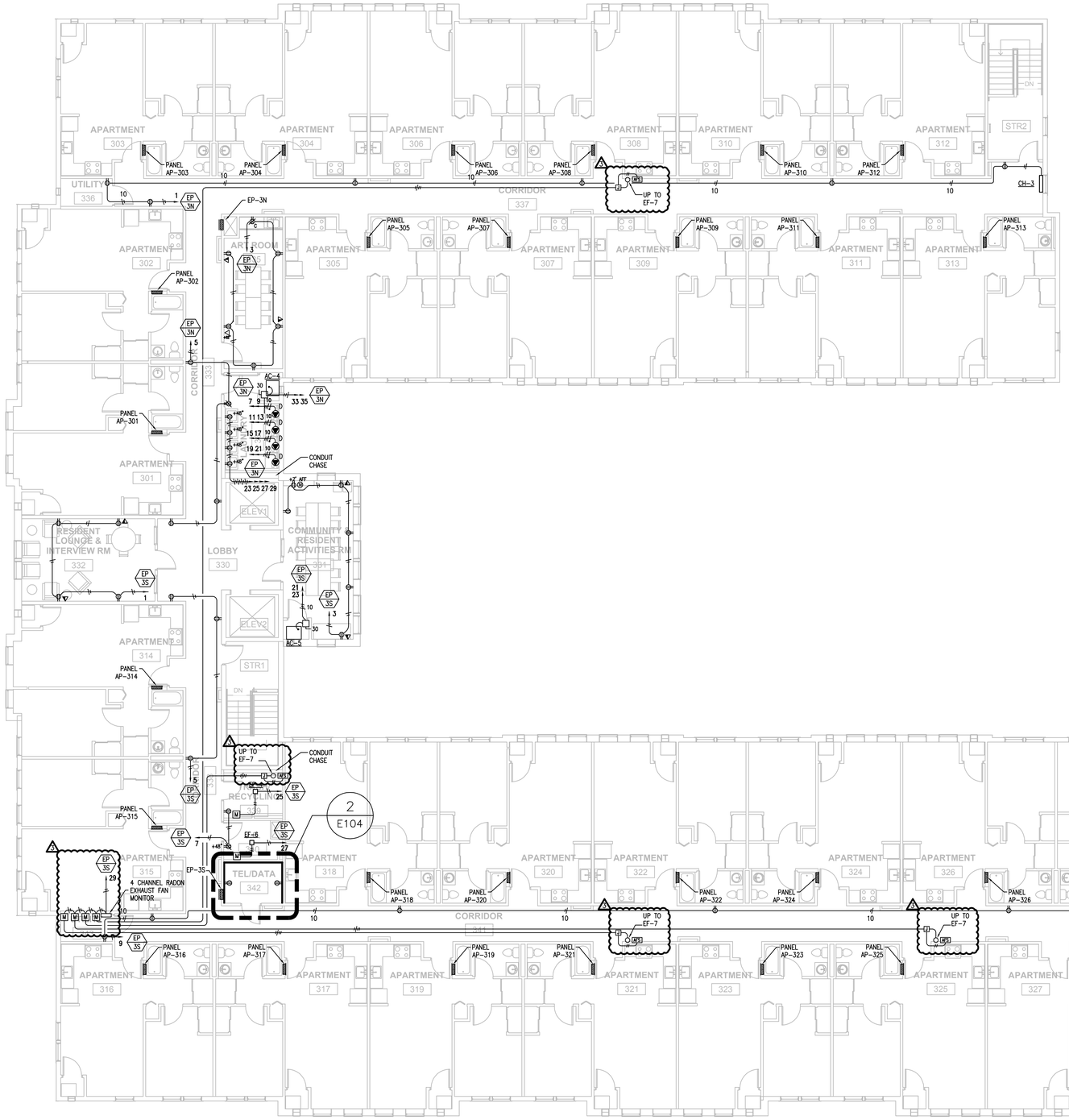
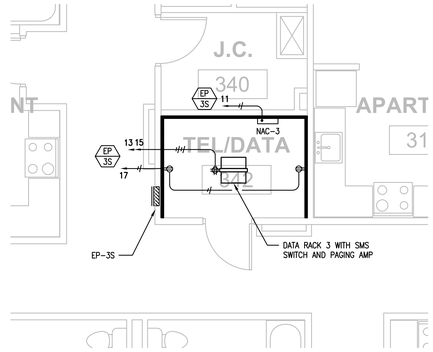
							Appr	2008.11.06	PYH	Checked by:	Commission: ???		Page: 3
										Previous page: 2	Total no. of pages: 3	Page Group: 3	Next page:



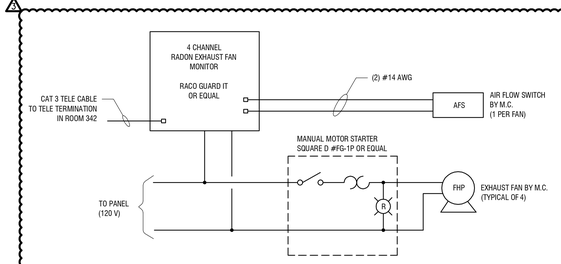
1 E104 THIRD FLOOR ELECTRICAL PLAN

SCALE: 1/8"=1'-0"



2 E104 TEL/DATA 342 ELECTRICAL PLAN

SCALE: 1/8"=1'-0"



3 E104 TYPICAL RADON EXHAUST FAN WIRING SCHEMATIC

SCALE: N.T.S.

RECORD DRAWINGS

5/4/12 LH

FREY ELECTRIC
ISO 9001 CERTIFIED

Eastman Commons at 1630 Dewey Ave.

Rochester, NY 14615

Norstar Development USA, L.P.

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Buffalo, NY 14204

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architects // engineers // planners

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Rochester, New York 14614-1909

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fax: 585.232.4652

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REVISIONS

NO.	DATE	DESCRIPTION	REV.	CK'D
1	4/1/11	IB-7	TWW	TGB
2	5/16/11	IB-10	TWW	TGB
3	5/20/11	IB-10 REV1	TWW	TGB

THIRD FLOOR ELECTRICAL PLAN

Project Manager: J. ISTVAN, AIA
Designed by: L. HANVEY
Drawn by: L. HANVEY
Checked by: T. BUCHER
Date Issued: 11/18/09
Scale: AS NOTED
Date

Project Number: 8222.00
File Name: 822200E104.dwg

Drawing Number:

E104

GUARDIT™

Owner's Manual

SINCE 1948

RACO®

REMOTE ALARMS AND CONTROLS

Warranty

Raco Manufacturing and Engineering Co. Inc., warrants this product to be in good working order for a period of two years from the date of purchase as a new product. In the event of failure of any part(s) (excluding batteries), due to defect in material or workmanship occurring within that two year period, Raco will, at it's option repair or replace the product at no charge for parts or labor. All billable repairs after the two year period will carry a ninety day warranty. Any alteration of the product without instruction from Raco's Engineering Department will automatically void this warranty. If alterations of the unit are authorized by Raco, please complete the authorization form in the Owners Manual and return the form to Raco to ensure the warranty. Under no circumstances will Raco be responsible for consequential or secondary damages.

The defective product should be returned, insured and freight prepaid, securely packaged to the address listed below. Please call Customer Support at 800 449-4539 for a Return Authorization Number. Customer Support will be available from 8:00 a.m. to 4:30 p.m. (PST), Monday through Friday (excluding holidays). When you call Customer Support with a technical problem or to request a Return Authorization number please have the products serial number and a detailed description of the problem you are experiencing.

Raco Manufacturing and Engineering Co. Inc.
Customer Support
1400 62nd Street
Emeryville, California 94608

Copyright

Disclaimer

Every effort has been made to ensure the accuracy of this document. However, Raco Manufacturing and Engineering Co. assumes no responsibility for its use or any third party action as that may result from its use.

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RACO is a registered trademark of Raco Manufacturing & Engineering, Co.

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1-800-722-6999
FAX # 1-510-658-3153

World Wide Web http://www.manufacturing.net/raco

Table of Contents

1 Product Overview

1.1 Product Description

The Guard-It™ alarm autodialer is designed to monitor conditions at remote facilities and place alarm notification telephone calls to personnel, delivering specific pre-recorded messages.

Users may also call the product at any time from any telephone, to check for alarm conditions.

Four signal inputs are provided for monitoring. The signals which the user connects to these four inputs may be any combination of contact closure, digital logic level, or analog 4-20 ma current loop. In addition, the product monitors the 12 volt DC power connected to it, and if an optional rechargeable battery has been installed, it will place alarm calls to report power failures.

The product will work with any standard dial-up public telephone line, as well as with the available Cellularm™ option. Leased lines are not required.

Using a programming phone at the front panel. the user may pre-record informative, high-fidelity voice messages up to 12 seconds in length, for each of the four input channels, plus a station identification message which is played during every phone call.

The user may program up to 8 phone numbers, which may be up to 60 digits in length. The product may also be programmed to call numerical display pagers in addition to regular phone numbers.

If desired, the user may program a number of detail parameters such as alarm trip delays, ring answer delays, etc.

A special Call Progress function may be turned on, which allows the product to detect busy signals and move automatically to the next programmed phone number, delay the voice reporting until the called phone has answered, and move to the next phone number if a programmable maximum number of rings has been exceeded.

A phone line fault monitor function may also be turned on, which detects the disconnection or failure of the phone line.

Informative, multi-color front panel LED’s advise local personnel at a glance of any problems.

The product may be mounted on a back surface, or flush into a larger front panel, or as a stand-alone circuit board.

The Guard-It™ autodialer is ruggedly built to a high standard of quality by the world leader in industrial alarm autodialers. It includes internal noise filters and surge protection on all signal, power and phone line inputs, and is built for many years of reliable service.

1.2 Manual Description

This manual guides you through the following procedures:

- Location and mounting
- Initial programming
- Voice message recording
- Using Your Guard-It™ autodialer
- Advanced programming

A glossary explaining the terms used in this manual is included the end of the manual, along with a troubleshooting guide, an index, a return authorization form, and FCC notice to users.

Worksheets are provided to document and clarify your programming and message recording steps.

Please take a moment to read, complete, and mail the warranty registration card at the back of this manual.

1.2.2 Conventions

Throughout this manual various icons are used to visually identify information. They are as follows:

◆ The solid diamond symbol shows a list of procedures, decisions, or single step tasks.

● The bullet symbol shows a list of items.

The bomb indicates a warning message. The information concerns process that may result in damage to equipment or harm to a person.

The hand indicates a caution message. The information concerns a process that may result in equipment failure.

The pencil indicates general information.

The open diamond pattern indicates one or more exceptions or special considerations for a process.

The phone indicates that you can access the Guard-It™ autodialer through your phone.

1 INPUT CONFIG.	Other icons include menu indicators as seen on the Guard-It™ autodialer front panel.

"items in quotes"	Quotation marks indicate titles of sections and messages.
italic	Italic text indicates items for emphasis, message text, and sample text.
ALL CAPITALS	Capital letters reference the names of keys, lights, and LEDs.
Initial Capital Letters	Capitalization of the first letter of a set of words indicates mode and function types.

2 Installation

2.1 Mounting Location

Ideally, the Guard-It™ autodialer and the wiring connected to it should be located away from heavy duty power wiring and wiring which is likely to emit substantial electrical interference. The location must be free of condensing moisture, and must remain within a temperature range of 20 to 120 degrees F for proper operation. Allow clearance room for the plug-on connector block and phone line connectors at the bottom.

The product should be located within 5 feet of an RJ11 telephone line jack, otherwise a telephone extension cord will be needed to make the phone line connection.

If you are using the optional 12 VDC wall adaptor to power the product, you will need a 120 VAC electrical outlet to plug the adaptor into. The product should be located within five feet of this outlet; otherwise it may be necessary to splice in additional wire length for the 12 VDC line.

2.2 Mounting Onto A Back Surface

Referring to the diagram, attach the mounting brackets to the product. Prepare the back surface by drilling pilot or clearance holes for the mounting screws. The mounting centers are 3.6" high by 9" wide. #8 Wood screws, self tapping screws and machine screws (with lock washers and nuts) are provided to accommodate a variety of back panel materials. Refer to the diagram (See Appendix F).

2.3 Mounting Flush Into A Front Panel

To mount the product flush into a larger front panel (maximum panel thickness 1/8"), you will need a rectangular cutout in the panel to clear 6-3/16" high by 8-3/16" wide. Slide the product into the opening from the front, and use the 6-32 screws to attach the two mounting brackets to the product in the proper orientation so that they hold the product firmly in place against the larger front panel. Refer to the diagram (See Appendix F).

2.4 Mounting Without An Enclosure

To mount the product as a circuit board only, open the enclosure via the two screws on each side of the enclosure, lift out the front panel, and then remove the four screws which secure the circuit board to the front panel. Pass appropriate mounting screws (not provided with product) through the white nylon standoffs to mount the circuit board to a back surface. The small inner panel is printed with markings to identify the LED's and switch functions.

2.5 Mounting With Cellularm™ Option

If your Guard-It™ autodialer was ordered with the Cellularm™ (cellular wireless) option, the product comes pre-mounted in the Cellularm™ enclosure. Follow the mounting instructions provided for the Cellularm™ option. Refer to the diagram (See Appendix F).

3 Wiring Connections

Note:

Note that the connector block is unpluggable for convenience in making wiring connections.

3.1 Power Connections

The Guard-It™ autodialer requires 8 to 16 VDC power connected to the connector block, in order to operate.

The power source should be capable of delivering a current of 500 milliamperes.

Power must be connected observing the correct polarity. Refer to the diagram.

3.2 Connecting To Electrical Ground

Your Guard-It™ autodialer has several internal protective devices built in. However, for them to work effectively it is important that the product be well grounded. A grounding wire with a terminal lug is included on the product for this purpose.

If the Product is mounted to a grounded metal back surface, then simply connect the terminal end of the wire to the lower right hand mounting screw as shown in the diagram.

If the product is not mounted to a grounded metal back surface, connect the end of the wire to the nearest available electrical grounding point. If the installation is within a grounded metal electrical panel or enclosure, connecting to the metalwork will be sufficient. If you need to extend the ground wire, use 18 gauge wire or heavier, and keep the total length as short as possible.

This grounding wire will also ground the (-) side of the incoming 12 VDC power. If you are using a pre-existing source of 12 VDC power, you will need to verify that the grounding of the (-) side of this supply will not cause a problem.

3.3 Phone Line Connection

Plug one end of the supplied telephone extension cord into the telephone line jack located to the left of the connector block (not the programming jack located on the front panel). Plug the other end of this same cable into a telephone line (RJ11) jack.

Caution:

The phone line must be such that a standard telephone set can work on it. *Certain in-house PABX phone systems have "digital" line connections which can damage the product!*

Ideally this phone line should be for the exclusive use of the Guard-It™ autodialer. However, the product will generally function if there is an extension phone on the same line, as long as that extension phone is not in use when it is time for the Guard-It™ to place or receive a phone call.

3.4 Input Signal Connections

The four signal inputs on the Product can be used with several different types of input signals, in any combination.

3.5 Connecting Unpowered ("DRY") Contact Inputs

Connect unpowered contact inputs as shown in the diagram. Each input has two input connection points. The points marked "C" are internally connected together and to common ground.

Warning:

Before making any such connections, verify that there is *no electrical power present on the signal wires,* otherwise serious damage to the product could result.

3.6 Connecting Analog or Digital Logic Signal Inputs

Refer to Appendix A regarding analog signal inputs and Appendix B regarding digital logic signal inputs.

3.7 Optional Digital Alarm Output (DAO) Connections

The digital alarm output circuit activates whenever there is an unacknowledged alarm. It deactivates whenever such alarms are acknowledged. It may be used to power a customer supplied 12 VDC relay, or to drive a 5 volt logic circuit. See appendix C for details.

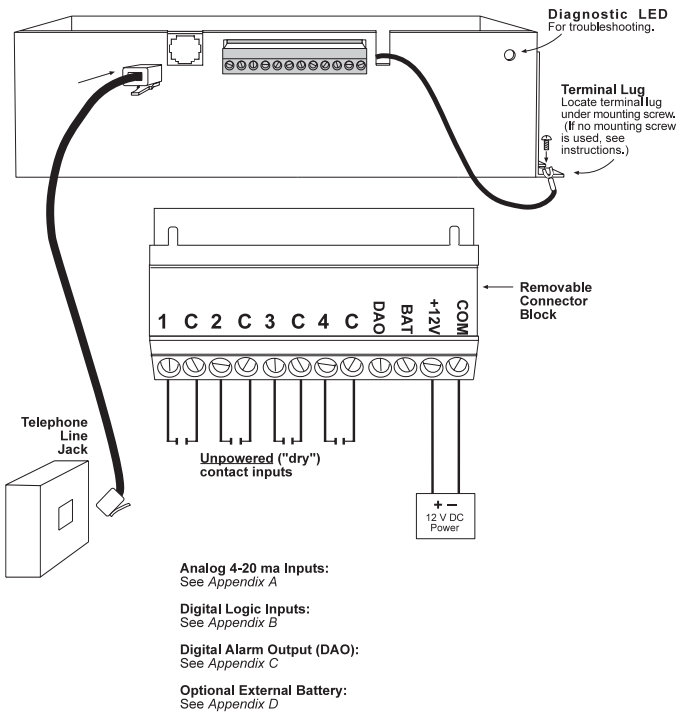
3.8 Optional External Battery Connections

The Product may be used with a customer-supplied external 6 VDC (not 12 VDC) gel cell lead acid battery for backup during power failure. An internally mounted gel cell battery is also an available as an option from Raco. Refer to appendix D if using an external gel cell battery.

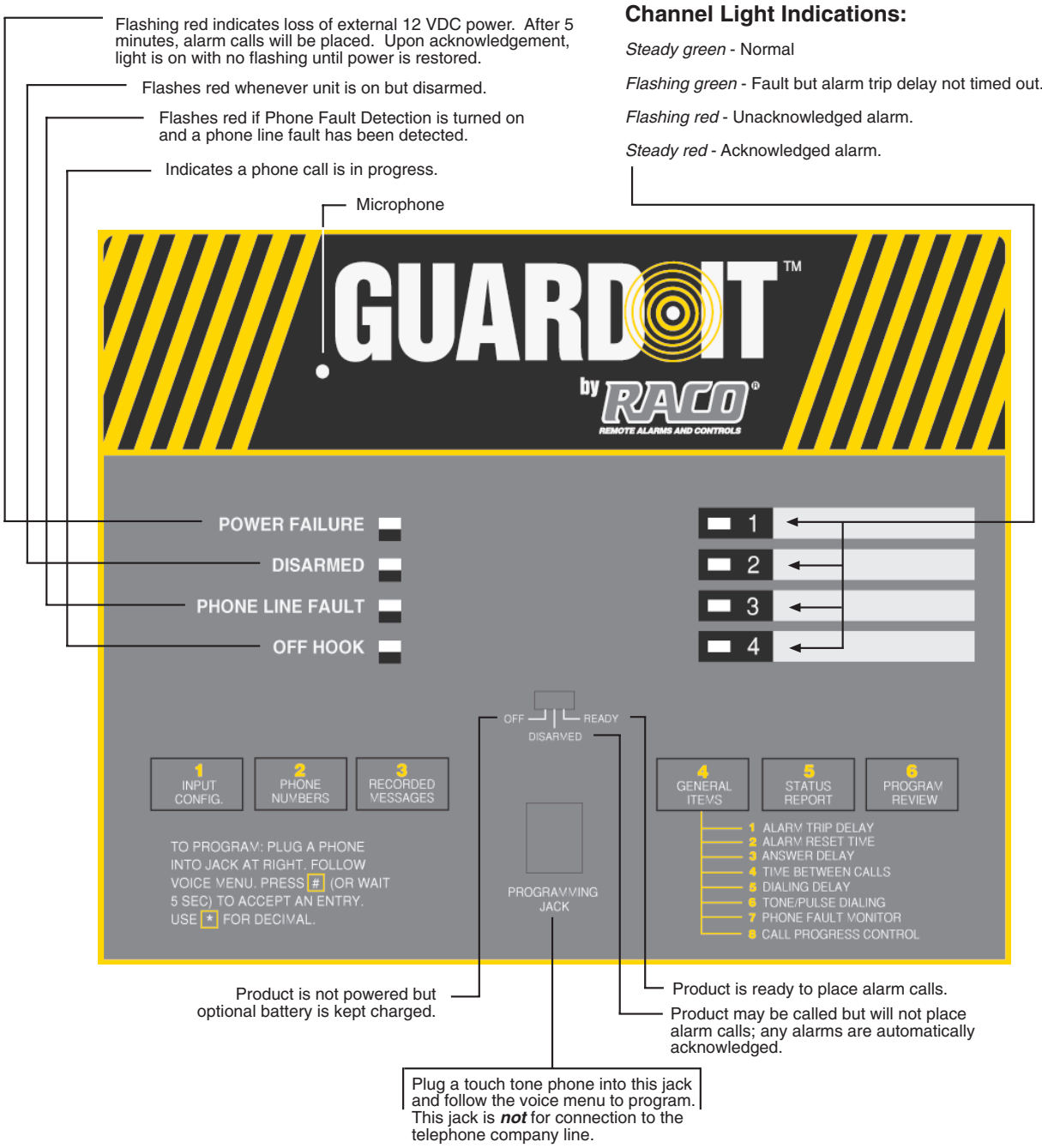
3.9 Writing Channel Descriptions In White Bar Areas

You may want to use the white bar area to the right of each of the four input channel status LED's, to write in short descriptions of what each input channel is being used to monitor. You may use a plain lead pencil (which is erasable), or a marker pen.

Basic Wiring Connection Diagram



Guard-It™ Front Panel Diagram



4 Programming Your Guard-It™ Autodialer

4.1 Programming Menu

To program your Guard-It™ autodialer, you will need a standard touch-tone telephone.

Telephones which have the keypad located separately from the handset, are most convenient for this purpose.

Just plug the telephone temporarily into the Programming Jack on the front panel of the product, lift the receiver, and follow the voice menu to enter your programming and record your voice messages.

If you do not make any selection from the "top" menu, it will be repeated once and then the program mode will be terminated.

To begin again, simply hang up the programming phone for a second or so, and then pick it up again. You may do this from most places in the programming menu, whenever you want a fresh start.

For most programming items, you will hear the present programming entry if any, and then you will be given a chance to either accept this existing entry by pressing pound (#), or else make a new entry.

If you make a new entry, it will be repeated back to you for confirmation.

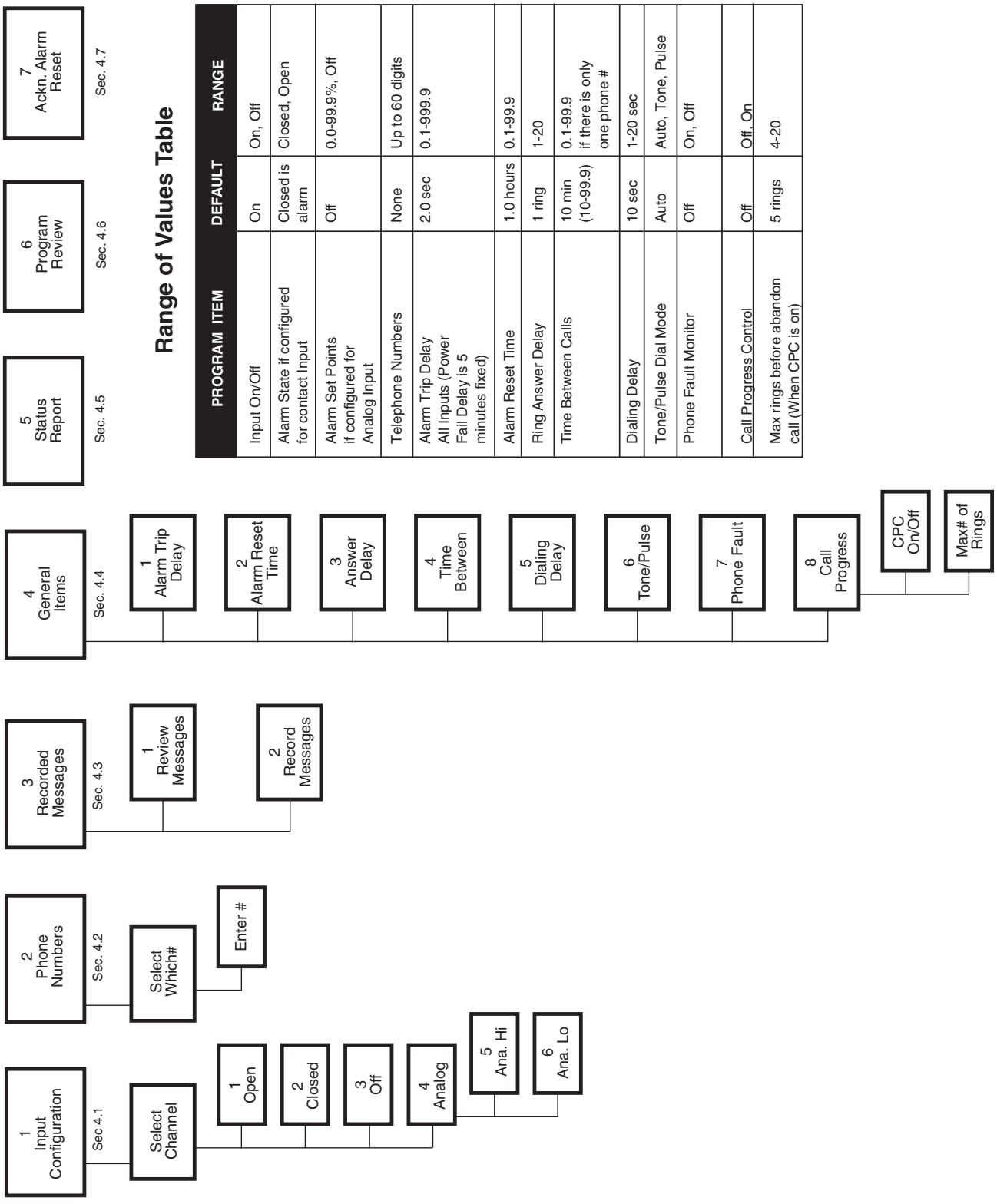
In general, pressing the pound (#) key will cause whatever you have keyed in to be accepted and recited back for confirmation.

When keying in a menu choice rather than a value, the choice will be accepted and recited without need to press pound (#).

Pressing the pound (#) key when you have not keyed in any entry, will generally return you to the previous menu level.

If you make an entry that the Product considers invalid, it will respond with a statement, *"Value fault. Enter a new value."* The previous valid setting will be retained and restated, and then you will be prompted to make a new entry if you wish to do so. This would occur, for example, if you entered a value that was outside the allowable range of values for that programming item.

Guard-It™ Programming Flow Chart



Range of Values Table

PROGRAM ITEM	DEFAULT	RANGE
Input On/Off	On	On, Off
Alarm State if configured for contact Input	Closed is alarm	Closed, Open
Alarm Set Points if configured for Analog Input	Off	0.0-99.9%, Off
Telephone Numbers	None	Up to 60 digits
Alarm Trip Delay All Inputs (Power Fail Delay is 5 minutes fixed)	2.0 sec	0.1-999.9
Alarm Reset Time	1.0 hours	0.1-99.9
Ring Answer Delay	1 ring	1-20
Time Between Calls	10 min (10-99.9)	0.1-99.9 if there is only one phone #
Dialing Delay	10 sec	1-20 sec
Tone/Pulse Dial Mode	Auto	Auto, Tone, Pulse
Phone Fault Monitor	Off	On, Off
Call Progress Control	Off	Off, On
Max rings before abandon call (When CPC is on)	5 rings	4-20

Refer to the table later in this section, for a listing of the initial default values and allowable range of values which you can program, for each programming item.

Note:

If you delay more than five seconds without pressing any new key, the Product will treat this the same as pressing the pound (#) key, except when recording messages.

Also note that your Guard-It™ autodialer will not respond to new alarm conditions while you are programming. The LED's will generally remain in the state they were in prior to the beginning of the programming session, until a few seconds after the programming session has ended. Most program changes do not take effect until you end the programming session. The same is true during an alarm call; messages for new alarms are not included in a call that is already underway.

4.1.1 Input Configuration

1 INPUT CONFIG.

The default input configuration for each of the four input channels is *contact input, alarming on closed circuit*.

If you need a different configuration, after selecting [1] from the top menu, you must select which of the four available input channels (first, second, etc.) you want to configure. The voice menu will ask you for this number which will be a number from 1 to 4.

After you select the input channel number to configure, the voice menu will prompt you with the following choices:

- [1] Alarm on Open Circuit
- [2] Alarm on Closed Circuit (which is the default setting)
- [3] Off (so that this input channel will not report or activate its corresponding front panel LED)
- [4] Analog (4-20 ma current loop) signal.

If an input channel is configured for an analog signal, the menu also gives you two additional choices:

- [5] To program an analog high alarm level set point value
- [6] To program an analog low alarm level set point value

Example:

To configure input channel 3 to alarm on Open Circuit, from the top menu press:

```
1 3 1
```

Refer to Appendix A for additional information on programming for analog signal inputs.

4.1.2 Phone Number Programming

2 PHONE NUMBERS

You must program at least one phone number for your Guard-It™ autodialer to dial when it has an alarm to report.

Note:

Until you do so, any alarms which are detected will be automatically acknowledged without any alarm calls being placed.

To program phone numbers, you must first select which of 8 available phone numbers (first, second, etc.) you want to program. The voice menu will ask you for this number, which will be a number from 1 to 8. Then it will recite the presently programmed phone number for that selection, if any. Then it will allow you to accept the current entry by pressing pound (#), or else enter a new phone number for that selection.

Be sure to include any necessary prefixes or area codes, just as you would dial it on an ordinary telephone.

As you enter each digit, be sure to listen for the voice to repeat back that digit, before you enter the next digit.

Example:

To program the third phone number to be 1 (510) 658-6713, from the top menu you would press [2] for phone number programming, then [3] to select the third phone number, then:

```
1  5  1  0  6  5  8  6  7  1  3  #
```

Listen carefully as the completed entry is repeated back to you, to be sure it was entered and accepted correctly.

To delete a phone number, program it to be 00.

For example, to clear out the fourth phone number, from the top menu you would press [2] for phone number programming, then [4] to select the fourth phone number, then:

```
0 0 #.
```

To program a phone number for use with numeric pagers, see Appendix E.

4.1.3 Recording Voice Messages

3 RECORDED MESSAGES

Your Guard-It™ autodialer has "canned" generic alarm messages ("Channel one alarm", etc.) but you will probably want to record your own more specific and informative alarm messages.

There are five alarm messages which you can record: a message for each of the four input channels, plus a "Station ID" message which identifies the site where the Product is located.

In order to prevent one message from being recorded or re-recorded over another message, *it is necessary to record all five messages, in proper order, in one sequence of steps.*

Under the Message Review and Recording menu which you get by pressing [3] from the top menu, you will be prompted to choose:

- [1] to review the existing set of five messages, or
- [2] to begin the sequence of recording all five messages.

If you select [2] to begin the recording sequence, the Guard-It™ autodialer moves you automatically through the sequence of all five messages to record, starting with the message for input channel number one.

The voice menu identifies which message is to be recorded next (i.e. for input channel number 1, for input channel number 2, etc.).

To actually record the message, wait for the sound of the beep, then speak clearly into the telephone mouthpiece of the programming phone. When you are done, press pound (#). The Product will then play back the message you have just recorded.

If you want to re-record the resulting message after hearing it played back, press star (*) instead of pound (#). You may re-record as many times as you wish, until you are satisfied with a given message. When you are satisfied with the message, press pound (#) to move on to the next message.

Proceed in this manner to record *all five messages*. The Station ID message is the last message in the set of five messages. It is the message that will be recited during every phone call, to identify the site that is calling or being called.

If you have configured a given input channel as "OFF", you will still be asked to record a message for it. Just "record" a moment of silence for that departed input channel, and proceed with recording the remaining messages.

For any input channels which you have programmed for analog signal input, record the message in the form of: “The water level percentage is”. Whenever you call in or when an alarm call is placed, analog channels will be reported with the message you record followed immediately by the percentage value. You may want to include a spoken reference to the translation table which is found in Appendix A.

If you later need to change a message, simply re-record the entire set of 5 messages.

Each message may be as long as 12 seconds, for an available total of 60 seconds.

4.1.4 General Programming Items

4 GENERAL ITEMS

The following general programming items allow you to “custom tailor” some specialized aspects of product operation.

Many users will find that the default settings work well, without need to program any of the items in this general category.

4.1.4.1 [1] Alarm Trip Delay

The alarm trip delay is the number of seconds during which the alarm violation (fault) must be continuously present on any input channel, before the Product will trip that input channel into Unacknowledged Alarm condition and begin dialing the first programmed phone number.

The default value is two seconds. If you wish to alter this value, the range of programmable values is 0.1 to 999.9 seconds. Use the star (*) key if you want to use a decimal point, but it is also OK to use whole numbers.

During the time period when a fault exists but has not yet lasted long enough to trip an alarm, the LED for that input channel will change from green to flashing green. Also during this interval, if you should hear a spoken status report on this channel, the word "fault" will be added to the message.

Note that the Product also has an internal power failure alarm. The trip delay for this alarm is fixed at 5 minutes.

4.1.4.2 [2] Alarm Reset Time

In the Unacknowledged Alarm state, the Product will place alarm calls, going endlessly through the list of up to 8 programmed phone numbers until the alarm is acknowledged by someone pressing a “9” at the sound of the tone, or by placing a return call to the Product and pressing “9” at the sound of the tone.

Either way, when the alarm is acknowledged, further alarm calls on behalf of that input channel (or power failure alarm) will be suspended. An internal Alarm Reset Timer begins timing, and when it has completely timed out, the acknowledged alarm status for that input channel is automatically cleared. As a result, if there is no current alarm condition, no new alarm will be created. If an alarm condition does still exist, then after the alarm trip delay expires, a new Unacknowledged Alarm and alarm calling will occur.

The default value for the Alarm Reset Time is one hour. If you wish to alter this value, the range of programmable values is 0.1 to 99.9 hours. Use the star (*) key if you want to use a decimal point, but it is also OK to use whole numbers.

Note:

Note that when testing, once you trip an alarm on a given input channel and acknowledge the alarm, you will not be able to promptly re-create an Unacknowledged Alarm for that input channel, since the Alarm Reset Timer will not have timed out, and this input channel will still be in an Acknowledged Alarm state. To create a new alarm, you can trip an alarm on another input, or you can force a clearout of all Alarm Reset Timers by using selection [7] on the top menu, or by turning the product off and then on again.

4.1.4.3 [3] Answer Delay

When you place a call to the Product, it will wait for a programmed number of rings before answering the call. This number of rings is called the Answer Delay.

The default value is one ring. If you wish to alter this value, the range of programmable values is 1 to 20 rings.

Note About Extension Phones:

The best practice is to provide a phone line service for the exclusive use of the Guard-It™ autodialer. However, if you do need to have an extension phone on the same line for use by personnel, you might want to program a ring delay of, say, 6 rings, so that anyone present at the site would have a chance to answer the call before the Guard-It™ autodialer answers it. If the line is in use by an extension phone when the Guard-It™ tries to place an alarm call, the call will not be completed, but the messages will be heard on the extension phone.

4.1.4.4 [4] Time Between Alarms Calls

After the Product is finished placing a call to a given phone number, and if the alarm was not acknowledged during that call, the Product enters a waiting period before it begins placing the next alarm call. This waiting period is the Time Between Alarm Calls.

The default value is 10.0 minutes. If you wish to alter this value, the range of programmable values is 0.1 to 99.9 minutes.

Note, however, that in order to comply with governmental regulations for alarm autodialers, if only one phone number is programmed, the product will not alllow the time between alarm calls to be less than 10 minutes.

4.1.4.5 [5] Dialing Delay

If you want your Guard-It™ autodialer to place alarm calls to a numerical pager, you will need to refer to Appendix E for special instructions, which include programming the special Dialing Delay.

The default value is 10 seconds. If you wish to alter this value, the range of programmable values is 1 to 20 seconds.

4.1.4.6 [6] Tone/Pulse Dialing

Your Guard-It™ autodialer is capable of dialing using Pulse Dialing or Tone Dialing.

- For Tone Dialing, press [1]
- For Pulse Dialing, press [2].
- For “Auto Detect," press [3]. This is the default setting.

When Auto-Detect is chosen, the Product will periodically test the phone line and it will automatically use Tone Dialing if it determines that Tone Dialing works on the phone service line it is connected to.

4.1.4.7 [7] Phone Fault Monitor

Occasionally a telephone line will cease to operate. When the Phone Fault Monitor function is turned on, the Product will go “off hook” to check for the presence of a dial tone. If it fails to hear a dial tone, it begins flashing the "PHONE LINE FAULT" LED on the front panel, and continues to do so until such later time as it again hears a dial tone during another periodic check.

This action of going off hook every few minutes (as indicated by the yellow light on the front panel) may make it seem like the product is behaving erratically, to someone who is not familiar with its functioning.

Because the line is checked only periodically, if there is a change in the status of the phone line connection, *it will take a few minutes for the LED to reflect the change.*

Note:

Note that if this feature is turned on and there is another phone device connected to the Guard-It™ autodialer's phone line, if that device happens to be "off hook" (in use) when the product checks the phone line, a phone line fault indication may occur.

Even if the product has detected an apparent phone line fault, if it needs to place an alarm call it will attempt to do so. Thus in some circumstances during a call to or from the product, you might hear the message "phone line fault, now normal." This generally would mean that a phone extension was in use at last check, or that the phone line is intermittent and should be checked.

When the product has detected a phone line fault and then subsequently finds the line to be operational, the warning LED will be turned off. However the verbal warning will be retained until after you either place a call to the product, or acknowledge an alarm call.

Detection of a phone line fault will not cause an attempt to place alarm calls.

The default setting for this feature is "Off". To turn it on, when prompted press [1].

4.1.4.8 [8] Call Progress Control and "Maximum Number of Rings"

The Guard-It™ autodialer can be programmed to monitor the progress of the alarm calls it places, by listening to the tones and voice signals on the phone line.

Based on the signals the product hears, it knows when to start delivering its messages, and it also knows if it should abandon the current call attempt, as described below.

If Call Progress Control is turned on, when placing alarm calls the product counts the number of ring signals it hears. If more than the programmed "Maximum Number of Rings" occurs with no answer, it ends the phone call attempt without issuing any spoken message. It then waits the programmed Time Between Alarm Calls, before placing a call to the next phone number.

If Call Progress Control is turned on, the programming menu will allow you to program this "Maximum Number of Rings." The default value is 5 rings. If you wish to alter this value, the range of programmable values is 4 to 20 rings.

Also when Call Progress Control is turned on, when placing alarm calls the product listens for the ring signals, and only begins speaking when it misses the sound of the next ring. For this reason, there may be a delay of a few seconds after picking up the phone, before the first message is heard, when this function is turned on.

Also when Call Progress Control is turned on, when placing alarm calls the product listens for a busy signal. If it hears a busy signal it immediately ends the call and waits the programmed Time Between Alarm Calls, before placing a call to the next phone number.

The default setting for Call Progress Control is "off".

Call Progress Control depends upon the product's ability to interpret the various tone signals heard on the phone line. Because there is a lot of variance in the nature of these signals from one local phone company to another, it is important to thoroughly test the proper functioning of Call Progress Control, if you choose to turn this feature on.

4.1.5 Status Report (Input Review)

5
STATUS
REPORT

This selection in the top menu causes the Guard-it™ to recite the status of any input channels which are in any kind of non-normal state. Any channels which have been programmed "off" will not be mentioned.

4.1.6 Programming Review

6
PROGRAM
REVIEW

This feature allows you to review all the programming settings. Any messages which you have recorded will also be recited. We suggest that you use this feature to write all your programming entries on the **Programming Log Sheet** provided in this manual. This will allow you to easily re-create your Guard-It™ autodialer setup should it ever be necessary to replace or reprogram the unit. It is also helpful in the event you need to call for Customer Support.

4.1.7 Acknowledged Alarm Reset

Note:

Note that unlike the other six menu choices, this choice is not printed on the front label of the product.

As previously mentioned, under test conditions you cannot quickly recreate an unacknowledged alarm on a given input when that input is already in an Acknowledged Alarm state. The reset feature allows you to force a clearout of the alarm reset timers, so that all input channels (and power failure alarm) are immediately ready to be tripped into Unacknowledged Alarm for the purpose of further testing or alarm monitoring.

4.2 Restoring Programming To Factory Default Settings

It is possible to restore your Guard-It™ autodialer to factory default settings for all programming items, including clearing out all recorded messages.

To do this, locate the plugged hole in the top of the enclosure, and remove the plug. While the product is turned on (but not in programming mode), use a screwdriver blade or similar device to momentarily connect the two pins which are accessible through the hole.

The four input channel LED's will turn orange while the unit "reprograms" itself to factory default settings. When this process is completed, the LED's are restored to their normal color and the product is ready for new programming.

4.2.1 Programming Log Sheet

Range of Values Table

PROGRAM ITEM	DEFAULT	RANGE	REPROGRAMMED TO:
Input On/Off	On	On, Off	
Alarm State if configured for contact Input	Closed is alarm	Closed, Open	
Alarm Set Points if configured for Analog Input	Off	0.0-99.9%, Off	
Telephone Numbers	None	Up to 60 digits	
Alarm Trip Delay All Inputs (Power Fail Delay is 5 minutess fixed)	2.0 sec	0.1-999.9	
Alarm Reset Time	1.0 hours	0.1-99.9	
Ring Answer Delay	1 ring	1-20	
Time Between Alarm Calls	10 min (10-99.9)	0.1-99.9 if there is only one phone #	
Interdigit Dialing Delay	10 sec	0-99.9 sec	
Tone/Pulse Dial Mode	Auto	Auto, Tone, Pulse	
Phone Line Alarm On/Off	Off	On, Off	
Call Progress Monitoring	Off	Off, On	
Max rings before abandon call (When CPM is on)	5 rings	4-20	

PROGRAMMING LOG SHEET

PROGRAM ITEM	DEFAULT	RANGE	REPROGRAMMED TO:
Input Channel 1	Alarm on Closed Circuit	Analog, Alarm Closed, Alarm Open, Off	Closed ☐ Open ☐ Analog ☐ Off ☐ _____% (High Set Point) _____% (Low Set Point)
Input Channel 2	Alarm on Closed Circuit	Closed, Open	Closed ☐ Open ☐ Analog ☐ Off ☐ _____% (High Set Point) _____% (Low Set Point)
Input Channel 3	Alarm on Closed Circuit	Analog, Alarm Closed, Alarm Open, Off	Closed ☐ Open ☐ Analog ☐ Off ☐ _____% (High Set Point) _____% (Low Set Point)
Input Channel 4	Alarm on Closed Circuit	Analog, Alarm Closed, Alarm Open, Off	Closed ☐ Open ☐ Analog ☐ Off ☐ _____% (High Set Point) _____% (Low Set Point)
Phone Number 1			
Phone Number 2			
Phone Number 3			
Phone Number 4			
Phone Number 5			
Phone Number 6			
Phone Number 7			
Phone Number 8			
Message for Input 1	Channel 1 Alarm		
Message for Input 2	Channel 2 Alarm		
Message for Input 3	Channel 3 Alarm		
Message for Input 4	Channel 4 Alarm		
Message for Station ID	This is Phone Alarm Station		

PROGRAM ITEM	DEFAULT	RANGE	REPROGRAMMED TO:
Ring Answer Delay	1 ring	1-20	
Time Between Callls	2.0 seconds	0.1-999.9[1]	
Alarm Reset Time	1.0 hours	0.1-99.9	
Tone/Pulse Dialing	Auto detect	Tone, Pulse, Auto	
Pager Dialing Delay	10.0 seconds	0.1-99.9	
Phone Line Fault Monitor	Off	On, Off	
Call Progress Monitor	Off	On, Off	
Max Rings Before Abandon Call Atempt [3]	5	4-20	
Input Channel 4	Alarm on Closed Circuit	Analog, Alarm Closed, Alarm Open, Off	

Notes:

[1] For power failure alarm, Alarm Trip Delay is fixed at 5 minutes.

[2] Minimum programmable Time Between Calls is 10 minutes, if only one phone number is programmed.

[3] Call Progress Monitoring must be On for this to apply.

5 The Guard-It™ Autodialer In Operation

5.1 The Alarm Process

Much of the operation of the Guard-it™ was explained in the previous chapter on programming.

To review the sequence of events that starts with the detection of a fault condition on a given input channel, refer to the Alarm Process diagram.

Please keep in mind the following facts:

A fault condition must be detected continuously for the duration of the programmed Alarm Trip Delay, before an Unacknowledged Alarm will occur. During this timeout, the corresponding input channel LED will blink green.

The Alarm Trip Delay for input channels is programmable, with a default value of 2 seconds. For power failure alarm, the Alarm Trip Delay is fixed at 5 minutes.

Once an Unacknowledged Alarm occurs, the corresponding LED will blink red, and alarm calls will be placed indefinitely until the alarm is acknowledged, even if the fault condition returns to normal.

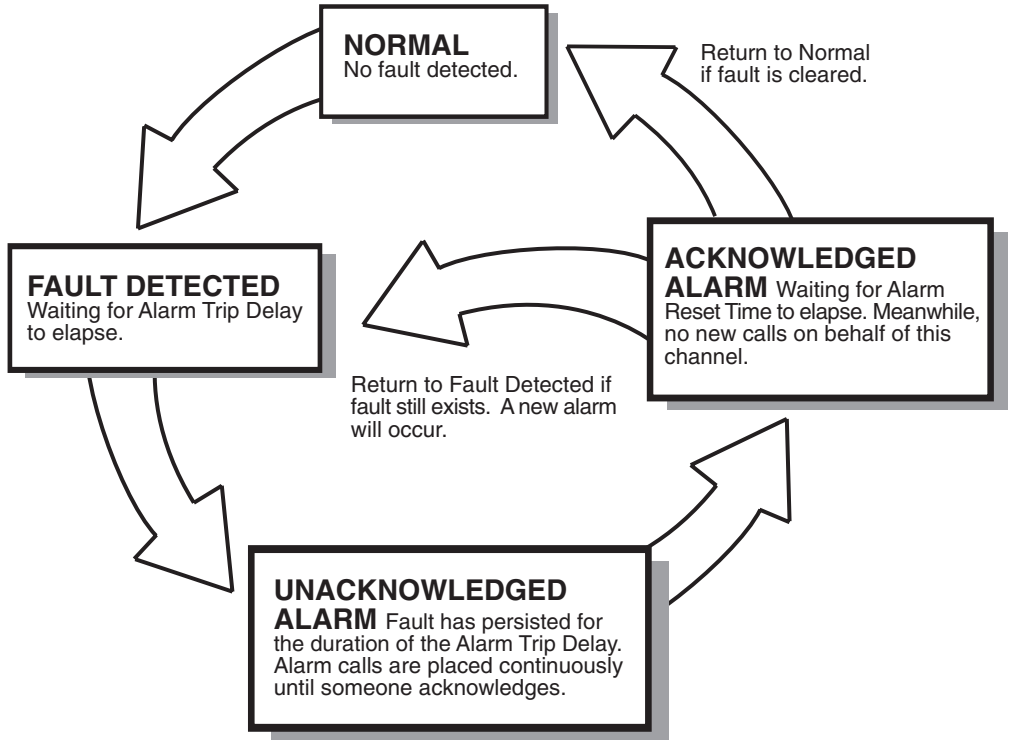
When the alarm is acknowledged, the corresponding LED turns solid red, and further alarm calls on behalf of that input channel (or power failure alarm) will be suspended.

At the moment of acknowledgment, an internal Alarm Reset Timer begins timing, and when it has completely timed out, the acknowledged alarm status for that input channel is automatically cleared. As a result, if the fault condition no longer exists, no new alarm will be created. If a fault condition does still exist, then after the alarm trip delay elapses, a new Unacknowledged Alarm and a new cycle of alarm calling will occur.

If the product loses all power or is turned off, when power is restored the acknowledged alarm status will have been cleared. Therefore, if a fault is still present, then after the alarm trip delay has elapsed, a new unacknowledged alarm will occur, resulting in new calls being placed.

If the OFF/DISARMED/READY switch on the front panel is in the DISARMED position, any such alarm will be automatically acknowledged so that no alarm calls will be placed.

Guard-It™ Alarm Process Diagram



Channel Light (LED) Indications:

Steady green - Normal

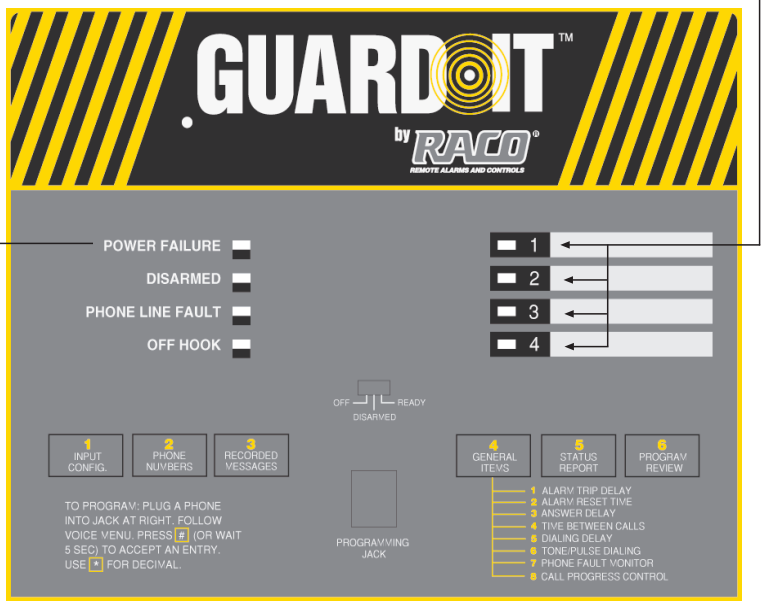
Flashing green - Fault detected but alarm trip delay not timed out.

Flashing red - Unacknowledged alarm.

Steady red - Acknowledged alarm.

Power Failure Alarm (LED) Indications:

Flashing red indicates loss of external 12 VDC power. After 5 minutes, alarm calls will be placed. Upon acknowledgement, light is on with no flashing until powered is restored.



If the phone line connected to the Guard-it™ autodialer has an extension phone and it is in use at the time the product attempts to place an alarm call, the call will not go through to the programmed phone number, but the alarm message will be superimposed on the phone call in progress on the extension phone.

Note that the alarm reset function is somewhat similar to a “snooze alarm” on an alarm clock. If someone acknowledges an alarm but does not correct the condition, a new series of calls will be placed after a “snoozing” period has elapsed.

5.2 Receiving And Acknowledging An Alarm Call

When you receive an alarm call from your Guard-it™ autodialer, listen to the message to learn what alarm(s) exist. The message round will start with the Station ID message, followed by the specific alarm message for the input channel(s) in alarm, and/or a message stating “power is off”.

Note that any input channels which have been programmed for analog, will be reported regardless of whether they are in alarm or not. If there is a high or low level alarm on an analog channel, the words “high (or low) level alarm” will be added.

The additionally informative words “fault”, “now normal”, and “acknowledged” may be added as follows:

If the input of a given input channel is in fault but has not yet persisted long enough to trip an alarm for that input, the message for that input will be included with the word “fault” added.

If the input of a given channel in alarm has returned to normal as of the time of the phone call, the message for that input will be included with the words “now normal” added.

If a given input channel is already in an acknowledged alarm state, the message for that input will be included with the word “acknowledged” added.

At certain points in the message round, a prompting beep will be issued. This is your cue to press a “9” immediately after the tone to acknowledge the alarm. Upon detecting the “9”, the Product will say “Alarm is acknowledged. Goodbye”, and the call will end.

Following the final message round, the microphone will be turned on so that you can hear sounds occurring in the area of the product. Then there will be one last beep to allow acknowledgment before the call ends.

If you do not acknowledge an alarm call, the Product will end the call and wait for the programmed Time Between Alarm Calls (default 10 minutes), before going on to place a call to the next programmed phone number, repeating the calling endlessly until the alarm is acknowledged.

If the Call Progress Monitoring function is not turned on, you will generally pick up the phone in the middle of a message. Simply continue to listen, and the message will continue to the start of a complete new round.

If the Call Progress Monitoring function is turned on, there may be a delay when you answer the phone, before the messages begin.

You may also acknowledge the alarm by placing a return call to the Guard-it™ autodialer. The best way to do this is to wait for the alarm call to end before you place your return call, so that the line will not be busy. At the sound of the prompting beep, press a "9", and the Product will respond by saying "Alarm is acknowledged. Goodbye."

9

5.3 Power Failure Alarms

The alarm trip delay for power failure alarm is fixed at 5 minutes.
Note that you can only receive a power failure alarm if an optional rechargeable lead acid "Gel Cell" battery is installed, since otherwise the power failure would prevent operation of the product. If you have installed an external "uninterruptible" source of 12 VDC power for the product, it will not know that there has been a failure of primary power unless this is reflected at one of the signal inputs.

5.4 Placing An Inquiry Call To The Guard-It™ Autodialer

You may call the Guard-it™ autodialer at any time other than when you are programming, to get a status report of all input channels.

The product will answer the phone after waiting for the programmed ring answer delay (default 1 ring).

The message you hear may include particular informative phrases such as "no phone numbers programmed", "power is off", "disarmed", etc. There will be two complete message rounds, followed by a listening period when the microphone is turned on, before the product ends the phone call.

If there are any unacknowledged alarms, you may acknowledged them by pressing "9" immediately following the beep.

5.5 Acknowledging An Alarm From The Front Panel

To acknowledge an alarm from the front panel, move the selector switch to the DISARMED position, then return it to the READY position. The product must not be in programming mode or presently placing a phone call, for the alarm to be acknowledged in this way.

5.6 Clearing An Acknowledged Alarm From The Front Panel

To force a clearing of the acknowledged alarm status in advance of the time when the alarm reset timer would otherwise do it, select choice [7] from the top menu, or simply turn the product off and then on again. If there is still a fault being detected, then after the expiration of the alarm trip delay, a new unacknowledged alarm will occur with new alarm calls being placed.

6 Troubleshooting & Repair Service

If the product appears “dead” with no lights or action of any kind, suspect the external power source (most likely) or a blown internal fuse (less likely). There is a diagnostic light located behind a round hole on the lower right hand edge of the enclosure. If this light is lit, it means that there is at least 8 VDC (the minimum voltage required) reaching the product and that the internal fuse (5 x 20 mm, 0.8 ampere) is good.

In turn, this means that if the light is not lit, then you can track down and correct the problem without need to return the product to the factory for service. If it is lit and the product appears dead, then factory service is needed.

Verify that all connections are correct and that the connector block is plugged firmly into place in the correct orientation.

If there is a problem with phoning, use the programming phone to test the phone line, temporarily plugging it into the premises phone line jack in place of the autodialer connection.

Most other apparent problems, especially at startup, are the result of incorrect connection or programming, or misunderstanding of how the product operates.

If after reviewing this manual you still have difficulty, Raco’s Customer Support department is available from 8:00 a.m. through 4:30 p.m. P.S.T. on weekdays.

6.1 Phone Support Procedures

Make sure you have the following before you call:

- Serial #: Found on the enclosure.
- Note the unit's symptoms: Exact speech pattern, what it is saying, if it is calling or not. The more specific and accurate you are in describing the symptoms, the quicker the Customer Support Department will be able to diagnose and troubleshoot the problem. In many cases, it may save a return to the factory.

THEN call 1-800-449-4539 for Customer Support.

If Customer Support determines that the unit needs repair, you will be given a Return Materials Authorization (RMA) number.

If the product needs repair, you may send it to one of the following repair facilities often first telephoning to obtain a return authorization.

6.2 Returning Parts to Factory

Pack all parts well! Send the unit to the address below:

RACO Manufacturing and Engineering Co.
1400 62nd Street
Emeryville, CA 94608

Remember to:

- Put return address on package.
- Include a packing slip.
- Have serial # and RMA # handy when you call in for tracking.

6.3 Canada Depot Repair Summa Engineering

Pack all parts well! Send the unit to the address below:

Summa Engineering, Ltd.
6423 Northam Drive
Mississauga, Ontario
L4V 1J2 Canada

7 Testing

A suitable program of testing is highly adviseable for any alarm autodialer. The frequency and thoroughness of the test should be gauged according to the potential consequences of missing an alarm call.

Test the unit by simulating an alarm at one or more of the inputs. If you have an optional rechargeable battery installed, you can create a power failure alarm by disconnecting the external 12 VDC power source and waiting 5 minutes for a power failure alarm to be tripped.

You can leave the power disconnected and see how long the unit remains operational, running on its optional rechargeable battery. You might temporarily program an alarm reset time of, say, four hours, so that you would get a new set of calls every four hours until the battery lost charge.

8 Maintenance

The only maintenance item on the Guard-It™ autodialer is the optional rechargeable battery. It should be replaced every three years, since it will eventually fail with old age in the same way that an automobile battery does.

Replacements for this battery must be ordered near the time of changeout, since long storage on a shelf without a charger will damage the battery. It may be ordered from Raco or from the manufacturer as printed on the battery.

A ANALOG (4-20 MA) INPUTS

A.1 Connecting 4-20 MA Analog Signal Inputs

As an alternative to contact inputs or digital logic inputs, you may connect 4-20 ma analog signals to any of the inputs. The connections must be made with the correct polarity. Refer to the diagram.

Note that the negative connection points for each of the inputs are connected to each other, and to common ground, inside the product. Most 4-20 ma signal circuits are "floating" with respect to ground, and for such signal circuits the grounded inputs on the Guard-It™ autodialer will usually cause no problems.

However some 4-20 ma signal circuits already have a connection to ground at some other point in the current loop. If your current loop has such a connection and if you cannot remove it, it is best to install an "isolator" such as Model T700-0000 made by Action Instruments (619) 279 5726 . Otherwise, signal errors will be introduced, both for the Guard-It™ autodialer and for any other elements in the same current loop.

Note that similar devices are available from the same manufacturers, which accept signals in different formats (such as 0-1 VDC, etc.) and which translate such signals into standard 4-20 ma signals which the Guard-It™ autodialer can accept.

The easiest way to verify that there are no grounding problems, is to verify that the current in the loop does not change when the Guard-It™ autodialer is added to the loop.

For example, if there is a chart recorder or readout device in the current loop, first take a reading with the Guard-It™ autodialer completely disconnected from the loop.

Do this by unplugging the connector block and temporarily shorting the + and - inputs on the signal input points on this connector block. Observe the reading, and then remove the short and plug in the connector block to include the Guard-It™ autodialer in the loop, turn it on, and verify that this does not change the reading on the readout device. All power and ground connections to the Guard-It™ autodialer must be in place for this test to be valid. Also, the input channel being tested must be programmed for analog input as described below.

If you are troubleshooting by making voltage measurements across the signal input connection points on the Guard-It™ autodialer, bear in mind that if the product is turned off or if it has not been programmed for analog input, an internal voltage clamp will result in a fixed voltage drop of about 7 VDC. If the product is turned on and the input has been programmed for analog input, a loop resistance of about 220 ohms will result in a voltage drop of approximately 0.88 VDC with a signal level of 4 ma, and approximately 4.4 VDC with a signal level of 20 ma.

A.2 Programming For Analog Signal Inputs

From the top menu, when you select [1] for input programming and then select an input channel number to program, the voice menu will prompt you with the following choices:

[1] Alarm on Open Circuit

[2] Alarm on Closed Circuit

[3] Off (so that this input channel will not report or activate its corresponding front panel LED)

[4] Analog (4-20 ma current loop) signal.

If an input channel is configured for an analog signal, the menu also gives you two additional choices:

[5] To program an analog high alarm level set point value

[6] To program an analog low alarm level set point value

Example: to program input channel number four for analog input, from the top menu you would press [1] for input programming, then [4] to select input number four, then [4] again to configure this input channel for analog input.

Input channels which have been programmed for analog (4-20 ma) signals, will report a 4 ma signal level as 0.0% and a 20 ma signal level as 100.0%. Signal levels between these limits will be reported in linear scale proportion as a percentage between 0.0% and 100.0 %. Note that as a result of this linear analog scale, an input current of 0 ma would give a reading of *minus* 25.0%.

The Guard-It™ autodialer is very sensitive, being capable of detecting variations as little as 0.1%. Absolute accuracy should be within 0.5%. Due to substantial input filtering, it takes several seconds for any sudden change in input level to become fully settled.

A translation table appears below, relating the analog input signal in milliamperes to the spoken percentage reading. It also allows you to write in the corresponding actual physical readings (such as water level in feet, etc.) for various signal levels.

When programming analog high or low alarm set points, enter the set points as a percentage value, using the star (*) key for a decimal point if desired.

EXAMPLE: to enter a high set point value of 56.8% for input channel number 4, from the top menu you would press [1] for input programming, then [4] to select input number four, then [5] to select the high alarm set point for this input channel, and then:

5 6 * 8 #.

The menu will allow you to program high or low analog set points only if the input channel has first been programmed for analog input.

To turn off a given alarm set point so that it will not create an alarm, press "star" (*) and then pound (#).

In operation, whenever a high or low level alarm setpoint is exceeded continuously for the duration of the programmed alarm trip delay, an unacknowledged alarm will occur.

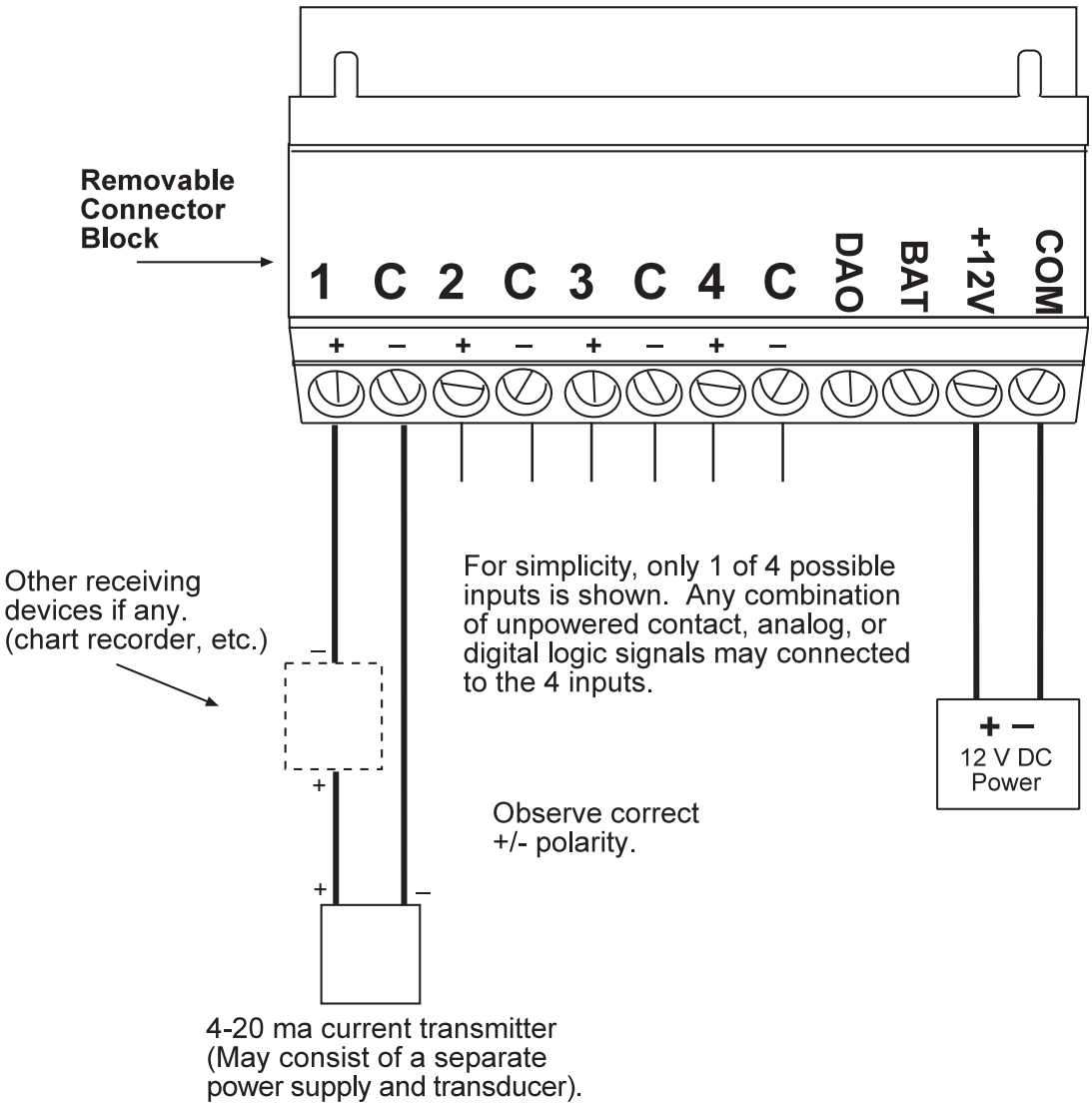
A.3 Analog Translation Table

This table translates various input signal levels in milliamperes, to the corresponding percentage values which will be reported.

It also allows you to write in the corresponding translation to the actual physical parameter being measured, such as water level in feet, etc. You can make copies of this for later use, even including reference to this table in your recorded message, which might be: "Referring to the analog translation table, the water level percentage reading is."

SIGNAL LEVEL:	SPOKEN READING:	CORRESPONDS TO PHYSICAL VALUE ON INPUT CHANNEL NUMBER (Description)			
		1(_____)	2(_____)	3(_____)	4(_____)
4.0 Millamperes	0%				
4.8 Millamperes	5%				
5.6 Millamperes	10%				
6.4 Millamperes	15%				
7.2 Millamperes	20%				
8.0 Millamperes	25%				
8.8 Millamperes	30%				
9.6 Millamperes	35%				
10.4 Millamperes	40%				
11.2 Millamperes	45%				
12.0 Millamperes	50%				
12.8 Millamperes	55%				
13.6 Millamperes	60%				
14.4 Millamperes	65%				
15.2 Millamperes	70%				
16.0 Millamperes	75%				
16.8 Millamperes	80%				
17.6 Millamperes	85%				
18.4 Millamperes	90%				
19.2 Millamperes	95%				
20.0 Millamperes	100%				

Analog 4-20 ma Signal Input Wiring Connection Diagram



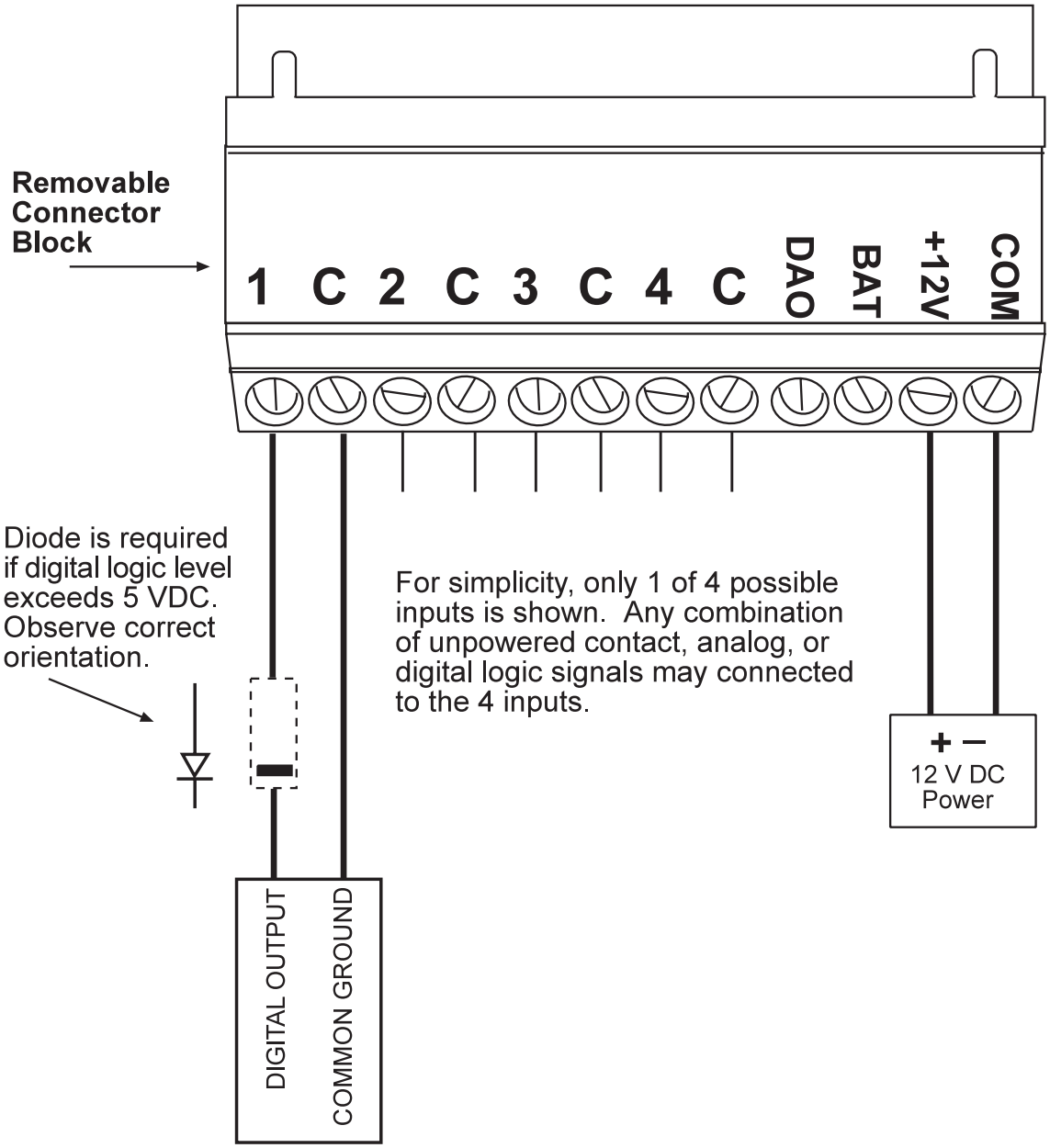
B CONNECTING DIGITAL LOGIC SIGNAL INPUTS

As an alternative to contact inputs, you may connect 5-volt logic signals as long as the common electrical ground for the Guard-It™ autodialer is the same as for the 5 volt logic system.

A logic “0” will be interpreted by the Guard-It™ autodialer as a closed circuit, and a logic “1” will be interpreted as an open circuit.

If you want to connect higher voltage logic signals (up to 24 VDC), insert a rectifier diode (such as a 1N914, 1N4005, etc.) between the logic signal and the signal input on the Guard-It™ autodialer. *The diode must be oriented so that the cathode (banded) end is connected to the logic signal.*

Digital Logic Signal Input Wiring Connection Diagram



C DIGITAL ALARM OUTPUT (DAO)

The digital alarm output may be used to activate an external device such as the coil of a relay or the input of a logic circuit.

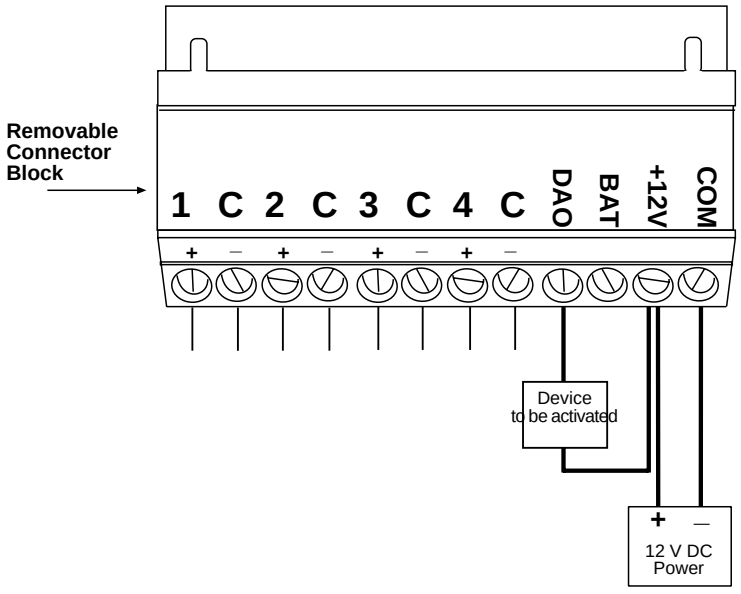
This output is activated (pulled down to common ground voltage) whenever there is an unacknowledged alarm. It is deactivated when the alarm is acknowledged.

The load you connect will have 12 VDC applied across it when activated, if you connect as shown in the diagram. It must draw no more than 200 milliamperes, and so it must have a resistance of at least 60 ohms.

A typical application would be to power the coil of a relay. The contacts of the relay may then be used to control devices of higher voltage and power, such as outside warning lights or buzzers.

Alternatively, the DAO output may be connected directly into a DC logic input circuit. It has an internal 10k resistor pulling it to +5VDC when deactivated, and it is pulled to ground when activated. It may even be connected into a 24 VDC logic input such as found on PLC's, but due to the resistor connected to +5VDC, an external pullup resistor (nominally 1K) to a +24 VDC source may be needed.

Optional Digital Alarm Output (DAO) Connection Diagram



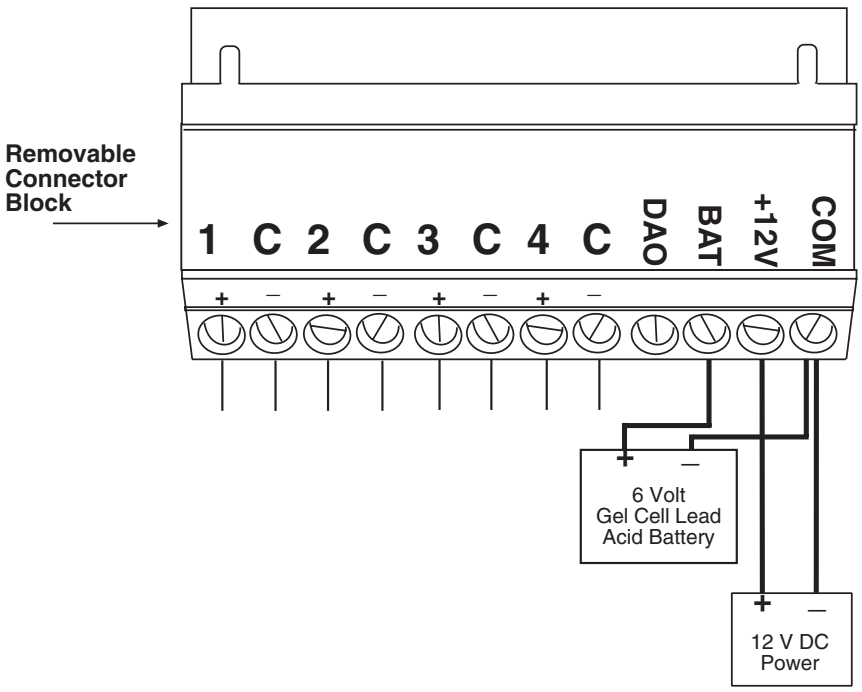
D

OPTIONAL EXTERNAL GEL CELL BACKUP BATTERY

An internal 6 volt, 4 ampere-hour battery is an available option for the Guard-It™ autodialer. However as an alternative or in addition to the optional internal battery, you may connect your own 6 volt gel cell lead acid battery as shown in the diagram. It may have a capacity of up to 10 ampere hours. The battery will be kept charged by the product's internal circuitry.

The function of any such battery is to maintain operation of the product during failures of primary power. Each ampere hour of capacity will keep the product operational for approximately 6 hours depending on the number of alarm calls placed and other factors.

Optional External Battery Connection Diagram



E PROGRAMMING FOR USE WITH NUMERIC PAGERS

Numeric pager systems require the caller to dial the phone number of the pager service, wait for a prompting beep, and then enter some additional digits which are to be displayed on the receiving pager, and then finally, enter a pound(#) to complete the entry.

To call and cause a display on a numeric pager, your Guard-It™ autodialer will do essentially the same thing, except that it will wait for a delay period which you set, instead of listening for the pager system's beep, before sending the remaining digits.

This is all accomplished by programming an "extended" phone number, which includes a delay which you invoke by pressing the star (*) key.

To program this special "extended" phone number, after selecting which of the 8 phone numbers to program, key in the telephone number of the paging service, then press the star (*) key, then continue with the digits that you want to appear on the receiving pager, and finally press pound (#) when your entry is complete, then wait three seconds for the Guard-It™ autodialer to automatically accept and repeat back the extended phone number which you have entered.

In this special case after you have invoked a dialing delay by using the star (*) key, the Guard-It™ autodialer treats the pound (#) key in a special way. Normally, the pound (#) key is used to accept an entry or to return to a previous menu level. However once a delay has been invoked, *the star and pound keys are treated as "dialable" digit values for the remainder of this programmed phone number*. This allows for the desired result of including a # which will actually be "dialed" to complete the communication with the pager system.

For example, to display "12345" on a pager which can be "paged" by calling 555 1000, you would key in:

5 5 5 1 0 0 0 * 1 2 3 4 5 #

and then wait three seconds for the Guard-It™ autodialer to accept and recite back this extended phone number, which it will recite as:

5 5 5 1 0 0 0 "Delay 1 0 seconds" 1 2 3 4 5 "Pound".

(The stated number of delay seconds will be whatever Dialing Delay value is programmed—see below).

In a typical application, the Guard-It™ autodialer's own phone number would be the number to be programmed for display.

The other step you must take, is to place several calls to the pager system in order to determine by experiment how long a waiting time is suitable before the paging system will reliably have issued its prompting beep, so that it is definitely ready to accept the digits to be displayed. Begin the timing at the moment you dial the last digit of the pager service number, and end the timing when you hear the pager service's prompting beep. We suggest you add three seconds to the longest time period you observe. Use a regular telephone to place the calls.

Then program this delay value in seconds, as the Dialing Delay under the General Programming Menu. The default value is ten seconds, and this value will work for many pager systems without alteration.

With the extended phone number and Dialing Delay value fully programmed, it is best to verify (three times is suggested) that the Guard-It™ autodialer will successfully cause the pager to be reached with the intended display.

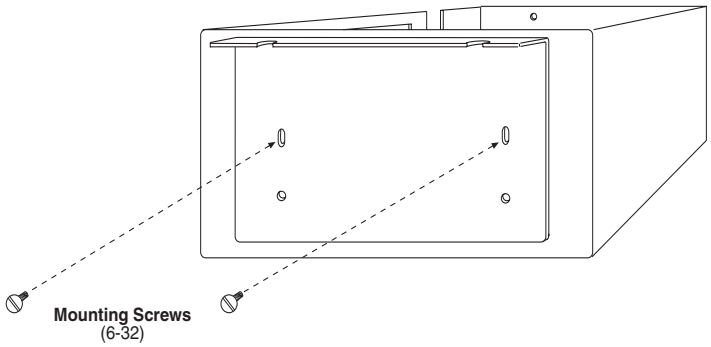
This is done by manipulating one of the signal inputs to cause an alarm.

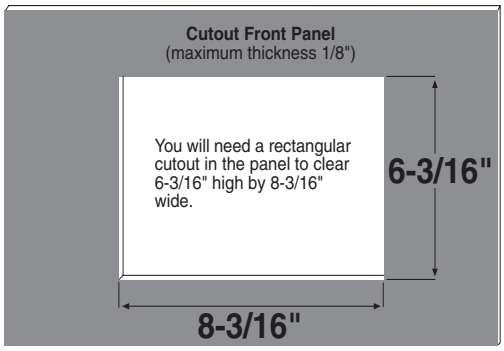
Note: Because pager systems issue a variety of special signaling tones, it is best to keep the Call Progress feature turned off if using pager systems.

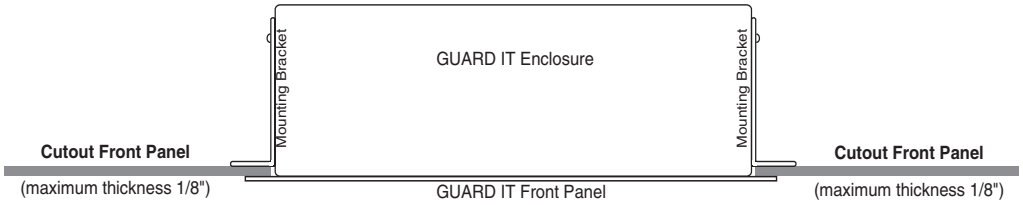
You can "eavesdrop" on the progress of the test calls using a programming phone, as long as Call Progress is turned off. Do not pick up the programming phone until the dialing begins.

F ENCLOSURE MECHANICALS & WIRING DIAGRAMS

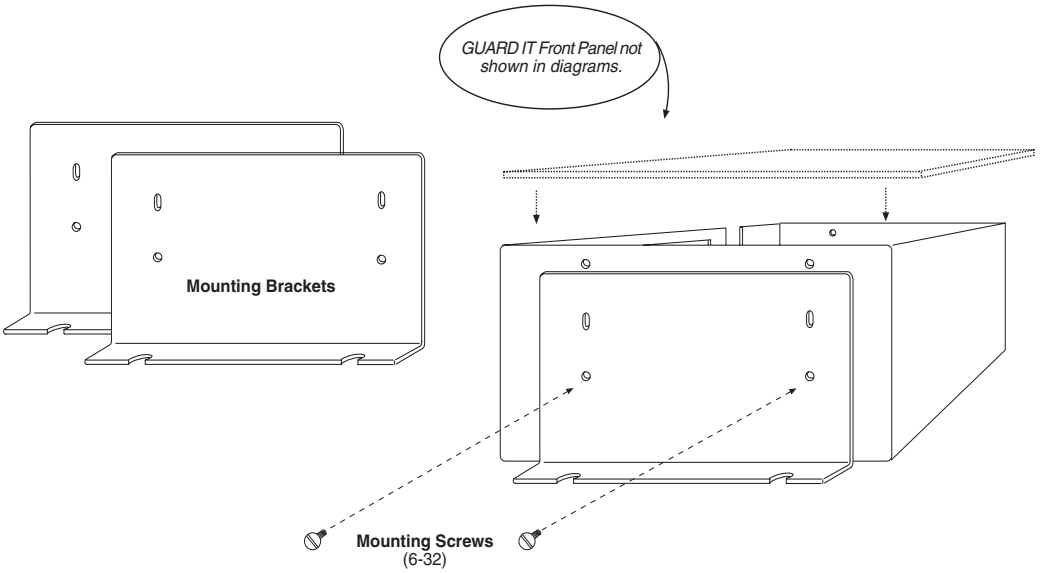
Mounting the Guard-It™ Autodialer Enclosure Flush into a Front Panel

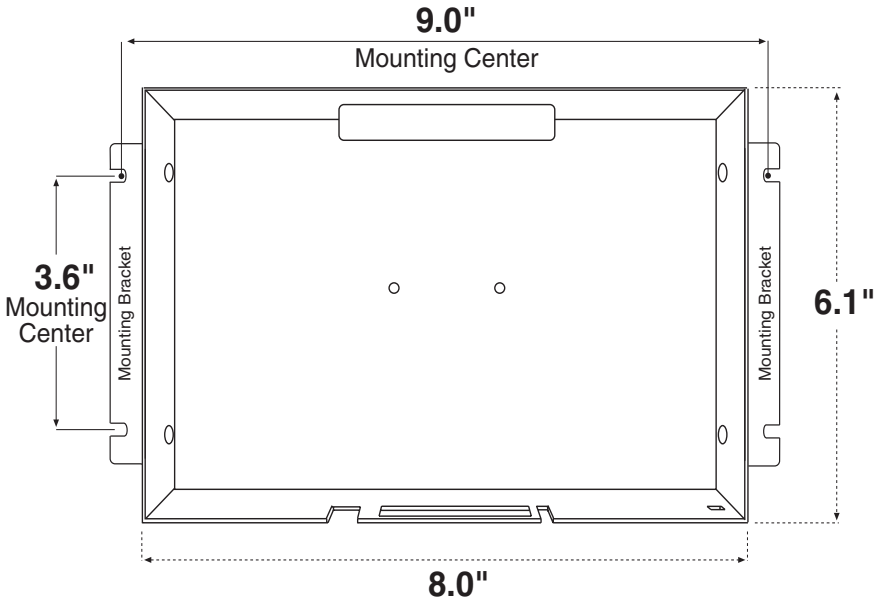




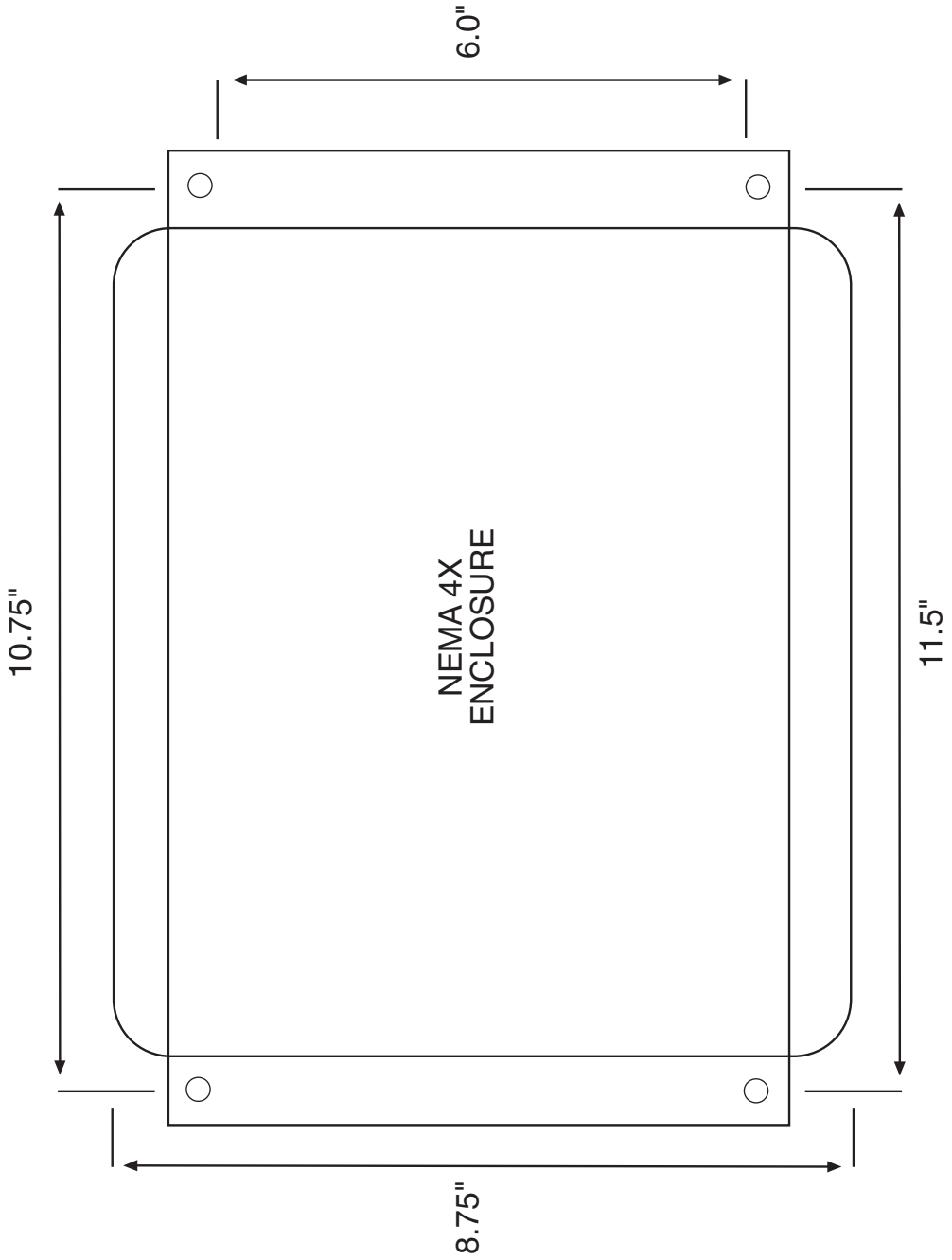


Mounting the Guard-It™ Autodialer Enclosure onto a Back Surface

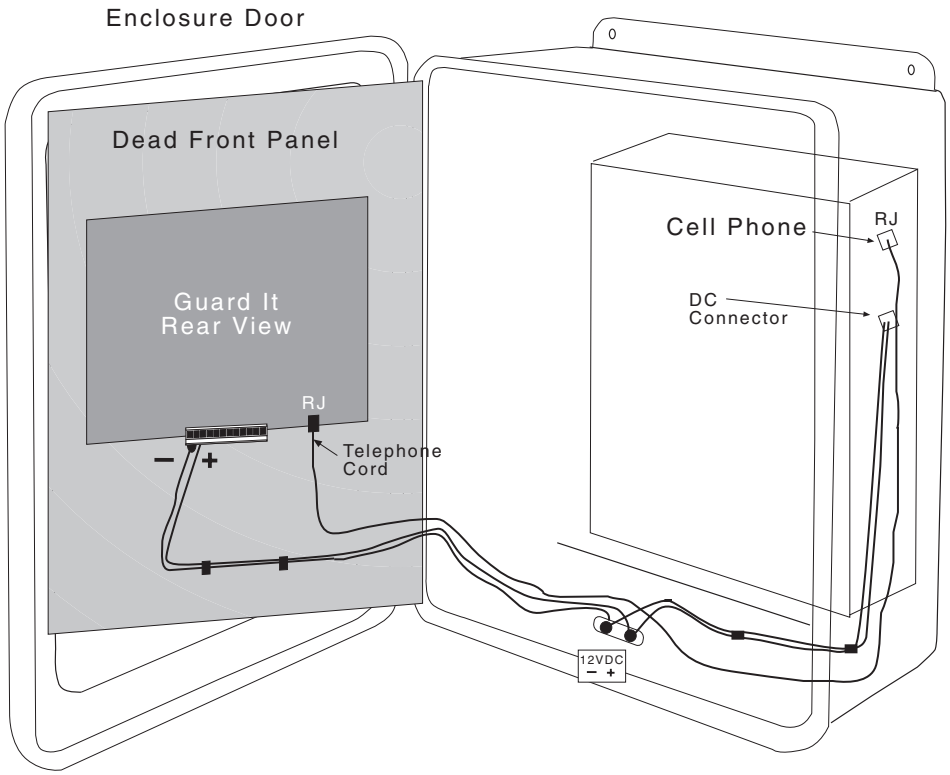




Guard-It™ NEMA4X Enclosure



Guard-It™/Cellularm™ Wiring Diagram



FCC Notice to Users

FCC Requirements

1. The Federal Communications Commission (FCC) has established Rules which permit this device to be directly connected to the telephone network. Standardized jacks are used for these connections. This equipment should not be used on party lines or coin phones.

2. If this device is malfunctioning, it may also be causing harm to the telephone network; this device should be disconnected until the source of the problem can be determined and until repair has been made. If this is not done, the telephone company may temporarily disconnect service.

3. The telephone company may make changes in its technical operations and procedures; if such changes affect the compatibility or use of this device, the telephone company is required to give adequate notice of the changes. You will be advised of your right to file a complaint with the FCC.

4. If the telephone company requests information on what equipment is connected to their lines, inform them of:

   a. The telephone number to which this unit is connected.

   b. The Ringer Equivalence Number. [0.8B]

   c. The USOC jack required. [RJ11C]

   d. The FCC Registration Number. [EMRUSA-30496-AL-E]

Items (b) and (d) are indicated on the label. The Ringer Equivalence Number (REN) is used to determine how many devices can be connected to your telephone line. In most areas, the sum of REN's of all devices on any one line should no exceed five (5.0). If too many devices are attached, they may not ring properly.

Service Requirements

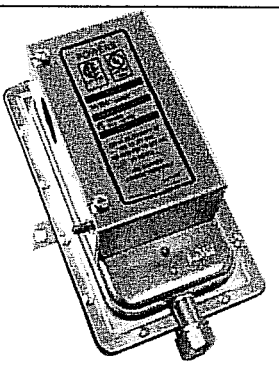
In the event of equipment malfunction, all repairs should be performed by our Company or an authorized agent. It is the responsibility of users requiring service to report the need for service to our Company or to one of our authorized agents. Service can be obtained at **Raco Manufacturing & Engineering Company, 1400 62nd Street, Emeryville, California, 94608; (510) 658-6713.**

SIEMENS

Technical Instructions
Document No. 155-052P25
SW 141-1
June 17, 2010

Powers™ Controls

SW 141 Differential Static Airflow Switches



141-0518

Description

The SW 141 Airflow Switch senses static differential pressure and the diaphragm operated snap switches actuate electrical circuits. Auto reset and manual reset models are available.

Application

Auto reset switches (141-0518 and 141-0574) should be used for applications requiring positive proof of airflow (or fan operation) or to detect high differential pressures associated with dirty air filters or similar maintenance alarms not requiring safety lock-out (shut down) of the fan.

The manual reset switch (141-0575) should be used for applications requiring safety lock out (shut down) of the fan. The switch can be used on the fan discharge (positive pressure), fan inlet (negative pressure), or across the fan (differential pressure) to detect excessively high positive pressures or low negative pressures, and turn off the fan before damage occurs to ducts or dampers.

Product Numbers

Table 1.

Product Number	Setpoint Range (Field Adjustable)	Setpoint * Accuracy	Switching * Differential	Switching Action
141-0518	1" to 12" WC (250 Pa to 3000 Pa)	@ 12" ± 1.5" WC (3000 Pa ± **375** Pa)	Approx. 0.6" to 1.5" WC **(150 Pa to 375 Pa)**	SPDT/ Auto Reset
141-0575	1" to 12" WC (250 Pa to 3000 Pa)	@ 12" ± 1.5" WC (3000 Pa ± **375** Pa)	Not Applicable	SPST/ Manual Reset
141-0574	0.05" to 1.0" WC (12.5 Pa to 250 Pa)	@ 1"±0.2" WC (250 Pa ± 50 Pa)	Approx. 0.06" to 0.6" WC **(15 Pa to 150 Pa)**	SPDT/ Auto Reset

* Setpoint accuracy **tolerance** and switching differential decrease proportional to setpoint decrease.

Specifications	Measured media	Air
	Switch action	
Operating	Auto reset	See Table 1
	Manual reset	Switch is Normally Closed (N.C.) and only opens on increasing pressure signal. Switch must be manually reset by operator
	Ambient temperature range	–40°F to 180°F (–40°C to 82°C)
	Maximum overpressure	0.5 psi (3.4 kPa)
	Mounting position	Diaphragm in any vertical plane
Physical	Electrical ratings	Non inductive - 15 amps @ 120-277 Vac Pilot Duty - 300 VA @ 120-277 Vac
	Conduit opening	One, conduit size 1/2-inch
	Sample line connectors	Two connectors, complete with nuts and ferrules, which accept 1/4-inch OD (6.4 mm) copper or poly tubing
	Material	Aluminized steel
	Agency certification	
	U.L.	MFHX File MH9888
	CSA	1811M25
	Weight	1 lb (0.45 kg)
	Dimensions	See Figure 9
Accessories	High accuracy static pressure sensor	269-062
	Static pressure sensing kit	189-142

Operation

The diaphragm operates a spring lever to actuate the snap switch. The manual reset switch keeps the electrical contact open until pushed to reset. Turning the adjustment knob clockwise increases the setpoint.

Installation

Mount the unit with the diaphragm in any vertical plane. Connect the static pressure line(s) as shown in Figure 1.

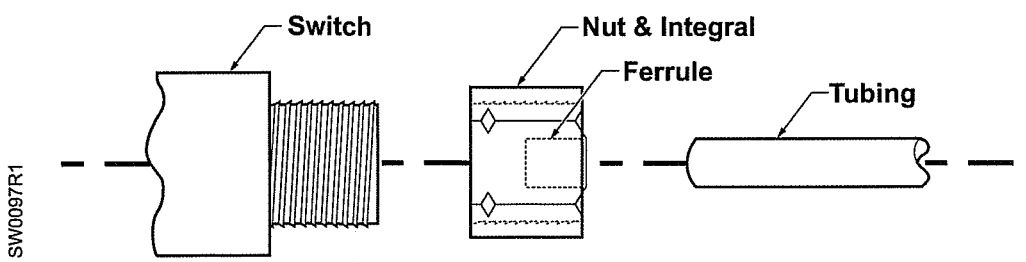


Figure 1. Connecting the Static Pressure Line.

Installation, Continued

For use as a negative pressure switch:

Connect the static pressure line to the low inlet (marked on the case and Figure 2) and leave the high inlet open to the atmosphere.

For use as a positive pressure switch:

Connect the static pressure line to the high inlet (marked on the case and Figure 2) and leave the low inlet open to the atmosphere.

For use as a differential pressure switch:

Connect the highest static pressure line to the high inlet and the lowest static pressure line to the low inlet (marked on the case and Figure 2.)

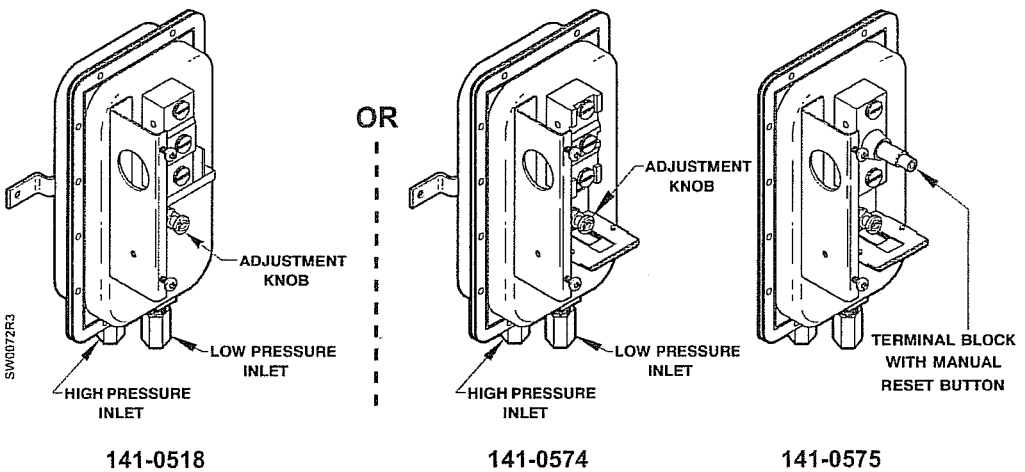


Figure 2. Switches with Covers Removed.

Setpoint Adjustment

Each switch is factory set at the minimum setpoint. See Table 1.

1. To increase the setpoint, turn the adjustment screw clockwise as shown in Figure 2 and Figure 3. From the lowest setpoint, several turns are necessary to engage the adjusting mechanism.

2. Adjust the setpoint until switching occurs at the required point.

3. Check the setpoint for accuracy with a magnahelic gauge.

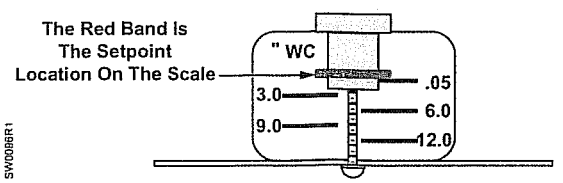


Figure 3. Adjusting the Setpoint.

Pressure Sensors

Pressure sensor selection is based on the medium to be measured, the measurement type (static or velocity), and the required range and accuracy.

Pressure sensors measure the difference between two sensing ports usually labeled high and low. This provides a pressure measurement against a reference. Measuring the pressure inside a pipe or duct and comparing it to the air outside (ambient) the pipe or duct is an example of static pressure measurement. A sensor measuring the pressure differential across a pump or chiller measures velocity pressure.

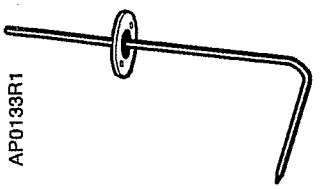


Figure 4. Pitot Tube (Part Number 269-062).

Wiring Diagrams

Before setpoint pressure is applied to the diaphragm, the switch contact is in a normally closed position as shown in Figures 5 and 6.

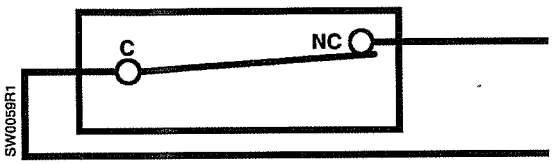


Figure 5. Manual Reset Switch 141-0575.

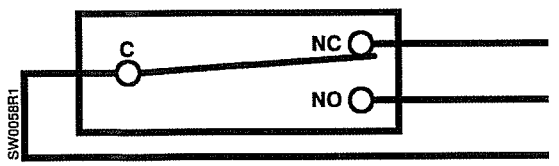


Figure 6. Auto Reset Switches 141-0518 and 141-0574.

SPDT terminals are marked Common (C), Normally Open (NO), and Normally Closed (NC).

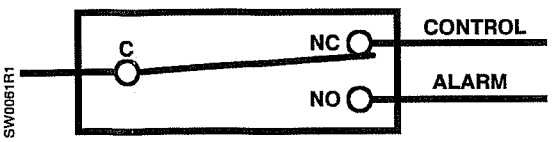


Figure 7. Auto Reset Switches to Prove Excessive Airflow or Pressure.

Wiring Diagrams, Continued

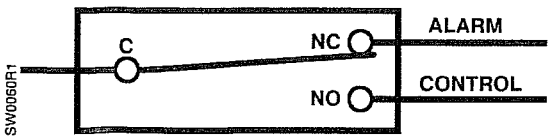


Figure 8. Auto Reset Switches to Prove Insufficient Airflow or Pressure.

Dimensions

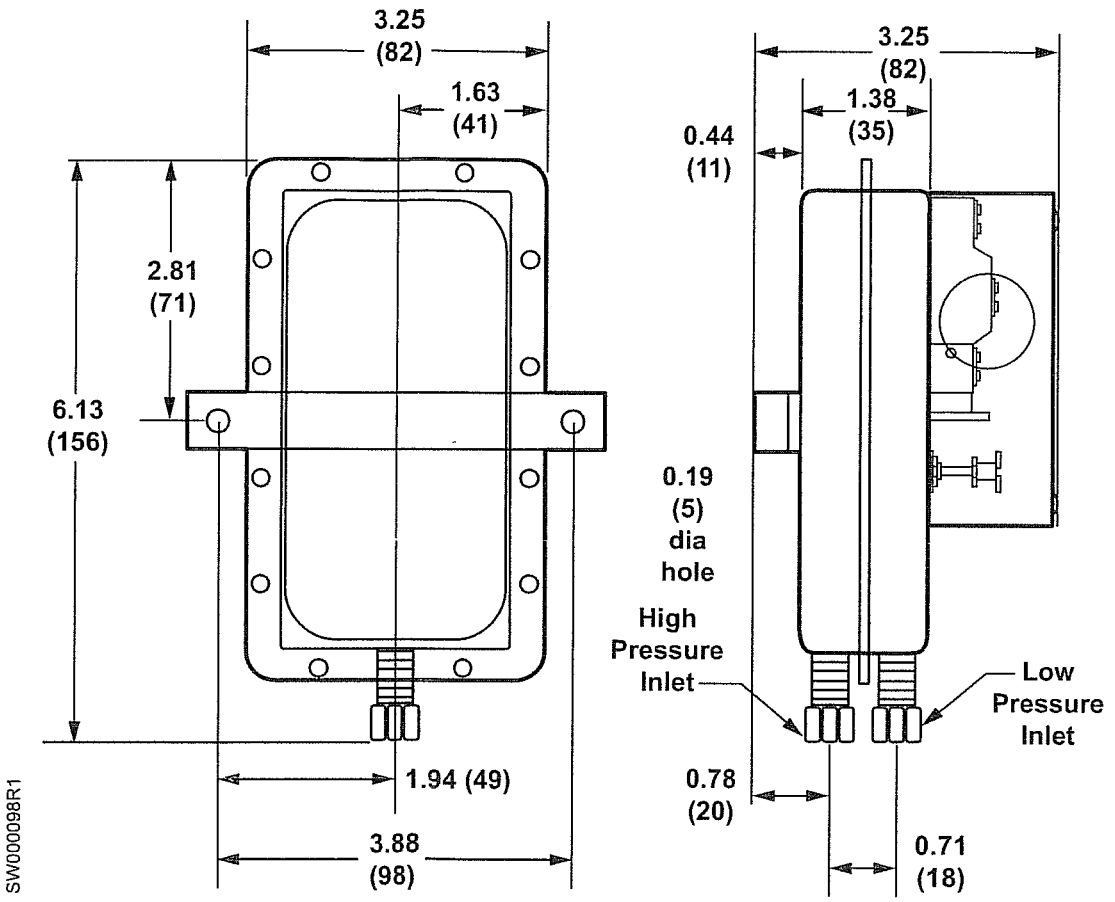
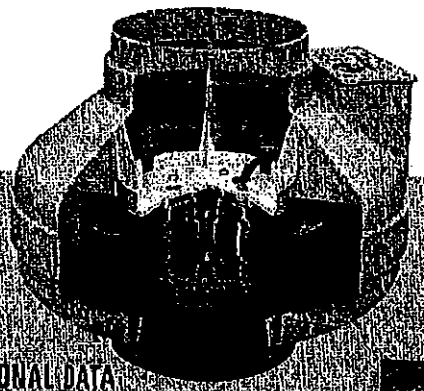


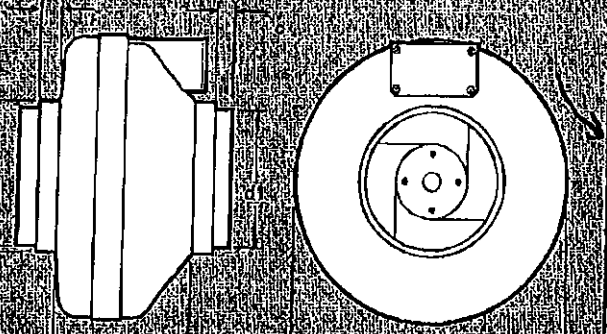
Figure 9. Dimensions in Inches (Millimeters).

Fantech

FR SERIES

THE ORIGINAL MITIGATOR





DIMENSIONAL DATA

model	øD	d1	d2	a	b	c
FR100	9 1/2	3 7/8	4 7/8	6 1/8	7/8	7/8
FR110	9 1/2	3 7/8	4 7/8	6 1/8	7/8	7/8
FR125	9 1/2	–	4 7/8	6 1/8	7/8	–
FR140	11 3/4	5 7/8	6 1/4	5 7/8	1	7/8
FR150	11 3/4	5 7/8	6 1/4	5 7/8	1	7/8
FR160	11 3/4	5 7/8	6 1/4	6 3/8	1	7/8
FR200	13 1/4	7 7/8	9 7/8	6 1/4	1 1/2	1 1/2
FR225	13 1/4	7 7/8	9 7/8	6 1/4	1 1/2	1 1/2
FR250	13 1/4	–	9 7/8	6 1/4	–	1 1/2

PERFORMANCE DATA

Fan Model	Energy Star	RPM	Volts	Rated Watts	Wattage Range	Max. Amps	CFM vs. Static Pressure in Inches W.G							Max. Ps	Duct Dia.
							0"	.2"	.4"	.6"	.8"	1.0"	1.5"		
FR100	✓	2950	120	21.2	13 - 22	10/18	147	110	83	60	21			0.90"	4"
FR125	✓	2950	115	18	15 - 18	0.18	148	120	88	47	-	-	-	0.79"	5"
FR150	✓	2750	120	70	54 - 72	0.67	263	230	198	167	136	106	17	1.68"	6"
FR160	-	2750	115	129	103 - 130	1.14	289	260	233	206	179	154	89	2.32"	6"
FR200	✓	2750	115	122	106 - 126	1.01	408	360	308	259	213	173	72	2.14"	8"
FR225	✓	3100	115	137	111 - 152	1.35	429	400	366	332	297	260	168	2.48"	8"
FR250	-	2850	115	241	216 - 248	2.40	639	600	553	506	454	403	294	2.58"	10"

FIVE YEAR WARRANTY

DURING ENTIRE WARRANTY PERIOD:

FANTECH will replace any fan which has a factory defect in workmanship or material. Product may need to be returned to the Fantech factory, together with a copy of the bill of sale and identified with RMA number.

FOR FACTORY RETURN YOU MUST

- Have a Return Materials Authorization (RMA) number. This may be obtained by calling FANTECH either in the USA at 1.800.747.1762 or in CANADA at 1.800.565.3548. Please have bill of sale available.
- The RMA number must be clearly written on the outside of the carton, or the carton will be refused.
- All parts and/or product will be repaired/replaced and shipped back to buyer; no credit will be issued.

OR

The Distributor may place an order for the warranty fan and is invoiced.
The Distributor will receive a credit equal to the invoice only after product is returned prepaid and verified to be defective.

FANTECH WARRANTY TERMS DO NOT PROVIDE FOR REPLACEMENT WITHOUT CHARGE PRIOR TO INSPECTION FOR A DEFECT. REPLACEMENTS ISSUED IN ADVANCE OF DEFECT INSPECTION ARE INVOICED, AND CREDIT IS PENDING INSPECTION OF RETURNED MATERIAL. DEFECTIVE MATERIAL RETURNED BY END USERS SHOULD NOT BE REPLACED BY THE DISTRIBUTOR WITHOUT CHARGE TO THE END USER, AS CREDIT TO DISTRIBUTOR'S ACCOUNT WILL BE PENDING INSPECTION AND VERIFICATION OF ACTUAL DEFECT BY FANTECH.

THE FOLLOWING WARRANTIES DO NOT APPLY:

- Damages from shipping, either concealed or visible. Claim must be filed with freight company.
- Damages resulting from improper wiring or installation.
- Damages or failure caused by acts of God, or resulting from improper consumer procedures, such as:
  1. Improper maintenance
  2. Misuse, abuse, abnormal use, or accident, and
  3. Incorrect electrical voltage or current.
- Removal or any alteration made on the FANTECH label control number or date of manufacture.
- Any other warranty expressed, implied or written, and to any consequential or incidental damages, loss or property, revenues, or profit, or costs of removal, installation or reinstallation, for any breach of warranty.

WARRANTY VALIDATION

- The user must keep a copy of the bill of sale to verify purchase date.
- These warranties give you specific legal rights, and are subject to an applicable consumer protection legislation. You may have additional rights which vary from state to state.

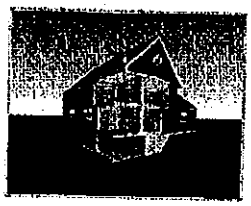
DISTRIBUTED BY:

Fantech **United States** 10048 Industrial Blvd. • Lenexa, KS 66215 • 1.800.747.1762 • www.fantech.net
Canada 50 Kanalflakt Way • Bouctouche, NB E4S 3M5 • 1.800.565.3548 • www.fantech.net

Item # 411741
Rev Date: 021010

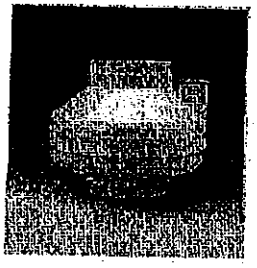
Radon Mitigation

HP Series Radon Fans



What is Radon? Radon is a cancer-causing natural radioactive gas that you can't see, smell or taste. In today's better insulated homes, Radon can accumulate and be a danger to your family's health. According to the EPA, Radon is the leading cause of lung cancer among non smokers and is the second leading cause of lung cancer in America. Over 20,000 die annually from the effects of Radon.

Test Your Home for Radon. It's easy and inexpensive. Test kits are available at a number of locations in your local area. If you have trouble finding one, contact your local EPA office. If the Radon level in your home is 4 pCi/L or more, contact a local Radon Mitigator. These trained professionals can help you solve your problem quickly and effectively with Fantech Ventilation Fans. For more information on Radon gas, visit www.epa.gov/radon (Environmental Protection Agency) or www.aarst.org (American Assoc. of Radon Scientists and Technologists).



The Original Mitigator
Fantech's versatile FR Series fans feature a plastic housing constructed of UL-recognized, UV-protected thermoplastic resin. This tough protective shell allows the fan to be mounted in outdoor and wet locations.* Ideal for multiple point exhaust, dual bathroom exhaust, or new room additions.

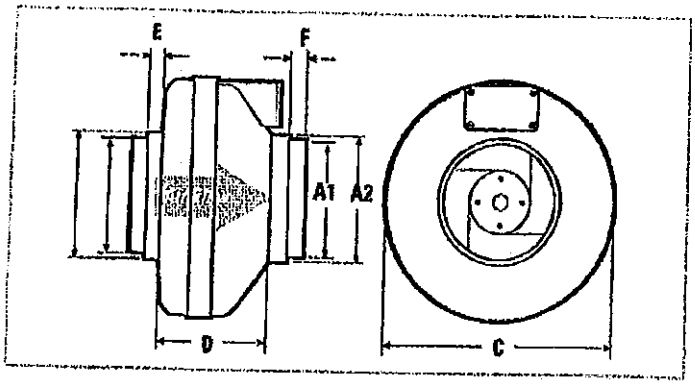
Fantech's FR Series fans are caulked at the motor screws, the wiring cables and along the seams of the fan to prevent moisture from entering the housing. Fantech's FR Series fans have long been the choice of residential builders and remodelers but now can be used for commercial projects with our recent UL commercial applications rating.

Product Series

Select Product Series

Radon Mitigation Downloads HP2133/HP2190, HP175/HP150, HP220, FR Series
Radon Professional Brochure
HP/FR Radon Fans Installation
HP190SL
HP190SL Spec Sheet
HP190SL Installation

Video provided by the Center For Environmental Research and Technology



FR Dimensional Data

Model	†A1	A2	C	D	E	F
FR 100	4	5	9 1/2	6 1/8	7/8	7/8
FR 110	4	5	9 1/2	6 1/8	7/8	7/8
FR 125	--	5	9 1/2	6 1/8	7/8	--
FR 140	6	6 1/4	11 3/4	5 7/8	1	7/8
FR 150	6	6 1/4	11 3/4	5 7/8	1	7/8
FR 160	6	6 1/4	11 3/4	5 7/8	1	7/8
FR 200	8	10	13 1/4	6 1/4	1 1/2	1 1/2
FR 225	8	10	13 1/4	6 1/4	1 1/2	1 1/2
FR 250	--	10	13 1/4	6 1/4	1 1/2	--

Dimensional information is in inches.

† Duct connections are 1/8" smaller than duct size.

FR Performance Data

Fan Model	Energy Star	RPM	Volts	Rated Watts	Wattage Range	Max. Amps	CFM vs. Static Pressure in Inches W.G. 0"	.2"	.4"	.6"	.8"	1.0"	1.5"	Max. Ps	Duct Dia
FR100	✓	2950	120	21.2	13-22	0.18	137	110	83	60	21	-	-	0.90"	4"
FR125	✓	2950	115	18	15-18	0.18	148	120	88	47	-	-	-	0.79"	5"
FR150	✓	2750	120	71	54-72	0.67	263	230	198	167	136	106	17	1.56"	6"
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FR200	✓	2750	115	122	106-128	1.11	408	380	308	259	233	173	72	2.14"	8"
FR225	✓	3100	115	137	111-152	1.35	429	400	366	332	297	260	168	2.48"	8"
FR250*	-	2850	115	241	146-248	2.40	649	600	553	506	454	403	294	2.58"	10"

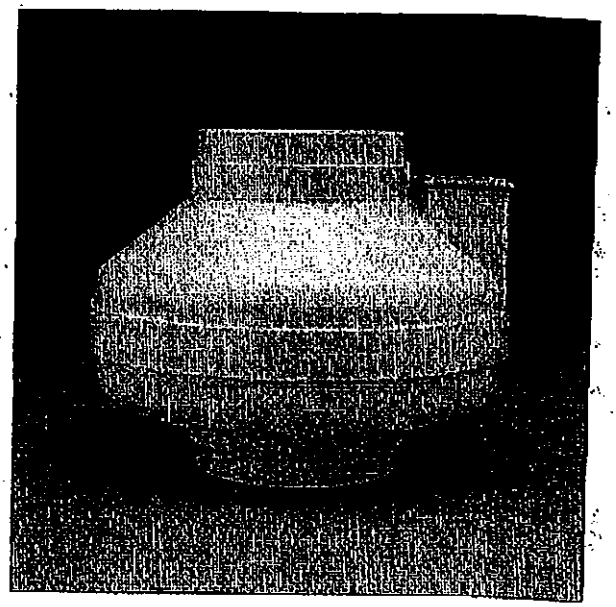
FR Series performance is shown with ducted outlet. Per HVI's Certified Ratings Program, charted airflow performance has been derated by a factor based on actual test results and the certified rate at .2 inches WG.

**Also available with 8" duct connection. Model FR 250-8. Special Order.*

Fantech

Installation Instructions for Radon Fans Model HP/FR

READ & SAVE THESE INSTRUCTIONS!



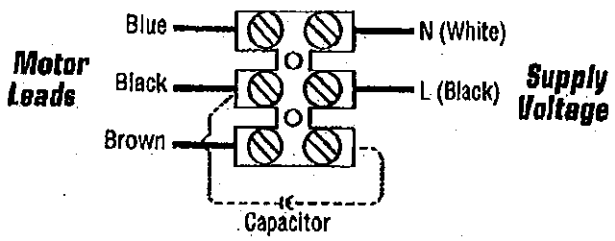
Warnings

DO NOT CONNECT POWER SUPPLY UNTIL FAN IS COMPLETELY INSTALLED. MAKE SURE ELECTRICAL SERVICE TO THE FAN IS LOCKED IN "OFF" POSITION.

1. Suitable for use with solid-state speed control.
2. This unit has rotating parts and safety precautions should be exercised during installation, operation and maintenance.
3. CAUTION: "For General Ventilation Use Only. Do Not Use To Exhaust Hazardous Or Explosives Materials and Vapors."
4. **WARNING: TO REDUCE THE RISK OF FIRE, ELECTRIC SHOCK, OR INJURY TO PERSONS-OBSERVE THE FOLLOWING:**
   a. Use this unit only in the manner intended by the manufacturer. If you have questions, contact the factory.
   b. Before servicing or cleaning unit, switch power off at service panel and lock the service disconnecting means to prevent power from being switched on accidentally. When the service disconnecting means cannot be locked, securely fasten a prominent warning device, such as a tag, to the service panel.
   c. Installation work and electrical wiring must be done by qualified person(s) in accordance with all applicable codes and standards, including fire-rated construction.
   d. The combustion airflow needed for safe operation of fuel burning equipment may be affected by this unit's operation. Follow the heating equipment manufacturer's guidelines and safety standards such as those published by the National Fire Protection Association (NFPA), the American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE) and the local code authorities.
   e. When cutting or drilling into wall or ceiling, do not damage electrical wires or other hidden utilities.
   f. Ducted fans must always be vented to the outdoors.
   g. If this unit is to be installed over a tub or shower, it must be marked as appropriate for the application.
   h. NEVER place a switch where it can be reached from a tub or shower.
5. WARNING! Check voltage at the fan to see if it corresponds to the motor nameplate.

GUARDS MUST BE INSTALLED WHEN FAN IS WITHIN REACH OF PERSONNEL OR WITHIN SEVEN (7) FEET OF WORKING LEVEL OR WHEN DEEMED ADVISABLE FOR SAFETY.

Wiring Diagram



Five (5) Year Warranty

This warranty supersedes all prior warranties

Installation that will result in condensate forming in the outlet ducting should have a condensate bypass installed to route the condensate outside of the fan housing. Conditions that are likely to produce condensate include but are not limited to: outdoor installations in cold climates, long lengths of outlet duction, high moisture content in soil and thin wall or aluminum outlet ducting. Failure to install a proper condensate bypass may void any warranty claims.

DURING ENTIRE WARRANTY PERIOD:

FANTECH will repair or replace any part which has a factory defect in workmanship or material. Product may need to be returned to the fantech factory, together with a copy of the bill of sale and identified with RMA number.

FOR FACTORY RETURN YOU MUST:

- Have a Return Materials Authorization (RMA) number. This may be obtained by calling FANTECH either in the USA at 1.800.747.1762 or in CANADA at 1.800.565.3548. Please have bill of sale available.
- The RMA number must be clearly written on the outside of the carton, or the carton will be refused.
- All parts and/or product will be repaired/replaced and shipped back to buyer; no credit will be issued.

OR

The Distributor may place an order for the warranty part and/or product and is invoiced. The Distributor will receive a credit equal to the invoice only after product is returned prepaid and verified to be defective.

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- Damages from shipping, either concealed or visible. Claim must be filed with freight company.
- Damages resulting from improper wiring or installation.
- Damages or failure caused by acts of God, or resulting from improper consumer procedures, such as:
  1. Improper maintenance
  2. Misuse, abuse, abnormal use, or accident; and
  3. Incorrect electrical voltage or current.
- Removal or any alteration made on the FANTECH label control number or date of manufacture.
- Any other warranty, expressed, implied or written, and to any consequential or incidental damages, loss or property, revenues, or profit, or costs of removal, installation or reinstallation, for any breach of warranty.

WARRANTY VALIDATION

- The user must keep a copy of the bill of sale to verify purchase date.
- These warranties give you specific legal rights, and are subject to an applicable consumer protection legislation. You may have additional rights which vary from state to state.

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