Predevelopment Subsurface Conditions Analysis Investigation Report

Site Location: Orchard Whitney Site



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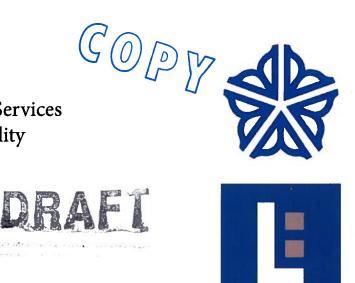


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1.0 Introduction

Lu Engineers was retained by the City of Rochester to conduct a Predevelopment Subsurface Conditions Analysis Investigation Report at the Orchard Whitney Brownfield Site ("Site") which has been targeted for redevelopment. The property is located immediately south of Lyell Avenue in the LYLAKS Brownfield Opportunity Area (BOA). The property was historically residential until the early 1900s when it was developed into an industrial facility covering both the 415 Orchard Street parcel and the 354 Whitney Street parcel.

The Site is a 3.9-acre site located at 415 Orchard Street and 354 Whitney Street in the City of Rochester (Figure 1). The Site includes mixed commercial and industrial uses. A seven-story structure is the only remaining building present at 415 Orchard Street (Orchard Street parcel). Structures previously occupying 354 Whitney Street (Whitney Street parcel) were demolished due to the unsafe condition of the buildings.

The Site is a fenced vacant lot covered mainly with concrete slabs and building demolition debris. A large berm of brick, concrete, and debris is located on the southern and western edge of the Site. The Site is bordered by Orchard Street to the east, a former railroad right-of-way to the south, Whitney Street to the west, and commercial buildings to the north. Figure 2 is a Site Plan showing current conditions at the Site.

The development considerations discussed in this report are:

- Environmental
- Geotechnical
- Utility Service access.

Each of these considerations is addressed in detail in the sections that follow.

2.0 Site Background and History

According to previous environmental reports for the Site, the area was originally developed with residential housing in the late 1800's. Railroad spurs were extended through the southern adjacent properties circa 1875 and the tracks were used for coal and materials delivery and shipping as the Site developed into manufacturing and industrial uses in the early 1900s.

The Delco Appliance Division of General Motors occupied the Site from 1930 to 1967 and had several processes including the manufacture of electrical equipment, various metal finishing operations, coal storage, boiler operation, power generation, petroleum storage and small scale automotive service.

The facility was expanded to its pre-demolition Site size and configuration by 1935. The plant closed in 1967 and the property continued to be used for metal finishing, synthetic foam production, printing, plastics manufacturing, electronics manufacturing, and warehousing until 1990 when the Site was abandoned.

Site conditions continued to decline after 1990 and in 2003, a large portion of the structure at the Whitney Street parcel was damaged during an arson fire. The City partially demolished the structure in 2005 to reduce the risk of collapse and to eliminate other hazardous conditions at the Site. The City foreclosed on the Whitney Street parcel in August 2006. Figure 3 provides an overlay of the Orchard Whitney site comparing existing conditions to historical buildings and operations.

Due to deteriorating and unsafe conditions of the structure at 354 Whitney Street, the City completed asbestos abatement and demolition of the structure in order to safely complete Remedial Investigation (RI) activities. The remaining building structure on the Whitney Street Site was demolished as an interim remedial measure (IRM) during this investigation in April and May 2008. The northern portion of 415 Orchard ("Low Rise") was demolished in 2010.

IRM activities are summarized in a report titled *Interim Remedial Measures Report* (Lu Engineers, May 2010). A summary of the hazardous and non-hazardous wastes as well as friable and non-friable asbestos waste disposed of from the Site includes the following:

- The investigation included surface soil sampling, soil borings, test excavations and groundwater monitoring well installation and sampling to determine the extent of contaminated soil and groundwater.
- The primary occurrence of contamination was related to metals contaminated soil and groundwater as a result of past metal finishing operations, hydraulic lift, former gasoline storage and pumps, and underground petroleum storage. Semi-volatile organic compounds (SVOCs), in particular polycyclic aromatic hydrocarbons (PAHs) have also been detected on the southeastern portion of the Site, in the vicinity of former plating operations and underground petroleum storage tanks. Sample analytical results show that all compounds detected in soil are below NYSDEC Residential Use Soil Cleanup Objectives (6 New York Codes, Rules, and Regulations (NYCRR) Part 375-6b).
- One (1), seven (7) story brick/stone structure of approximately 371, 600 square feet (ft) remains on the Orchard Street parcel ("High Rise"). An adjacent, heavily dilapidated single-story structure ("Low-Rise") was demolished by the City in December 2010. Crushed masonry and building materials generated during the demolition process are staged on-Site for future use during redevelopment.

Figures 4 thru 7 contain plans showing locations of soil and groundwater testing, a groundwater flow interpretation, bedrock contours, and site Geology cross sections.

3.0 Summary of Previous Environmental Reports

A summary of previous environmental work completed at the Site, shows that the following investigation actions have been performed at the Orchard-Whitney Site:

- > Draft Center City Industrial Park Facility Assessment, *Flint, Allen, White & Radley*, April 1999;
- > Environmental Protection Agency (EPA) Hazardous Substance Removal Action, 1999

- Phase I Environmental Site Assessment (ESA): 354 Whitney Street and 367, 370, 406, and 415 Orchard Streets, DAY Environmental, Inc. December 2000;
- Pre-Demolition Asbestos Inspection of 354 Whitney Street Bldg 1A, ENSR International, August 2003;
- Pre-Demolition Asbestos Inspection of 354 Whitney Street Bldg 2/2A/ Brick Mill, ENSR International, August 2003;
- Pre-Demolition Asbestos Survey 415 Orchard Street High Rise and Low Rise Structures, Lu Engineers, August 2006; and
- > Orchard-Whitney Targeted Site Assessment Report, NYSDEC Region 8, December 2006.
- > 2006 Hazardous Materials Investigation and IRMs, Lu Engineers
- > 2008 Remedial Investigation Activities and IRMs, Lu Engineers
- > 2011 Remedial Investigation Activities and IRMs, Lu Engineers
- > 2012 Remedial Investigation Activities and IRMs, Lu Engineers

Draft Center City Industrial Park Facility Assessment, 1999

The Flint, Allen, White & Radley Draft Center City Industrial Park Facility Assessment consisted of visual inspection and analysis of general structural and Site conditions including interior and exterior roof conditions, floor loading potential and an estimated cost for rehabilitation and/or demolition. The results indicated rehabilitation costs, not including hazardous materials or asbestos abatement could exceed \$5.8 million dollars.

USEPA Hazardous Substance Removal Action, 1999

Numerous drums containing suspected hazardous wastes were found in the abandoned 354 Whitney Street building during an inspection conducted by the City and NYSDEC. NYSDEC requested that the USEPA characterize and remove the abandoned wastes to mitigate the significant environmental and human health hazard posed by these substances. USEPA removed and disposed of over 700 drums of various sizes during this removal action. This building was later gutted by fire in 2003 and subsequently demolished by the City in 2006.

Phase I ESA, 2000

A Day Environmental, Inc. Phase I ESA completed in 2000 identified several Recognized Environmental Conditions including:

- The presence or former presence of petroleum or chemical underground storage tanks (USTs), the locations and removal of which could not be confirmed. Laboratory analysis of samples from pre-existing monitoring wells at the Site indicated that petroleum, RCRA metals and chlorinated solvent contaminants were present in groundwater above regulatory guidance values;
- The presence of suspected and confirmed asbestos containing materials (ACM) throughout all structures at the Site;
- Historical uses of the properties and adjacent properties suggestive of use, storage and generation of Resource Conservation and Recovery Act (RCRA) hazardous wastes such as: oil and lead based paints, lubricants, flammable liquids, heavy metals, and polychlorinated biphenyl

(PCB) oils. In addition, the Site is known to have at least two (2) documented NYSDEC spill incidents;

- Visual evidence of additional spills in locations where numerous drums of unknown materials were being staged;
- > The presence of several transformers, hydraulic lifts, and other motorized equipment commonly associated with PCB contaminated oils; and
- The presence of floor drains and/or sumps throughout the buildings containing unknown liquids, chemicals and residues. The discharge points of the drains and sumps could not be confirmed.

Asbestos Pre-demolition Surveys, 2003

The ENSR International, Inc. Pre-Demolition Asbestos surveys of the structures on the Whitney Street parcel conducted in 2003 indicated that friable and non-friable asbestos was present throughout all Site buildings including: roofing and flooring materials, window glazing, pipe insulation, wall board and insulation. Portions of the Site were already in decline, and friable asbestos was present where roofing materials had collapsed, windows were vandalized and pipe and wall insulation was damaged.

NYSDEC Investigation, 2006

The NYSDEC conducted a Targeted Site Assessment in the Fall of 2006 to evaluate the 354 Whitney Street Site for potential registry as an Inactive Hazardous Waste Disposal Site (IHWDS). The assessment consisted of:

- A geophysical survey to determine the location of buried metallic anomalies such as USTs or utilities;
- A utility survey to locate major utility right-of-ways and to identify potential contaminant pathways;
- Installation of soil borings and 6 groundwater monitoring wells to assess subsurface soil and groundwater quality and flow direction;
- Collection of surface soil samples to determine the potential for direct contact exposure to contaminants; and
- Collection of basement standing water samples to determine whether it could be a source of contamination to groundwater.

The results of the NYSDEC investigation indicated surface soil samples were contaminated with PAHs and PCBs, as well as metals. However, the investigation was inconclusive as to the source, nature and extent of any subsurface soil or groundwater contamination at the Site. The Site was not listed on the IHWDS registry; however, further investigation was recommended to fully evaluate conditions at the Site.

3.1 Lu Engineers Investigations and Interim Remedial Measures

A variety of RI efforts and IRMs have been completed at various times since Lu Engineers was retained by the City in July 2006. This iterative approach was necessary due to the fact that RI and IRM work needed to be coordinated with the demolition of 354 Whitney Street in 2008 and the "Low-Rise" portion of 415 Orchard Street in 2010. IRMs were required to allow demolition in certain cases and to facilitate access to areas of the Site requiring additional RI work. IRM and RI efforts to date have been summarized as they were completed in memoranda and correspondence provided to the City, NYSDEC and NYSDOH, as necessary.

It is noted that the RI work completed to date has not included an evaluation of conditions beneath the 415 Orchard Street "High Rise" due to the presence of friable asbestos throughout the building. Evaluation of this portion of the Site will be conducted at a future date once the building has been demolished. To facilitate closure of the remaining portions of the Site under the NYSDEC ERP, the footprint of the 415 Orchard Street is being subdivided from the remaining parcels making up the Site.

Lu Engineers is currently working toward completion of the final RI and Construction Completion Reports (CCR), which should be completed in October 2013. A Site Management Plan will also be prepared once the RI and CCR are reviewed and approved by the NYSDEC and a Record of Decision (ROD) has been drafted.

The main components of the RI and IRM efforts completed to date include the following:

2006 Hazardous Materials Investigation and IRMs

Lu Engineers conducted a detailed inspection of the structures located on the Site at that time including the 415 Orchard Street "High" and "Low-Rise" as well as the various contiguous structures remaining at 354 Whitney Street. This investigation was conducted in order to locate and characterize the presence of hazardous or otherwise contaminated materials other than asbestos that required removal prior to demolition. Small amounts of abandoned waste paints, oils and boiler chemicals were disposed of at that time. Other materials were characterized for removal during demolition by the demolition contractor.

Three non-PCB-containing transformers located on the outer wall of the 6th floor of 415 Orchard Street were also removed and disposed of to prevent them from potentially falling during demolition of the adjacent structure. Vandalism required cleanup of spilled non-PCB oils from the ground surface as part of this process. After demolition of the 354 Whitney structures, a total of 218 tons of arsenic hazardous waste ash from the boiler house chimney was transported and disposed of off-site.

Masonry demolition debris was crushed to approximately 4-6 inches in diameter and staged on Site above the existing pile of demolition debris left after demolition of the westernmost portions of the 354 Whitney Street complex in 2003. Crushed masonry demolition debris was also staged along the western perimeter of the Site along Whitney Street at that time.

2008 RI and IRMs

Once the remaining 354 Whitney structures were demolished, the majority of the Site was accessible facilitating a more comprehensive investigation, which included:

Installation and sampling of a total of 16 monitoring wells (MW-07 through MW-22)

- Drilling of a total of 6 soil borings (SB-01, 03, 05, 07, 19 and 20 (intervening numbers were completed as wells))
- > Excavation of a total of 18 test pits (TP-01 through 18)
- Manual excavation of 4 surface soil samples (SS-01 through 04)

As test pits were installed in the central and southern portion of the Site, elevated screening levels and indications of waste materials were observed present in clay tile crocks associated with the former drainage features present on the ground floor of the former buildings. One drum of non-hazardous, solvent contaminated sludge was removed and disposed of off Site as an IRM during this process.

The findings of the 2008 RI indicated the presence of abandoned USTs and elevated subsurface chromium concentrations adjacent to the western wall of 415 Orchard Street. These locations were designated as Areas of Concern (AOCs) 1 and 2, respectively. An abandoned hydraulic lift was identified (AOC-3) in the north/central portion of the Site. Elevated screening data and petroleum odors were found in the northern portion of the western area of the Site warranting designation as AOC-4.

Surface soils from the immediate vicinity of the Site were found to contain relatively low levels of metals and SVOCs indicative of typical urban background conditions. With the exception of the elevated chromium levels found at AOC2, subsurface soil and groundwater were not observed to be significantly impacted within the study area.

Data gaps remaining after completion of the 2008 RI included the presence of a large tunnel aligned east/west located in the center of the Site with smaller tunnels branching off to the north and south apparently associated with utilities as discussed elsewhere herein. The nature and extent of contamination associated with AOCs 1 through 4 and potential presence of contamination not accessible beneath 415 Orchard Street at that time were also considered to be data gaps requiring additional investigation.

2011 RI and IRMs

RI and IRM efforts were conducted concurrently during 2011 to minimize the mobilization and demobilization of equipment to and from the Site. IRM work focused on the closure of a total of 9 petroleum USTs located within AOC-1. During this process, a total of 14,250 gallons of petroleum and petroleum-contaminated water was removed and disposed of off Site. A total of 11,500 gallons of petroleum-contaminated water were treated on-Site and discharged under permit to the Monroe County sewer line on the western side of Orchard Street. This process also included the removal and proper disposal of 265 tons of petroleum and metals impacted soils. The concrete vaults surrounding the tanks were backfilled with flowable fill to a depth of approximately 5 feet below grade to prevent infiltration of contaminated groundwater from the adjacent AOC-2 (Former Plating Area). The remainder of the backfill was completed with clean imported fill and crushed demolition debris from the materials staged on Site.

The demolition of the 415 "Low Rise" in late 2010 allowed access to the building's former footprint. Other locations including, but not limited to the petroleum–contaminated soils identified as AOC-4 also required additional investigation to determine whether additional IRMs were warranted. Lu Engineers also focused on obtaining detailed data on the nature and extent of soil and groundwater contamination associated with AOC-2 for development of an IRM strategy. RI efforts completed in 2011 concurrently with the AOC-1 IRM included the following:

- Installation of 3 groundwater monitoring wells (MW-23 through 25)
- Installation of 16 temporary monitoring wells within and adjacent to AOC-2 (PA-01 through 16)
- Installation of four additional soil borings (PA-17, PA-18, SB-26A and SB-26B)
- Excavation of 23 additional test pits (TP-19 through 39, TP-7A and TP-7E)

Soil and groundwater conditions within the 415 Orchard "Low Rise" footprint and within the area of AOC-4 were found to be consistent with background levels of VOCs, SVOCs and metals elsewhere on the Site and no additional IRMs were proposed. Detailed data was also obtained from AOC-2 allowing 3-dimensional modeling of the area and development of a coherent plan for remediation of the chromium soil and groundwater contamination observed in this location.

2012 RI and IRMs

The additional RI work conducted in 2012 was limited to re-sampling of all Site groundwater wells once the IRMs were completed with respect to AOC-2 and AOC-3 as well as a more detailed review of the nature and extent of the tunnel systems present on the Site. A subcontracted utility scanning company was brought to the Site to televise accessible portions of the remaining drainage features and tunnels.

The large east/west oriented tunnel was also entered to determine whether hazardous materials were present and to verify that its steel reinforced concrete roof could bear the load trucks and other equipment to be mobilized for remediation of the adjacent AOC-2. Lu Engineers determined that the roof of the tunnel was capable of bearing the weight of all proposed activities above. Inspection of the tunnel also revealed the presence of friable asbestos pipe covering within and approximately 5 feet of standing water (determined previously to be uncontaminated). The tunnel floor and walls are concrete and it is approximately 12 feet deep. Other branching potions of the tunnel system could not be accessed within the Site and are assumed to be primarily associated with utilities which served manufacturing operations in the past. A portion of a closed tunnel was accessed from a commercial property (Turner Bellows, Inc.) to the west of the Site. However this tunnel terminates at the Site's western perimeter.

IRM effort during 2012 focused on remediation of hazardous levels of chromium (hexavalent chromium) and other RCRA metals identified in soil and groundwater within the former plating area (AOC-2). A total of approximately 500 tons of hazardous and non-hazardous soils contaminated with chromium, arsenic and cadmium were removed from AOC-2 and disposed of off Site. Lu Engineers used a portable x-ray fluorescence (XRF) meter to assist in the differentiation of soil contaminant levels during both the AOC-2 RI and IRM process.

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Careful planning around seasonal weather and groundwater variations allowed removal of the affected soils without requiring groundwater removal during this process. Hazardous groundwater was treated in-situ during and after backfilling with clean imported crushed stone and select fill. A total of 300 gallons of a molasses and water mixture was fed by gravity into the subsurface. Subsequent groundwater sampling indicated that no hazardous conditions remained. Limited occurrences of elevated, but not hazardous levels of chromium, arsenic and chromium remain after completion of this IRM due to limited access during the excavation process.

AOC-3 was also remediated concurrently with the AOC-2 effort. A small amount (less than 1 ton) of petroleum contaminated soil as well as the hydraulic lift itself were removed and disposed of during the 2012 IRM work.

3.2 Development Considerations

Based on previously completed environmental investigations and cleanup, the following items should be considered for future development of the site.

3.2.1 Environmental

A visual summary of findings from the environmental investigation can be found in Appendix 1. Findings from environmental work completed to date show that groundwater at the site has several compounds that exceed NYSDEC groundwater standards. Most of these compounds are within the former plating area with trace levels of several compounds (chloroform and lead) found in MW-21 and MW-11 respectively.

With the exception of the former plating area and two isolated areas along the southern property boundary, surface soil results do not exceed NYSDEC standards for commercial use. This is also true for subsurface soils with the plating area being the only sampled location showing levels of several metals above NYSDEC commercial use standards.

Unless additional environmental contamination requiring remediation is found during subsurface investigation after the building at 415 Orchard Street is demolished, it is not expected that the NYSDEC will require additional investigation and/or remediation at the site. Continued groundwater monitoring will likely be recommended. Institutional controls such as deed restrictions on future use and perhaps measures for vapor mitigation during building construction are also expected.

3.2.2 Geotechnical

Foundation Design, PC was present during the environmental borings and also reviewed all test pit and boring logs from the investigation. Their interpretation and recommendations for future fill management and foundation design are provided in the sections that follow.

4.0 Geophysical Survey Results

A geophysical survey (Appendix 2) was completed by GeoMatrix on the 354 Whitney Street parcel in August of 2005. The purpose of the survey was to determine the location of large underground conduits

that may act as preferential pathways for environmental concerns. The survey was completed using frequency domain (EM31) and time domain (EM61) electromagnetic techniques. Both technologies are capable of identifying potential buried metallic objects such as tanks and containers as well as utility piping.

The results of the survey were inconclusive with significant interference from reinforced concrete (rebar) and other common anomalies at industrial sites. Graphical representations from the survey do show the presence of tunnels located on the property.

4.3 Development Considerations

The following items should be considered for future development of the site.

4.3.1 Environmental

The 2005 geophysical survey was inconclusive for the presence of tanks and/or containers. Subsequent investigations and remedial measures completed by Lu Engineers from 2008 to present have addressed areas of environmental concern that needed corrective action. A detailed description of corrective actions taken will be found in Lu Engineers Construction Completion Report which will be completed in October 2013.

4.3.2 Geotechnical

There are sub-surface features identified in the geophysical survey and subsequent environmental investigations that could impact future development. These include utility tunnels, and utility lines. Specific impacts should be evaluated as future development options (building loads, proposed subsurface features, and locations) are considered.

5.0 Test Pitting Investigation

Lu Engineers completed 45 test excavations (Test Pits) as part of the remedial investigations and cleanup at the site (2008 to present). Test locations were selected based on previous environmental reports, historical maps and suspected areas of environmental concern. Test locations are shown on Figure 6. All test pit logs were provided to our Geotechnical Engineer (Foundation Design) for review. A discussion of our environmental findings and feedback regarding foundation recommendations is provided below.

Test pits were completed to evaluate potential contamination and to evaluate fill conditions. Test pits were excavated in October 2008, using an excavator equipped with a jack-hammer to investigate subslab features. Additional test pits were excavated in March 2011 using a JD 200C IC excavator. Excavation depth varied from 1 to 20 feet (ft) below ground surface (bgs) depending on location, intent, soil characteristics, and depth to bedrock. Excavated material was returned to the appropriate test pit after field screening and sampling was completed.

Soil samples were collected from each test pit and visual observations, characterization of subsurface materials, and field measurements of volatile organic compounds (VOCs) for initial were recorded on test pit logs. Samples were sent to a NYS certified laboratory for analysis as appropriated.

Test excavations show fill materials throughout the site at an average depth of 6 to 8 feet bgs. These depths are consistent with the findings of test borings completed during RI activities. Fill consists of reworked native soil and/or debris. Fill depths vary from 0 to 8 feet (former house basement at TP-34 to 13.7 feet (near the smoke stack foundation). Previous slabs were likely placed over areas of former residences and these areas contain poor quality fills. These areas are shown on the subsurface structure sketch provided in Foundation Design's Pre-Development Geotechnical Assessment, November 2011 (Appendix 3).

Test Pit logs are provided in Appendix 4.

5.4 Findings and Development Considerations

The following items should be considered for future development of the site.

5.4.1 Environmental

Analytical sampling from site test pits indicated the presence of several compounds at levels above NYSDEC cleanup standards for commercial development. Unless otherwise noted, all analytical samples were obtained from the vadose zone located approximately 6-8 feet below grade. Follow-up corrective actions have taken place since the test pits were completed and the site generally meets cleanup standards for commercial use. A detailed description of corrective actions can be found in Lu Engineers Construction Completion Report dated May 2013.

5.4.2 Geotechnical

Based on historical records showing residences along with their estimated fill depths and the type of materials present in the test pits, Foundation Design has concluded that the soil may not acceptable for supporting new structures or floor slabs. Depending on their location, new structures and slabs would be subject to settling over time with new loads. Fill would need to be removed and replaced throughout most of the site prior to new development. This subject is expanded upon in the sections that follow.

6.0 Combined Geotechnical and Environmental Drill Rig Soil Borings and Groundwater Monitoring Wells

Lu Engineers began a RI of the Orchard Whitney site in 2008. During this investigation 50 soil borings were completed. Of these 50 borings 23 were converted to permanent groundwater wells (conventional hollow stem augering methods) and 16 (in the former plating area) were converted to micro wells (geoprobe borings). All of these locations are shown on Figure 6. Soil borings which were not converted to wells are designated as SB points. MW designates monitoring wells. PA-0 thru PA-16 are micro wells and PA-17 and 18 are geoprobe borings.

Boring logs were recorded including soil characteristics, headspace concentrations, water table depth, sample recovery, blow counts and other pertinent information. Boring logs are provided in Appendix 5.

Monitoring well locations were selected to provide representative data relative to conditions throughout the Site. The wells were installed in areas of known former petroleum or chemical storage

and handing, locations of reported surface spills or staining, floor drains, sumps or trench drains, areas containing electrical equipment or hydraulic lifts, and areas of concern identified or incompletely characterized during trenching or building demolition.

Overburden drilling (SB points) was conducted using 4.25-inch ID hollow-stem augers. Continuous split spoon soil samples were collected in accordance with ASTM Method D-1586 at each boring, except for TB-19 located in the former plating area, and characterized using the Burmeister Soil Classification System. All split-spoon samples were logged by a geologist and recorded for reference. Field headspace measurements of VOCs from split-spoon soil samples were recorded using a MiniRae 2000 portable PID meter. Samples were collected using a standard two-inch outer diameter (OD) split-spoon driven by a 140-pound drill rig hammer. Blow counts were recorded for each split-spoon sample and recorded on well/soil boring logs provided in Appendix 4.

Soil was continuously sampled at each PA location using four (4) foot macrocore samplers with acetate sleeves (Geoprobe tooling) and driven by a geoprobehammer. Blow counts were recorded for each four (4)-foot macro-core sample and recorded on well/soil boring logs.

All wells, except MW-24 and MW-25, were completed flush to grade and completed with locking, protective steel casings set in concrete drainage pads. MW-24 and MW-25 were completed with stick-up style protective casings.

6.5 Findings and Development Considerations

Development considerations based on environmental findings at the site were previously discussed in Section 4.2. Maps and drawings showing the findings of the investigations and cleanup work can be found in Appendix 1.

7.0 Fill Management

Test pits, soil borings and monitoring wells completed during the remedial investigation generally show the presence of fill ranging from 0 to 3 feet in most locations. These depths are considerably deeper in the area surrounding the former house basement (8 feet at TP-34) and as much as 13 feet near the former smoke stack location (PA-06). There is also a large area of fill/construction debris located along the southwest corner and western perimeter of the property.

7.6 Development Considerations

The following items should be considered for future development of the site.

7.6.1 Environmental

Based on the proposed location of future structures and/or subsurface site features the management of existing fill will need to be further evaluated for development. Foundation Design has developed a cost estimate to remove and replace existing fill to support new structures. The numbers are conservative based on the fact that former residence basements on the property were likely filled with poor quality materials and the fact that several areas have shown fill at depths of between 8 and 13 feet.

It is our professional opinion that certain areas of the site are more suitable to development than others. Once the City and/or developer have a conceptual future use plan in place, fill management options and costs can be provided with much more accuracy. This is also true for existing and new utilities as current fill may prove to be corrosive to future lines and hookups. It is also noted that the extensive foundations remain in place throughout much of the Site that once supported massive multi-story masonry industrial structures. The precise location of all remaining foundations has not been completely identified but much of these structures are visible at the surface.

7.6.2 Geotechnical

Foundation Design has stressed in their report (Appendix 3) that debris laden fill is not acceptable for support of new structures. They conclude that although it suited the needs of the previous owners for floor slab support, the material will likely settle and compress with time and new loads. Additional work such as test pitting that is based on a proposed site development plan could serve to reduce the level of uncertainty with fill management.

The best way to quantify fill management is to overlay previous development areas with new construction limits and assume an expected removal depth. Foundation Design recommends that for planning they assume that the older, pre-AC Delco development areas will require up to 8 feet of fill removal and replacement. Development near the former stack will require removal of as much as 15 feet. Other AC Delco subsurface features such as the utility tunnel, utility lines or basement areas will require appropriate depths of removal.

Based on existing information Foundation Design prepared a cost estimate for fill management and this is provided in Appendix 3.

8.0 Foundation Recommendations

Although there are fill considerations, soils below the fill are firm native silt/clay and underlain by dense glacial till resting on bedrock at an average depth of approximately 12 bgs. This upper firm material should be sufficient for modest structural loads. The deeper glacial till can support more significant loads such as the existing structure. Bedrock depths should be deep enough to facilitate near-surface construction. Deep basements and or utilities may require bedrock removal. Groundwater appears to be able to be handled using typical construction practices for near surface structures but will pose challenges for deeper permanent structures.

Foundation Design projects that at this stage in planning it is expected that a spread footing foundation system will be utilized. For near surface structures (bear at frost depth) it is expected that footings will bear at low to moderate pressures on the order of 2,000 pounds per square foot (psf). Deeper structures will bear at pressures that that may approach 6,000 psf.

If new construction consists of very heavy loads (greater than 400 kips) deep foundation systems should be considered. In this case a drilled shaft system bearing at a depth of fifteen to twenty feet below grade at a bearing pressure of seven to ten tons per square foot (tsf) should be considered. Where asphalt and concrete pavements or sidewalks are placed over in-place fill, developers should expect less than typical time before cracking, waviness, and/or potholes form. This risk appears to be acceptable compared to the cost of removing the fill. For estimating purposes budgeting for a slightly thicker than normal pavement, such as .5 inches of asphalt top, 2.5 inches of binder, and 15 inches of crusher-run subbase. Pavement slopes of at least 2.0 percent should be planned for and weeps should be installed at low points to facilitate drainage into the storm system.

Foundation Design also incorporates seismic considerations into their report and their recommendations can be viewed in Appendix 3.

8.7 Development Considerations

Based on the foundation recommendations, the following items should be considered for future development of the site.

8.7.1 Environmental

A soils management plan will be required in order to identify steps to be taken during future excavation and/or construction work. This plan should detail specific procedures to be taken with regard to fill management. As plans are developed for future construction, the soils management plan can be updated to match given areas of the site that will be impacted.

8.7.2 Geotechnical

Discussed in Section 9.0.

9.0 Existing Utility Summary

The site is currently serviced by numerous utilities, the majority of which are under paved roadways, including Whitney Street, Orchard Street, and Lyell Avenue (Figures 8-12 with additional drawings included). The known utilities include:

- Monroe County Pure Water systems storm and sanitary
- City of Rochester systems Water & Street Lighting
- Rochester Gas & Electric Gas & Electric
- Frontier Communications Communications
- Time Warner Cable- Communications

The City of Rochester New York Developers Guide should be consulted for guidance regarding required permits, and is included in Appendix 6 of this report.

In addition to utility-specific permits, additional connection or installation permits may also be required. These may include a Street Operating Permit and or Excavation Permit, which can be obtained through the City's Department of Environmental Services Permits Office, City Hall, 30 Church Street.



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Based on fill materials and native soils present at the site, it is likely that these may be considered corrosive to ductile iron pipe. Polyethylene encasement is recommended for ductile iron pipe installation. In shallow fill, trench improvement may be accomplished by undercutting utility trenches to remove fill and backfilling with sub-base/stone for support. Wrapping the pipe and stone in a geogrid is recommended to span small irregularities that may form under the pipe in areas of deeper fill.

If development results in additional storm or sanitary discharge a Rochester Pure Waters District Permit must be obtained from Monroe County Pure Waters for new connections to sewers. The depth and size of new/relocated storm or sanitary utilities is expected to be similar to the existing. MCPW connections and lines are shown on Figure 8 and sewer as-built drawings are included on Figures 12-1 and 12-2.

Any water service connections must be approved by the City of Rochester Water Bureau. The depth and size of new/relocated water utilities is expected to be similar to the existing. Water service capabilities are shown on Figure 8 with services and connections running along Whitney Street, Lyell Avenue, and Orchard Street.

Other Utilities including Frontier Communications and Rochester Gas and Electric must be contacted separately for evaluation of existing capacity of their utility. If additional utility capacity and infrastructure are necessary, based on specific demands of the propose development, each utility will provide cost estimates for upgrades. If the capacity of the existing utility is adequate, then arrangements should be made with each utility company to connect to existing services.

Service for Frontier Communications is shown on Figure 9. Figure 10 shows RG&E Service areas on Orchard and Whitney Streets and their as-built drawings are also included.

10.0 Site Survey

A Lu Engineers' NYS Licensed Surveyor conducted a Site survey to identify property boundaries, existing site features, structures, and monitoring wells. This information was used to create a base map of the Site using the NAD 83 UTM Zone 18 (NYTM) coordinate system to present these features and the locations of sample points.

The Site survey, completed on October 8, 2008 and updated in June 2013 subsequent to the Whitney Street parcel structure demolition and installation of the groundwater monitoring wells, included the locations and elevations of installed groundwater monitoring wells, and all property boundaries, topographic features, landmarks and known utility corridors and tunnels. All other data collection points, including test pits, and surface sample locations were located using a hand held Global Positioning System (GPS) unit and plotted on the survey map using NAD 1983 State Plane New York West coordinates.

Monitoring well locations were surveyed and the top of casing determined to 0.010 foot accuracy to mean sea level by Lu's survey department. Groundwater depths, laboratory analytical data, Site survey

data and GPS data was used to prepare a groundwater flow models, depth to groundwater and local hydraulic gradient diagrams as well as to prepare contaminant concentration plume maps.

The Site Survey Map completed for the project is included in Appendix 7.

11.0 Conclusions and Recommendation

Lu Engineers was retained by the City of Rochester to conduct a Predevelopment Investigation at the Orchard Whitney Brownfield Site which has been targeted for redevelopment. Details of any proposed development are currently not in place or not available. The development considerations discussed in this report are 1) Environmental; 2) Geotechnical: and 3) Utility Service access. Each of these considerations is discussed below.

Environmental Considerations

A detailed description of the site's history and all associated environmental investigation and cleanup reports is provided in Section 4 of this report.

A visual summary of findings from the environmental investigation can be found in Appendix 1. Findings from environmental work completed to date show that groundwater at the site has several compounds that exceed NYSDEC groundwater standards. Most of these compounds are within the former plating area with trace levels of several compounds (chloroform and lead) found in MW-21 and MW-11 respectively.

With the exception of the former plating area and two isolated areas along the southern property boundary, surface soil results do not exceed NYSDEC standards for commercial use. This is also true for subsurface soils with the plating area being the only sampled location showing levels of several metals above NYSDEC commercial use standards.

Unless additional environmental contamination requiring remediation is found during subsurface investigation after the building at 415 Orchard Street is demolished, it is not expected that the NYSDEC will require additional investigation and/or remediation at the site. Continued groundwater monitoring will likely be recommended. Institutional controls such as deed restrictions on future use and perhaps measures for vapor mitigation during building construction are also expected.

The current environmental conditions at the site are typical of older industrial facilities located within urban locations. Based on previous investigations and cleanup efforts completed to date, there are not expected to be significant environmental issues with commercial development. Proposed development options should be evaluated as they are produced to determine if the presence of fill materials or remaining residual chemical compounds may impact construction or future occupancy. At this time the City plans to conduct additional environmental investigation of the 415 Orchard Street "High Rise" once demolition is completed. It is also recommended that a soils management plan be developed for the site and modified as necessary based on development plans.



Geotechnical Considerations

Foundation Design PC provided insight and opinions for geotechnical considerations at the site. Their professional opinion and associated cost estimates were based on observations during soil boring work and a review of site boring logs and test pit records. Based on their reports and our knowledge of the site, there are 3 areas of consideration related to geotechnical aspects of development.

1. Fill materials present at the site represent a load concern depending on building location, load considerations and slab support. Foundation Design has stressed in their report (Appendix 3) that debris laden fill is not acceptable for support of new structures. They conclude that although it suited the needs of the previous owners for floor slab support, the material will likely settle and compress with time and new loads. Additional work such as test pitting that is based on a proposed site development plan could serve to reduce the level of certainty with fill management.

The best way to quantify fill management is to overlay previous development areas with new construction limits and assume an expected removal depth. Foundation Design recommends that for planning they assume that the older, pre-AC Delco development areas will require up to 8 feet of fill removal and replacement. Development near the former stack will require removal of as much as 15 feet. Other AC Delco subsurface features such as the utility tunnel, utility lines or basement areas will require appropriate depths of removal.

It is our professional opinion that certain areas of the site are more suitable to development than others. Once the City and/or developer have a conceptual future use plan in place, fill management options and costs can be provided with much more accuracy. This is also true for existing and new utilities as current fill may prove to be corrosive to future lines and hookups.

Based on existing information Foundation Design prepared a cost estimate for fill management which is provided in Appendix 3.

2. Foundation design requirements - Although there are fill considerations, soils below the fill are firm native silt/clay and then dense glacial till. This upper firm material should be sufficient for modest structural loads. The deeper glacial till can support more significant loads such as the existing structure. Bedrock depths should be deep enough to facilitate near-surface construction. Deep basements and or utilities may conflict with bedrock and would require fracturing. Groundwater appears to be able to be handled using typical construction practices for near surface structures but will pose challenges for deeper permanent structures.

Foundation Design projects that at this stage in planning it is expected that a spread footing foundation system will be utilized. For near surface structures (bear at frost depth) it is expected that footings will bear at low to moderate pressures on the order of 2,000 psf. Deeper structures will bear at pressures that that may approach 6,000 psf.

If new construction consists of very heavy loads (greater than 400 kips) deep foundation systems should be considered. In this case a drilled shaft system bearing at a depth of fifteen to twenty feet below grade at a bearing pressure of seven to ten tsf should be considered.

Where asphalt and concrete pavements or sidewalks are placed over in-place fill, developers should expect less than typical time before cracking, waviness, and/or potholes form. This risk appears to be acceptable compared to the cost of removing the fill. For estimating purposes budgeting for a slightly thicker than normal pavement, such as .5 inches of asphalt top, 2.5 inches of binder, and 15 inches of crusher-run subbase. Pavement slopes of at least 2.0 percent should be planned for and weeps should be installed at low points to facilitate drainage into the storm system.

Foundation Design also incorporates seismic considerations into their report and their recommendations can be viewed in Appendix 3.

3. Existing utility tunnels – Figure 11 of this report shows the location of an existing utility tunnel/passage way that currently exists at the site. This tunnel along with remaining subsurface basement structures will pose a load concern to future development if buildings are constructed in their vicinity. Foundation Design's report estimates that these tunnels and any identified void spaces will be filled as part of any future development. Appendix 3 contains estimated costs for filling these areas. We recommend that a Beneficial Use Determination be made for existing fill/debris that is located on site to determine if these materials may be used for fill. We understand that the City may also have materials in other areas of the City that may be suitable for fill.

Utility Service Access

The site is currently serviced by numerous utilities, the majority of which are under paved roadways, including Whitney Street, Orchard Street, and Lyell Avenue (Figures 8-12 with additional drawings included). The known utilities include:

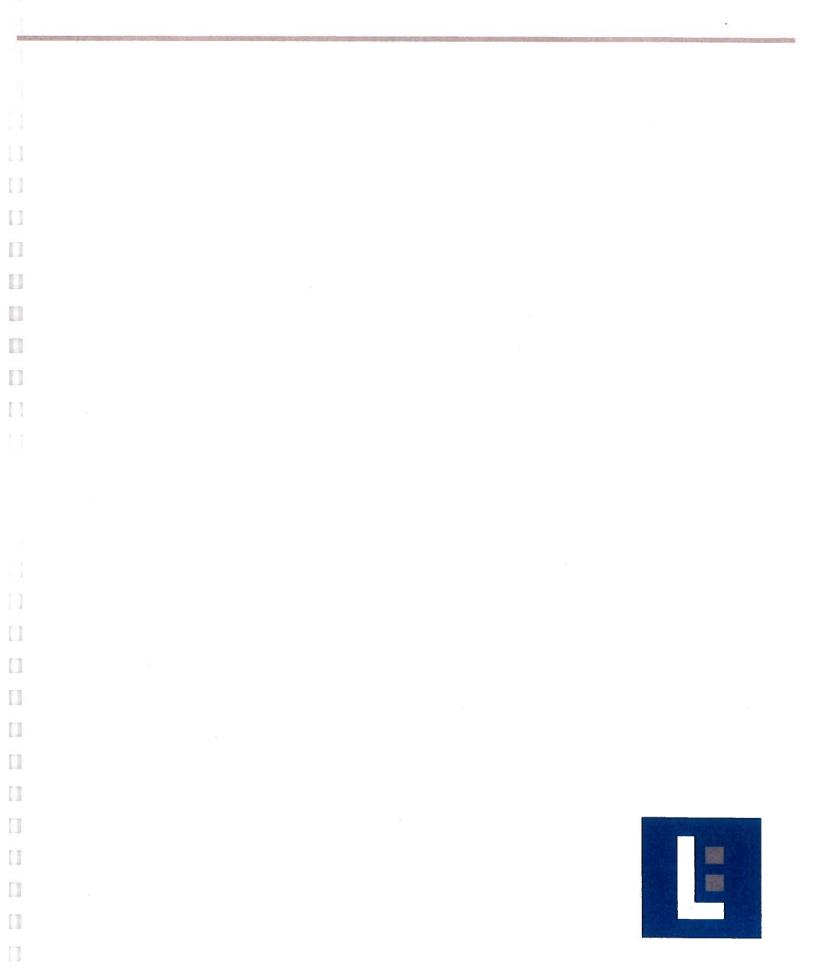
- Monroe County Pure Water systems storm and sanitary
- City of Rochester systems Water & Street Lighting
- Rochester Gas & Electric Gas & Electric
- Frontier Communications Communications
- Time Warner Cable- Communications

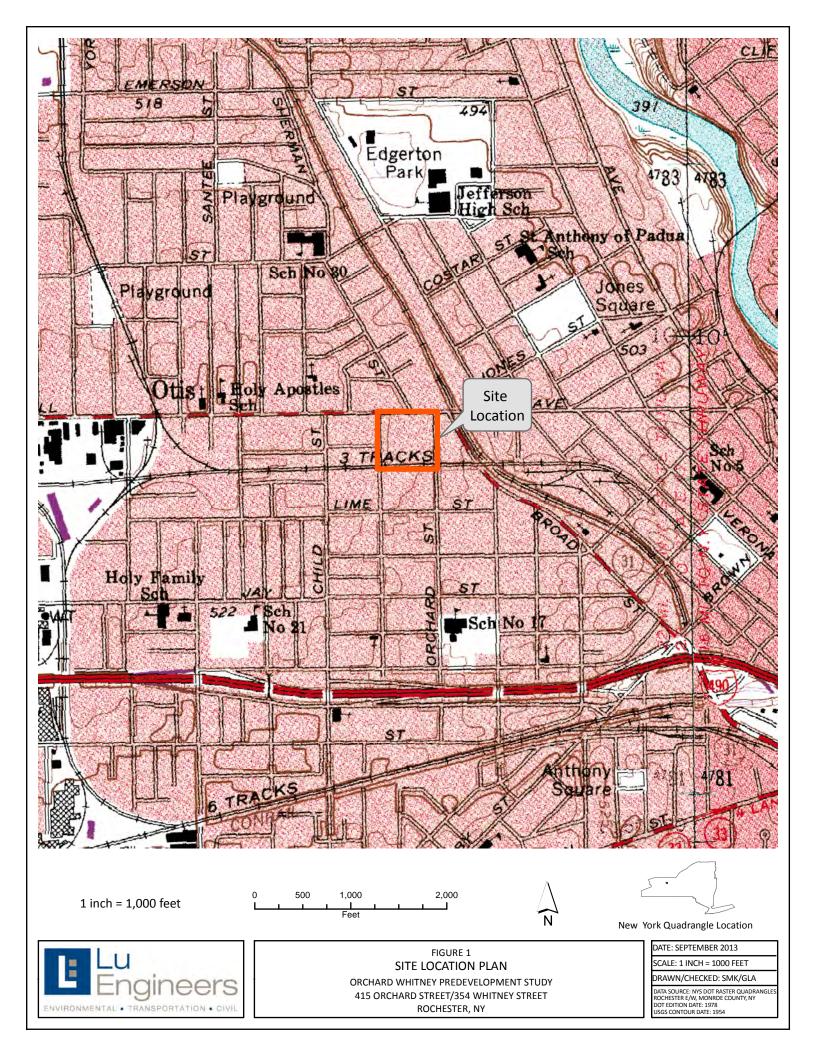
The City of Rochester New York Developers Guide should be consulted for guidance regarding required permits, and is included in Appendix 6 of this report.

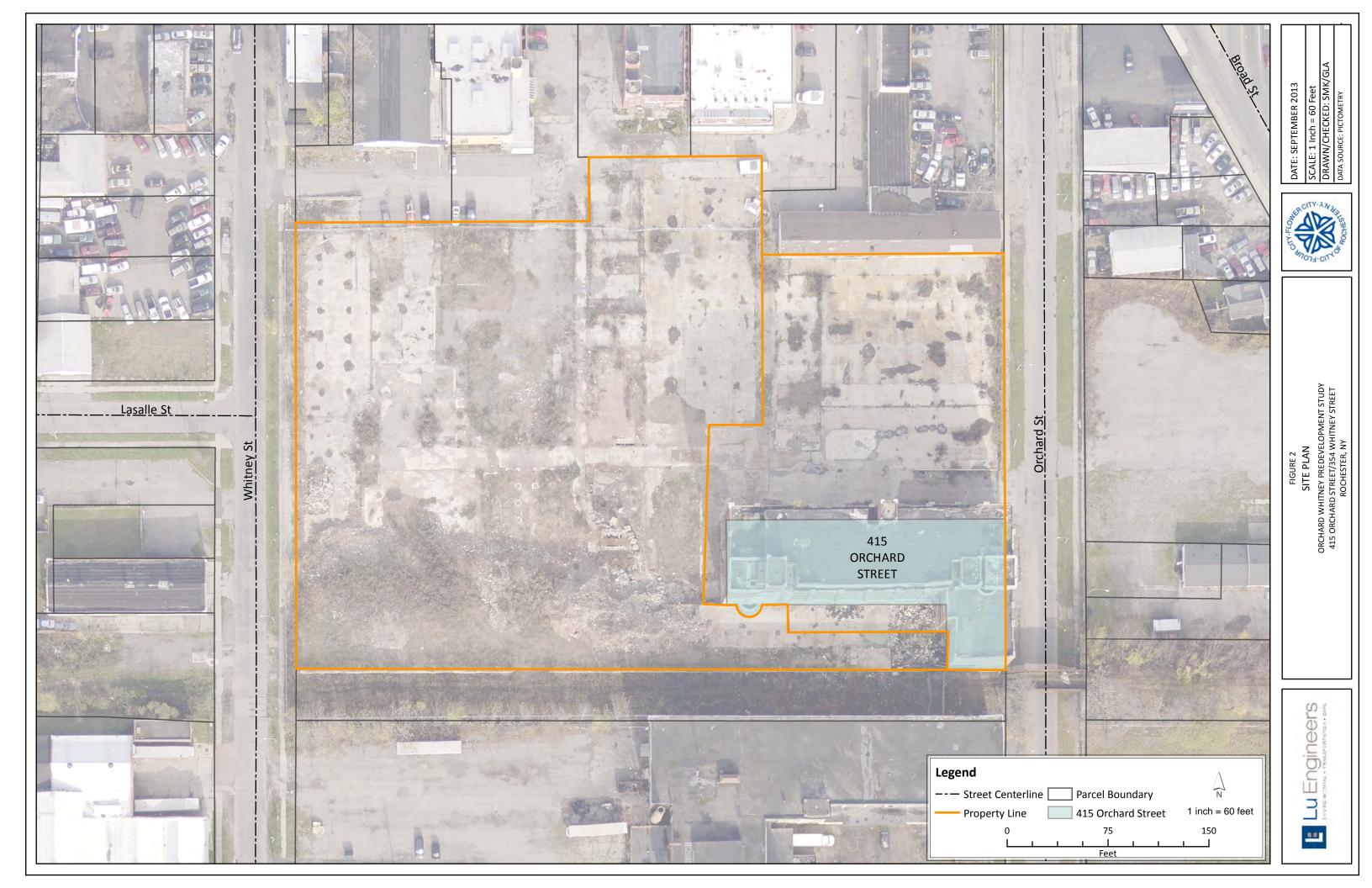
Section 10 provides detail on special permits and access considerations that may be established for future development.

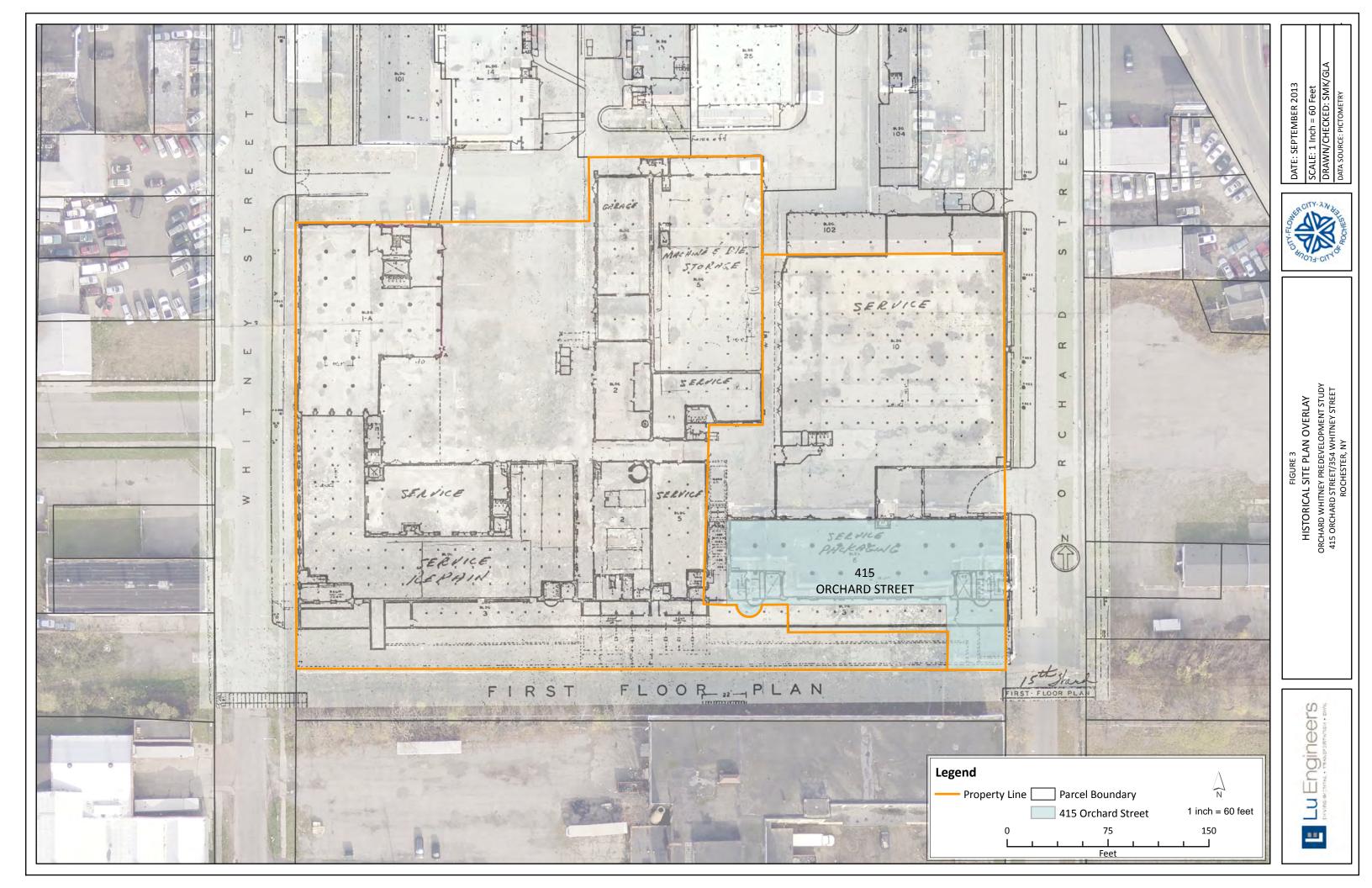


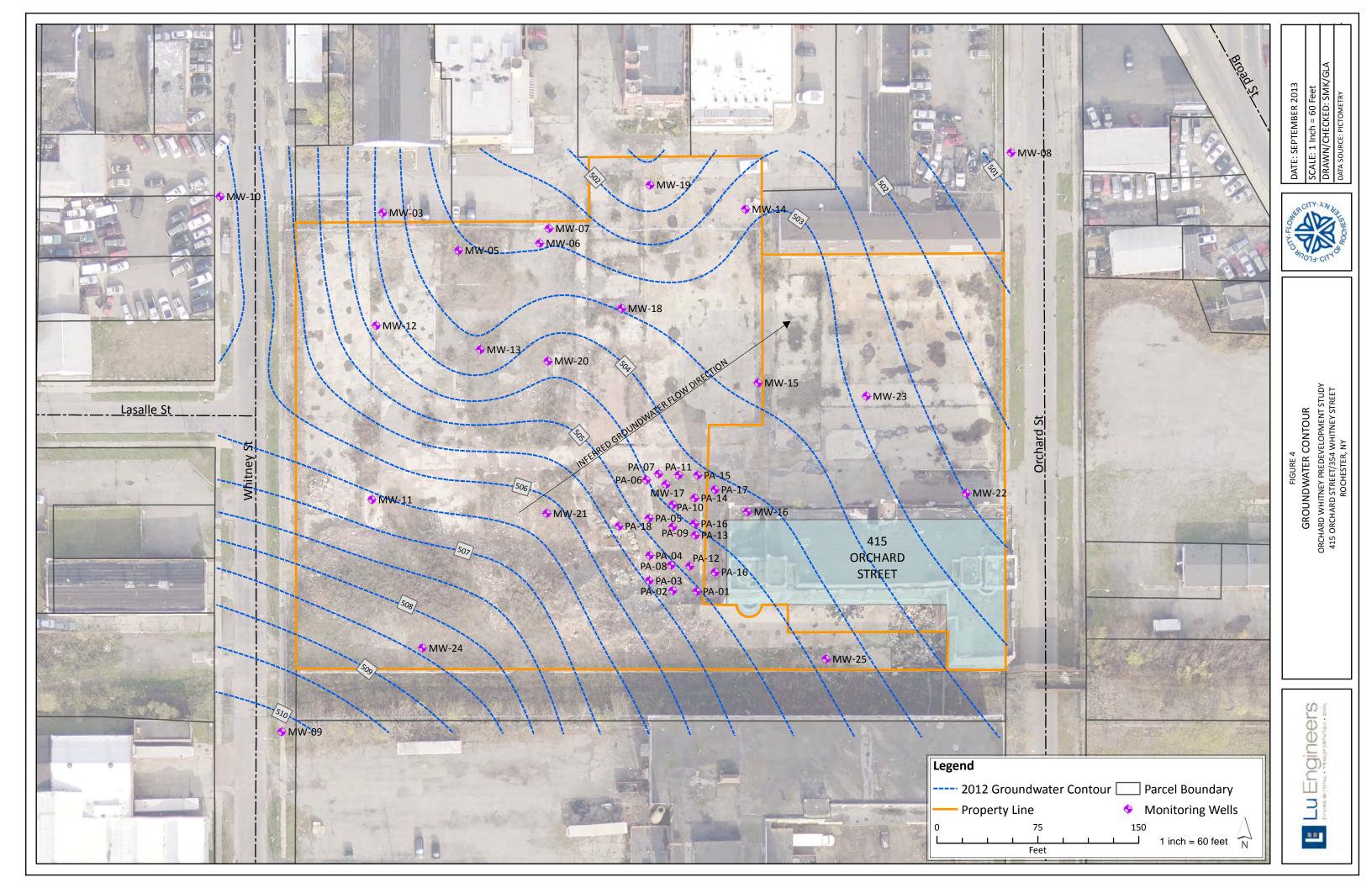
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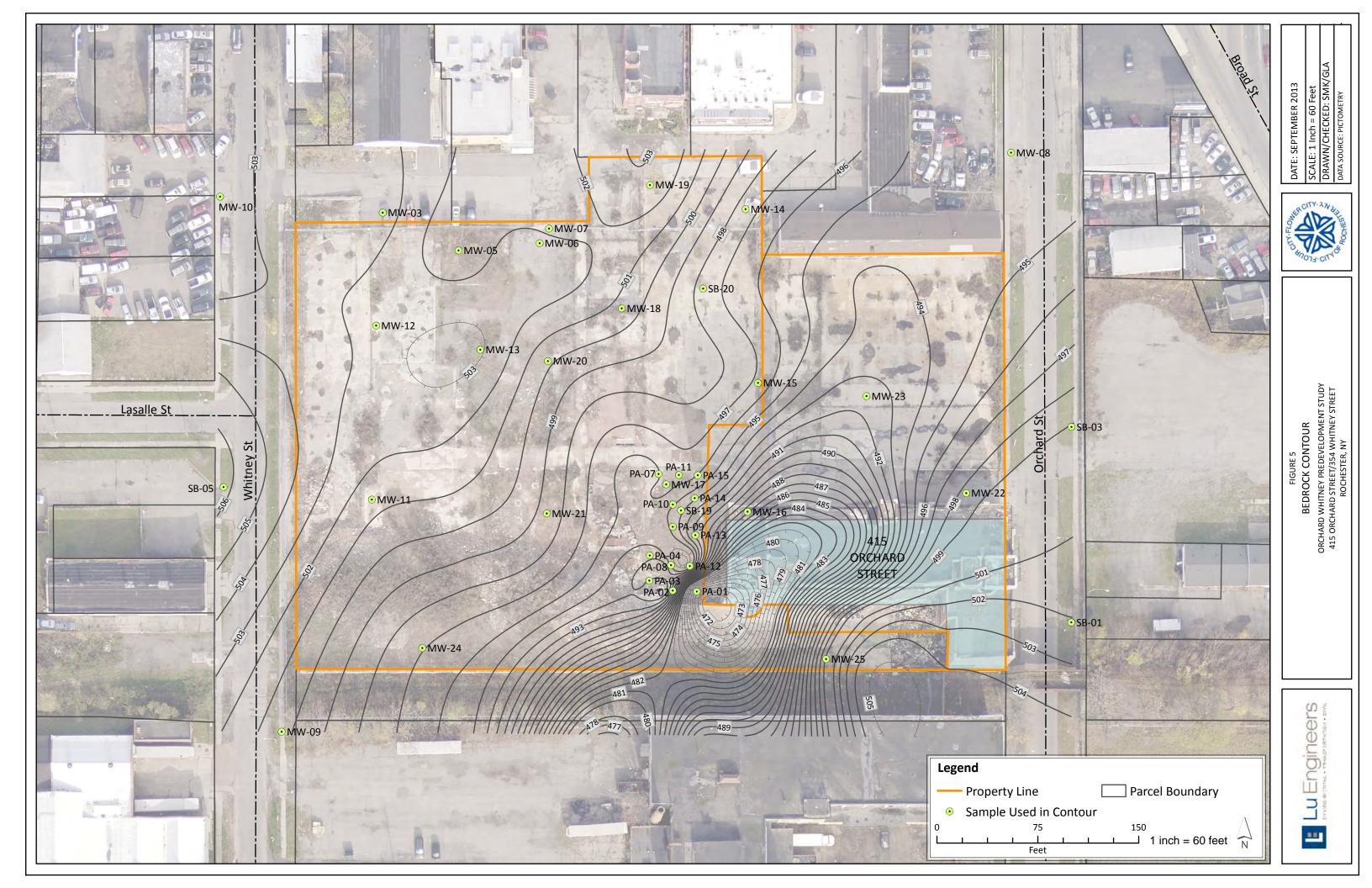


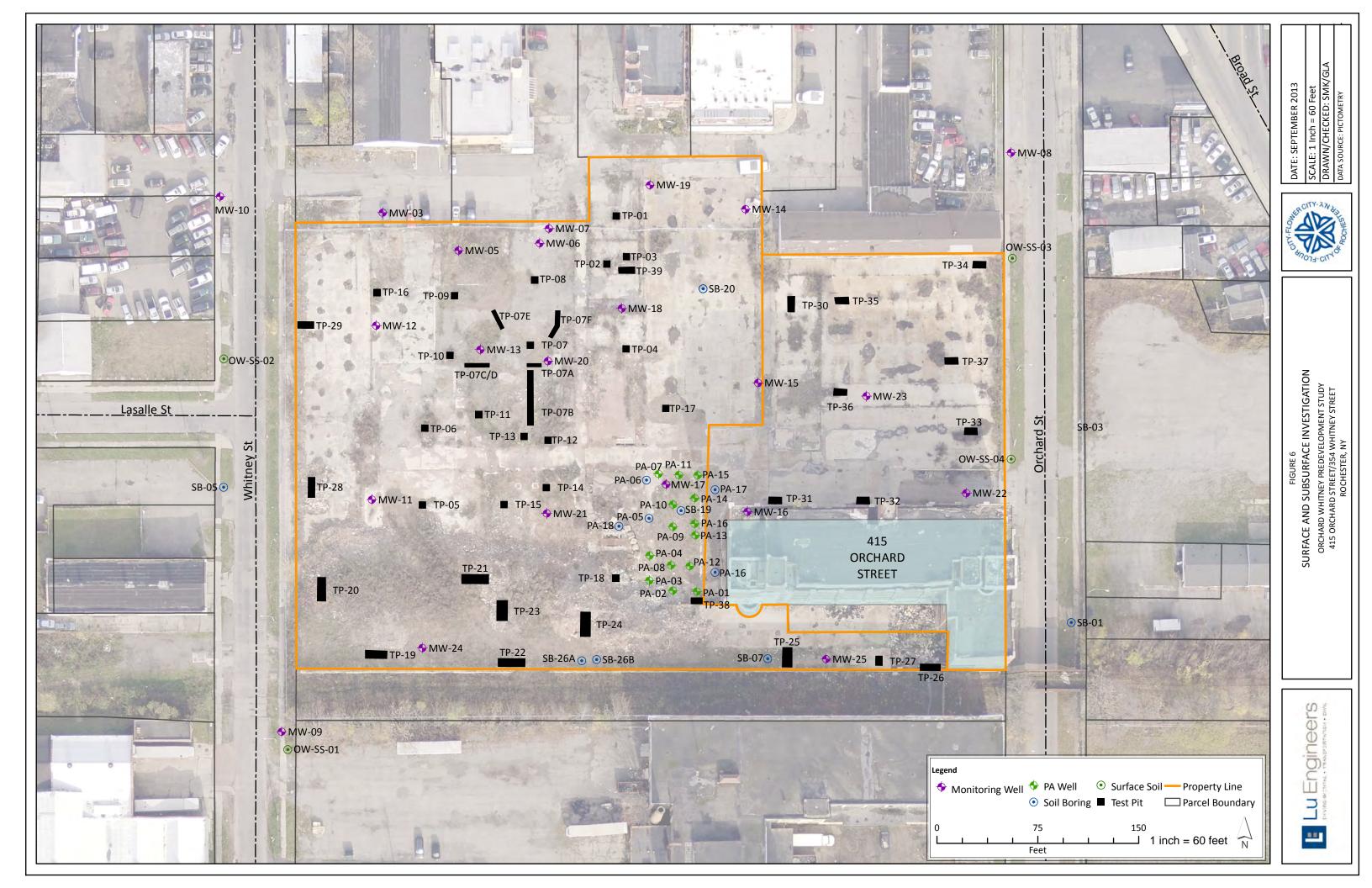


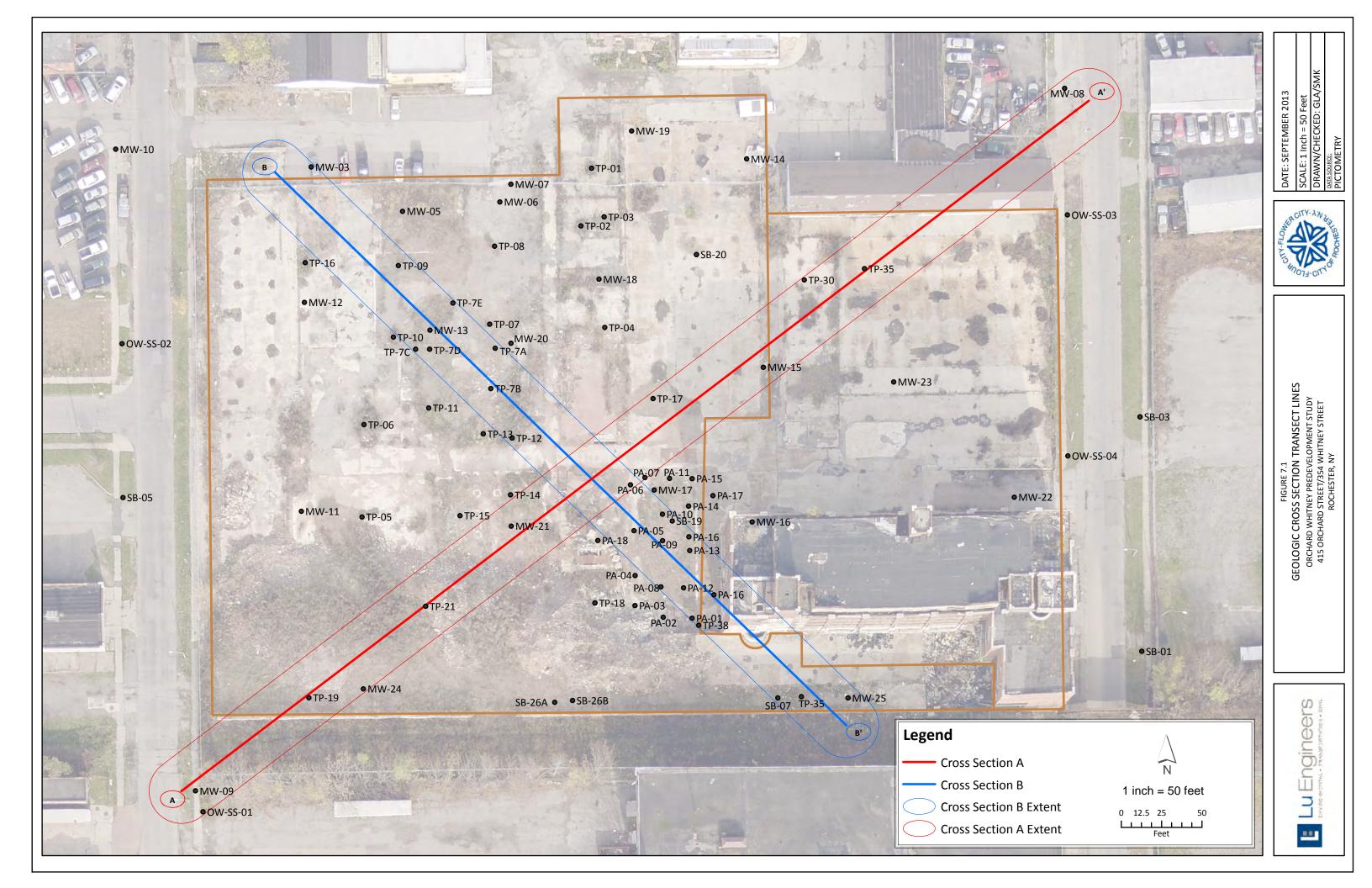


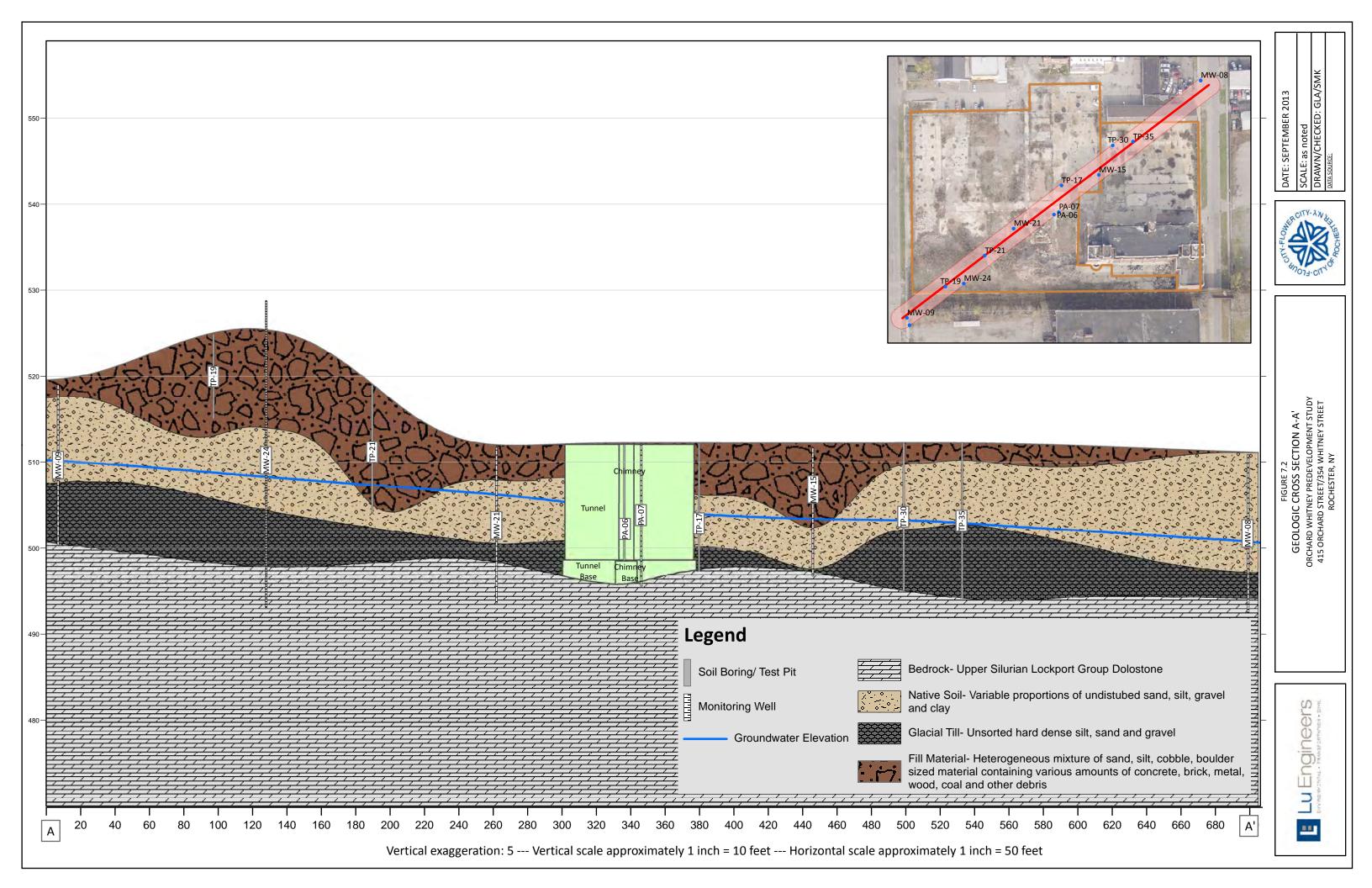


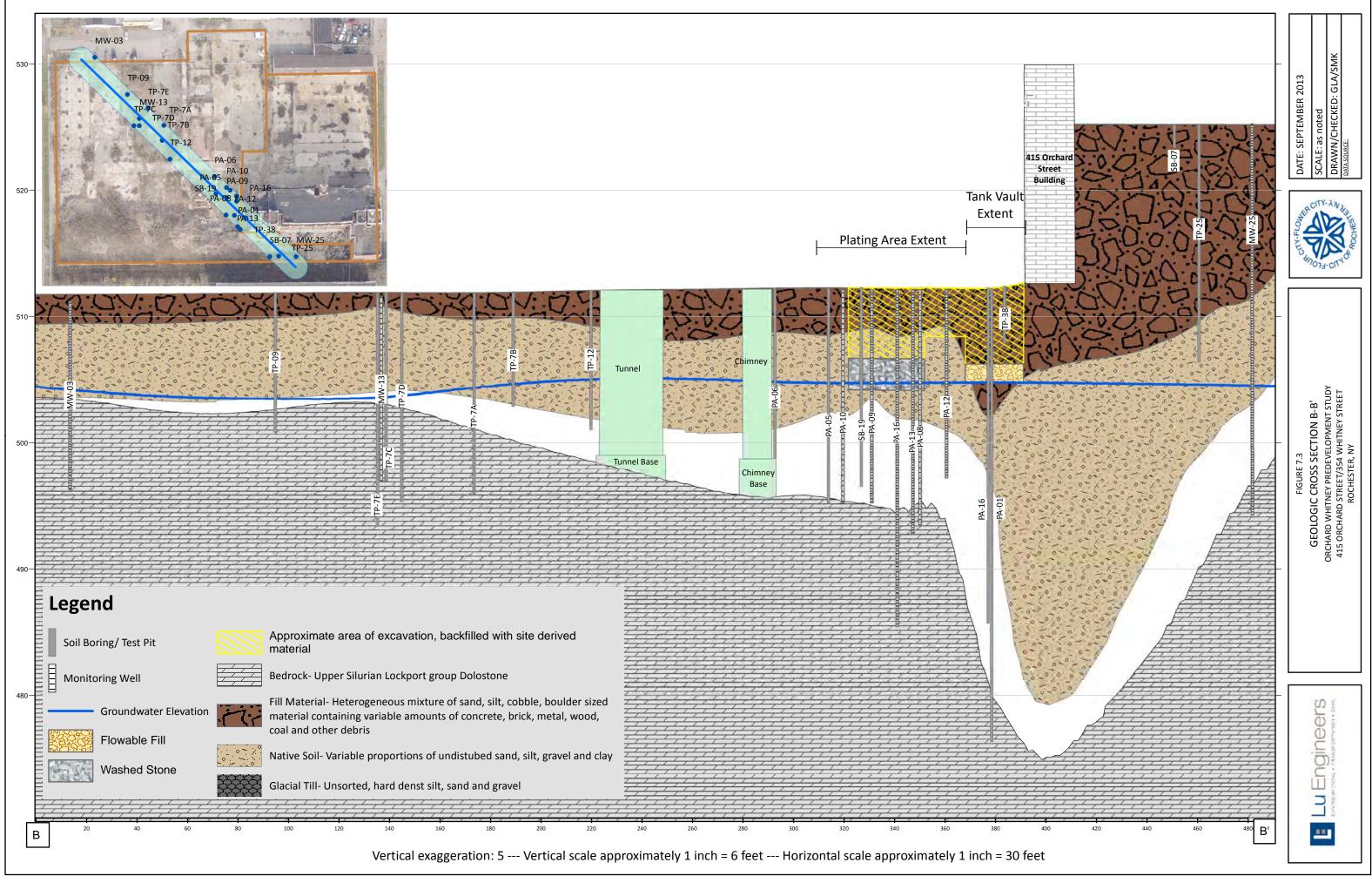


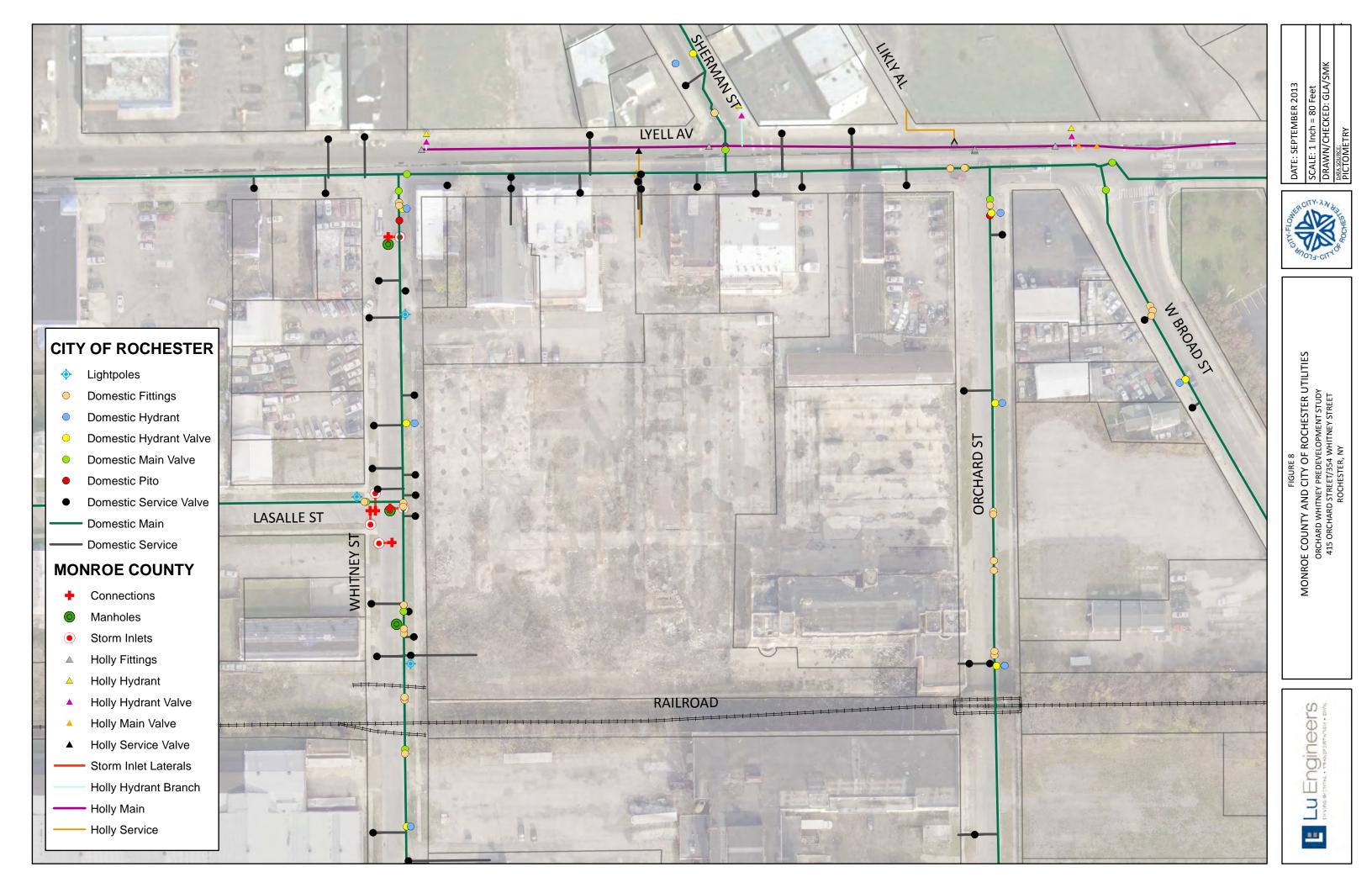


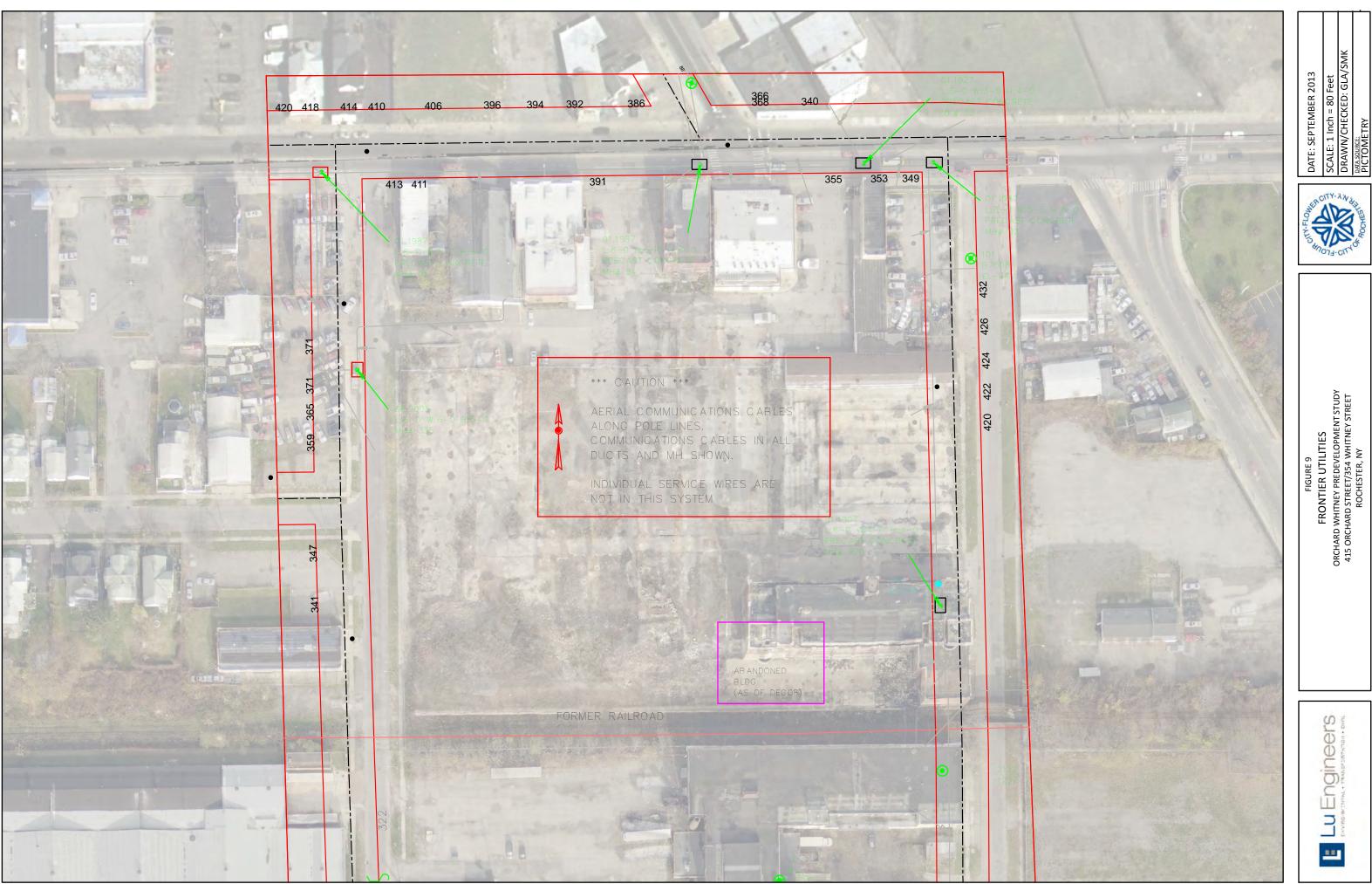


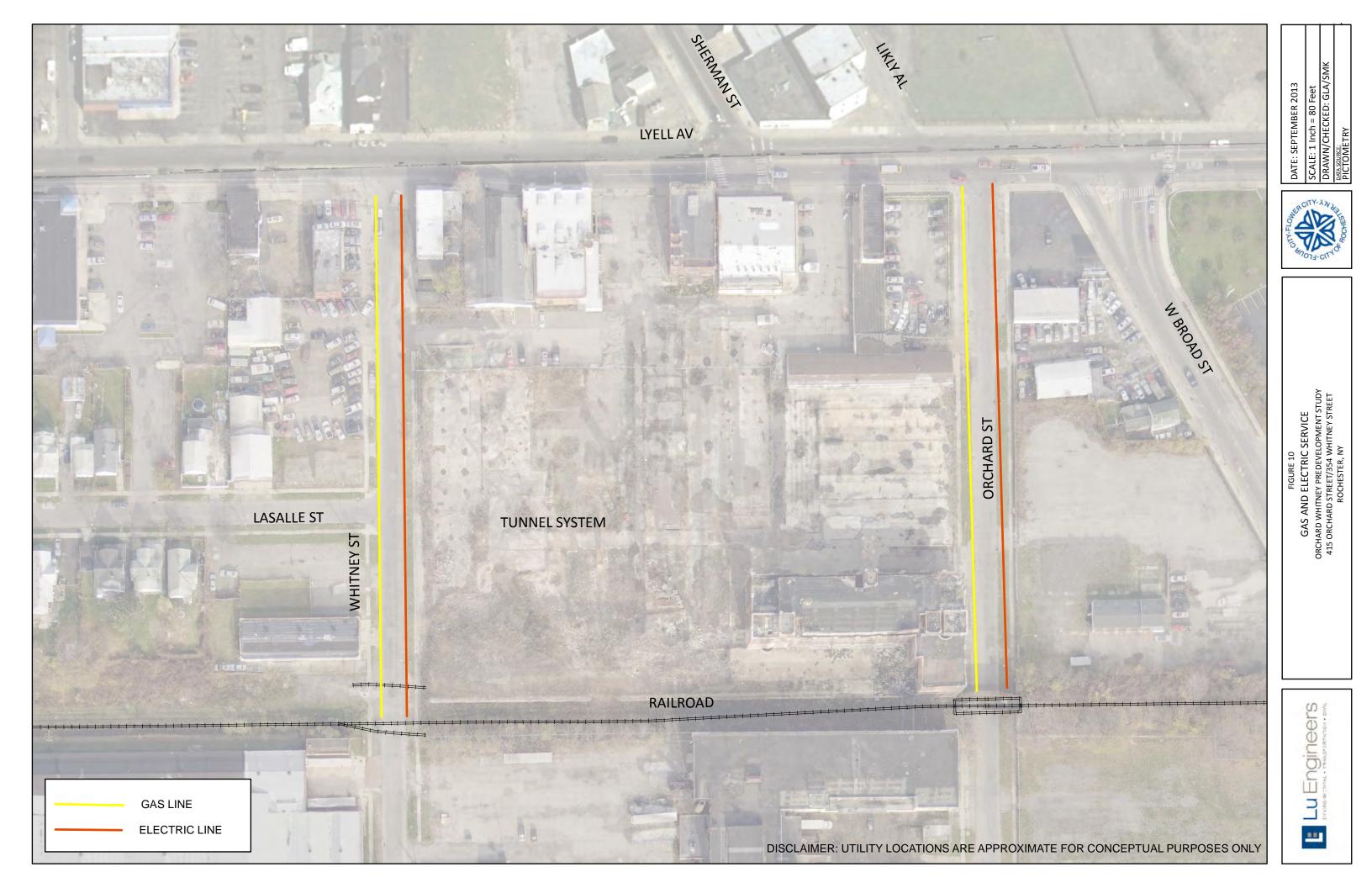


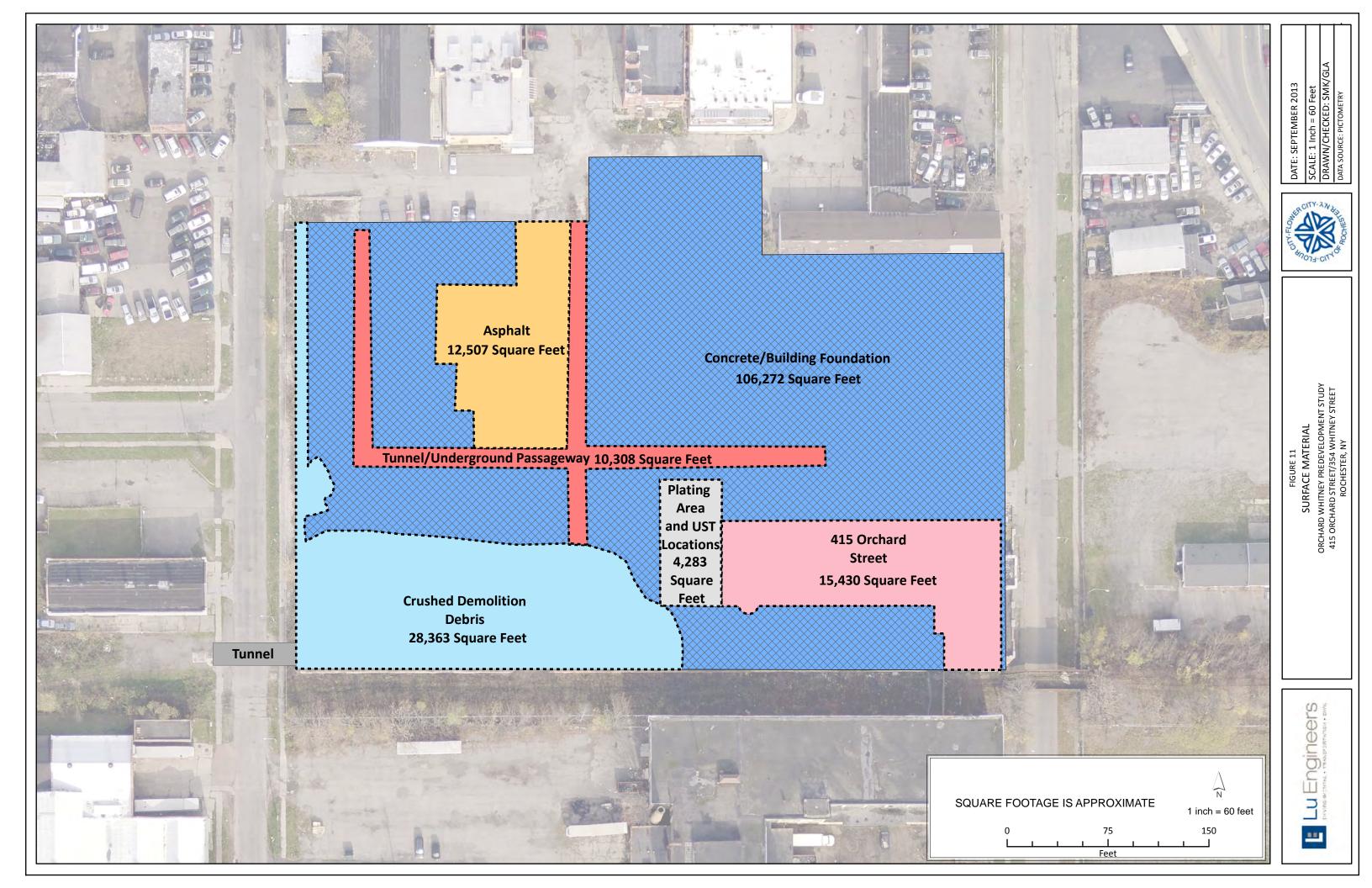


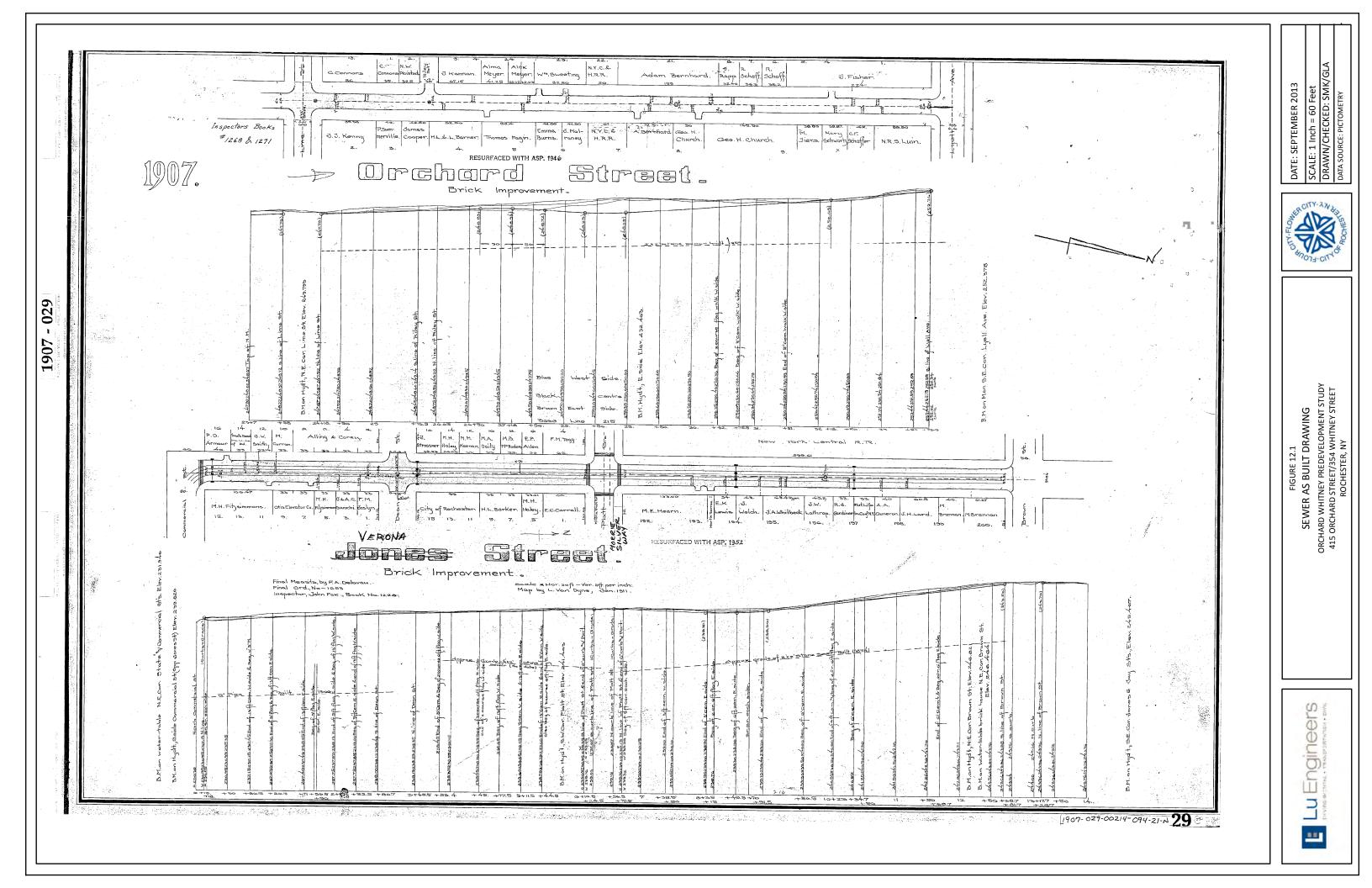


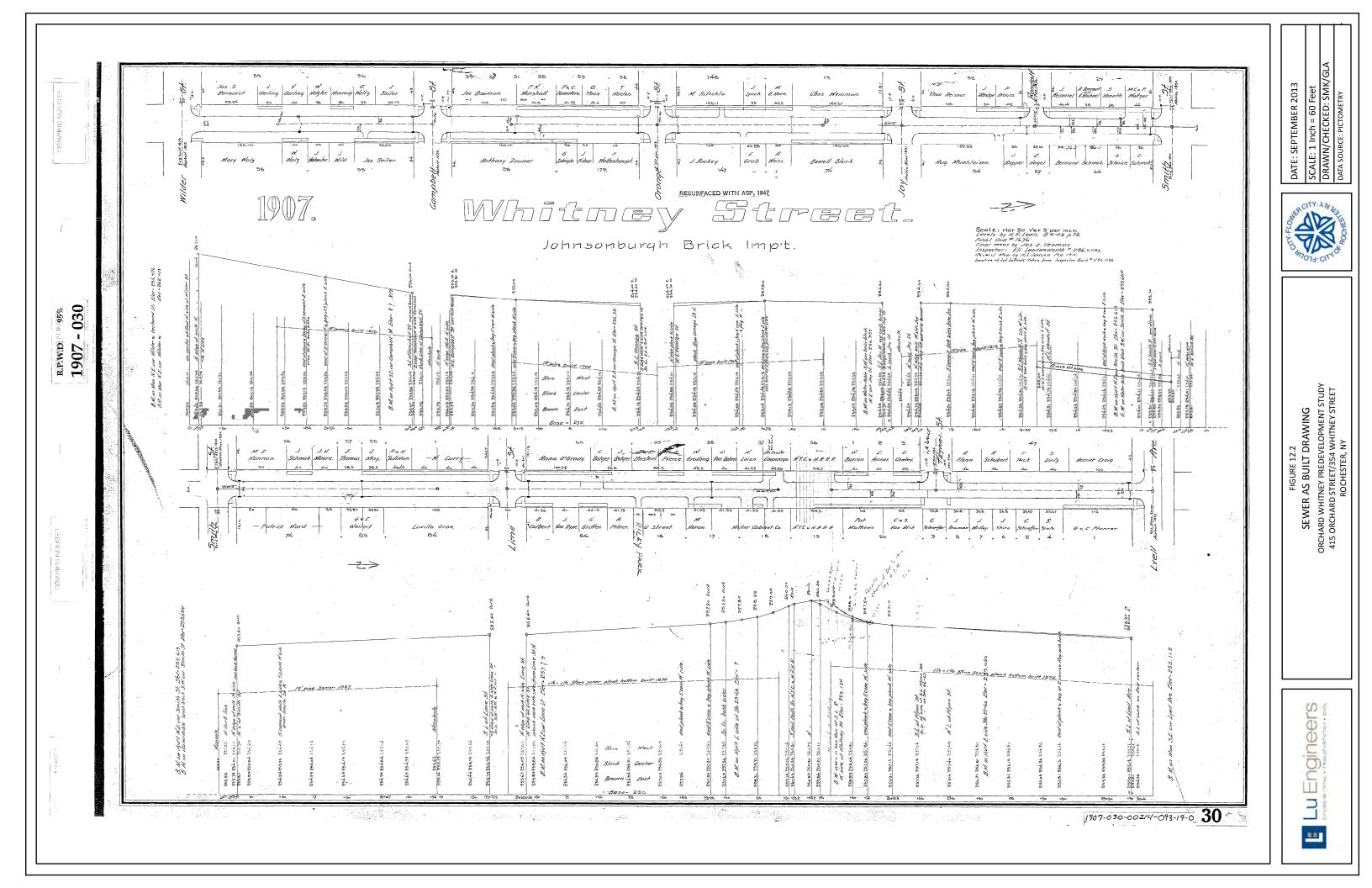


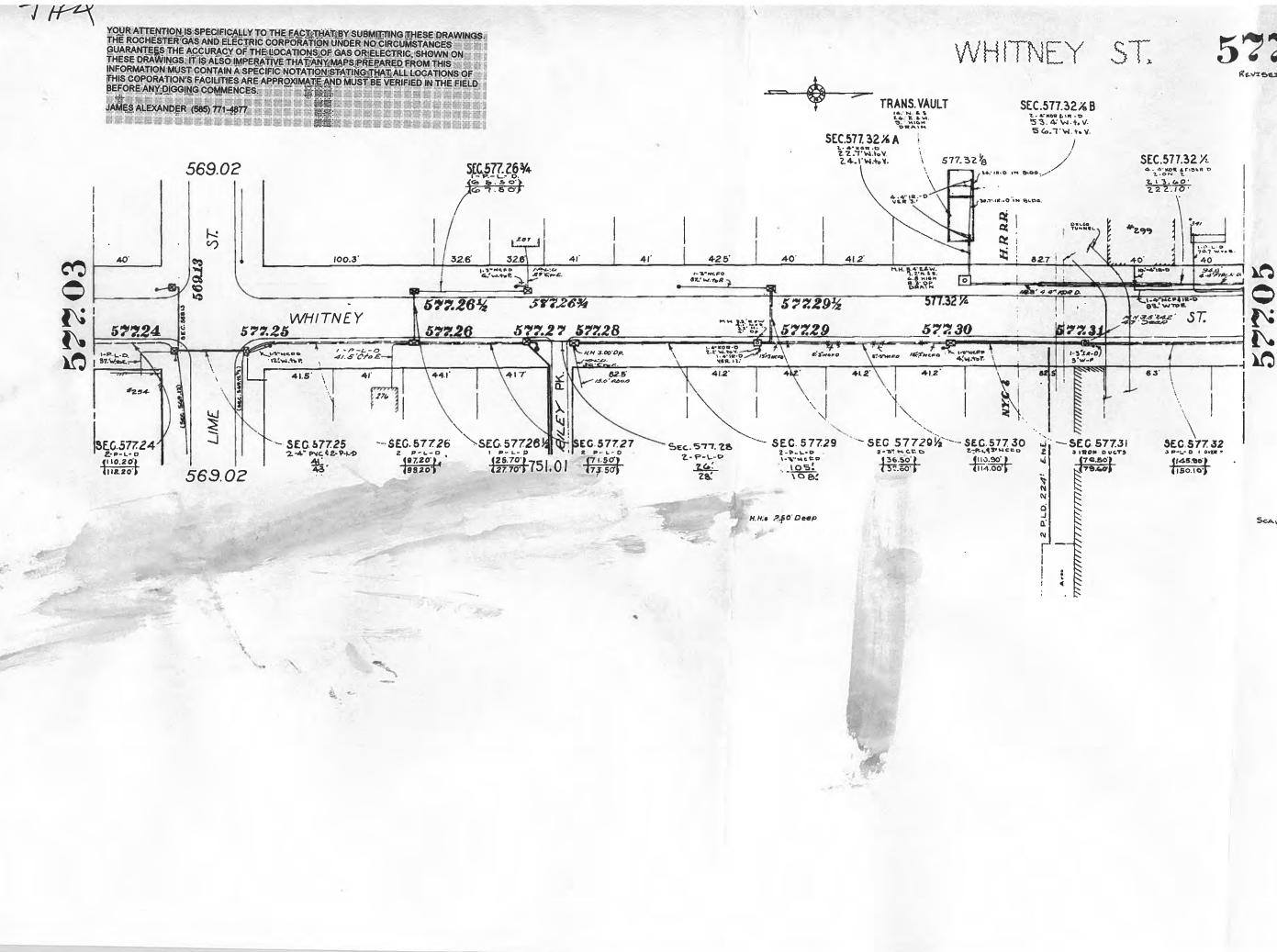








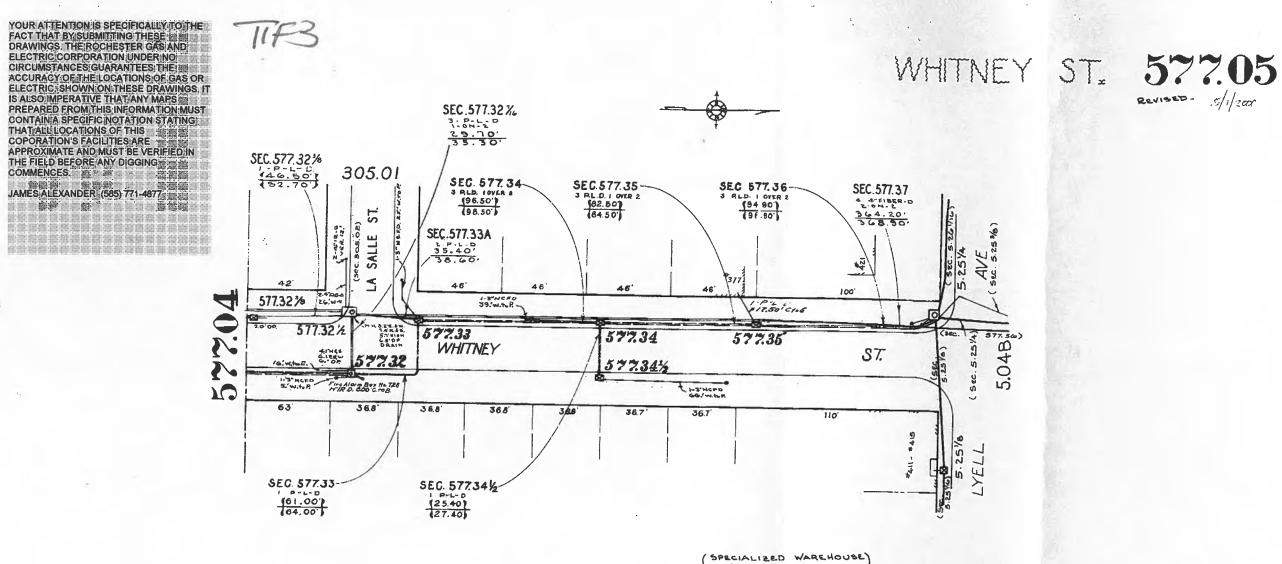








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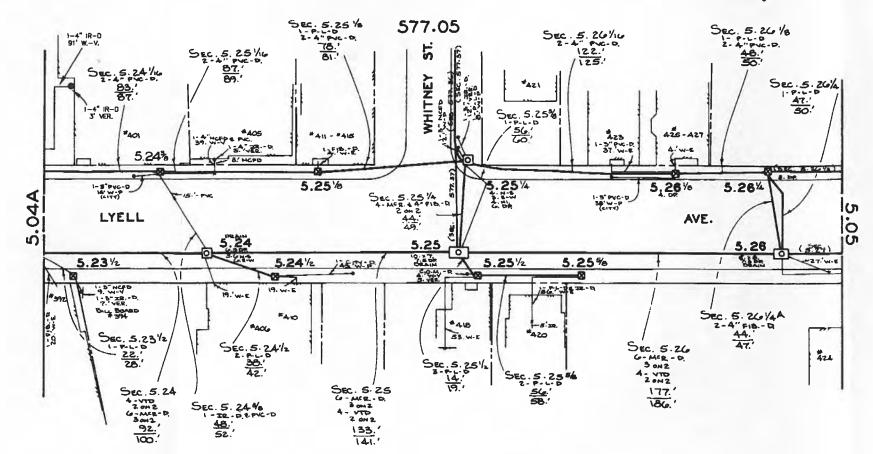
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JAMES ALEXANDER (585) 771-4877

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REVISED 7-27-09

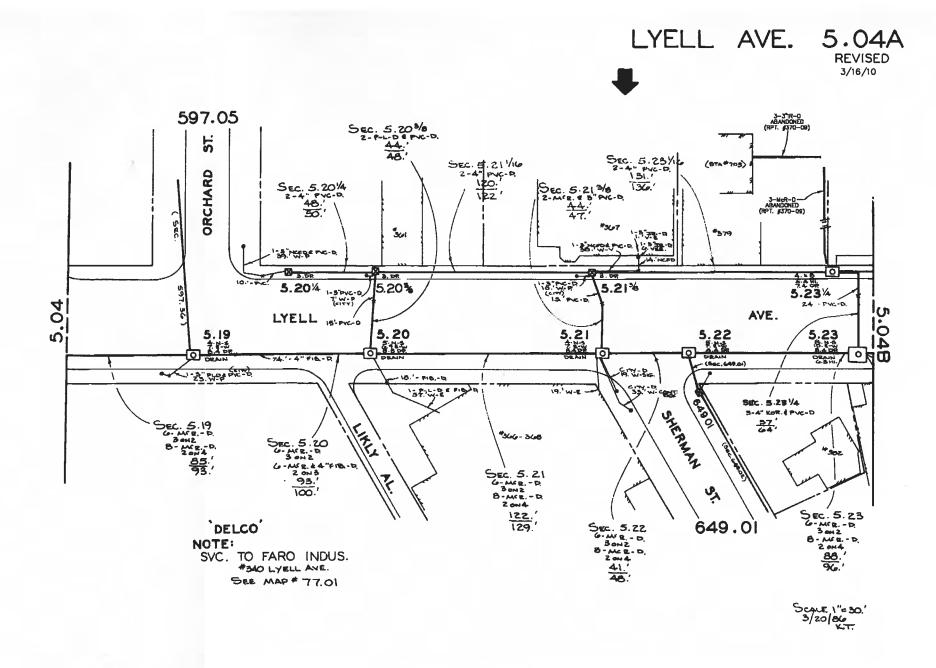


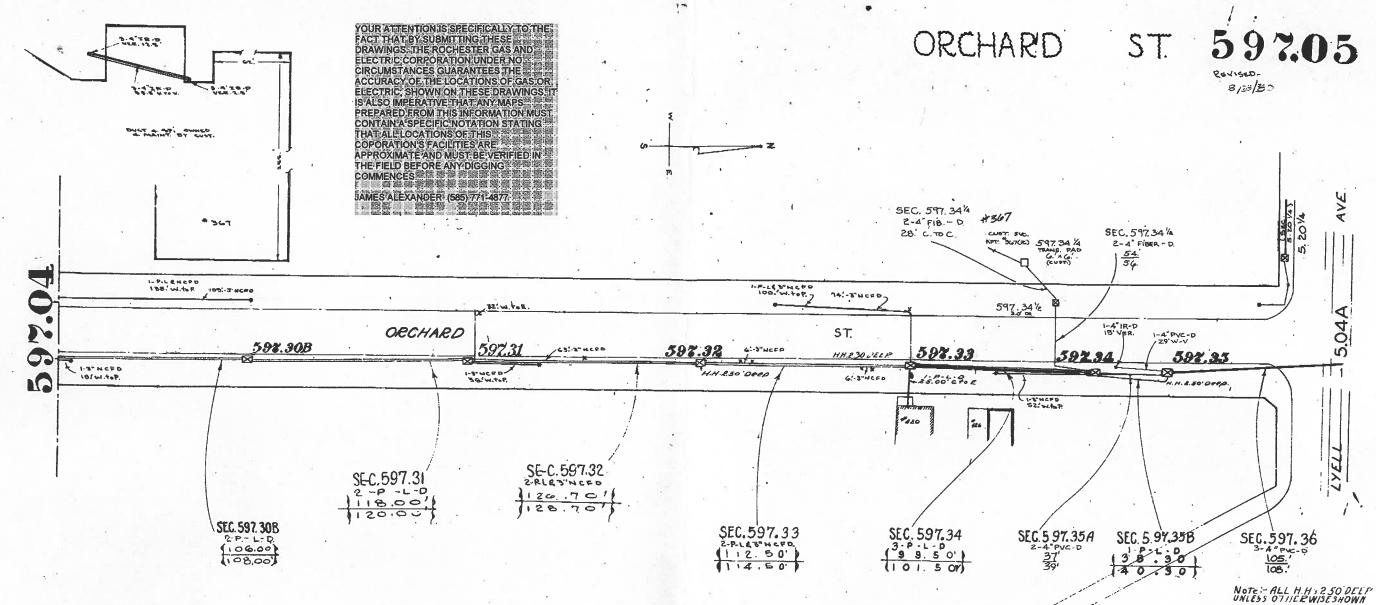
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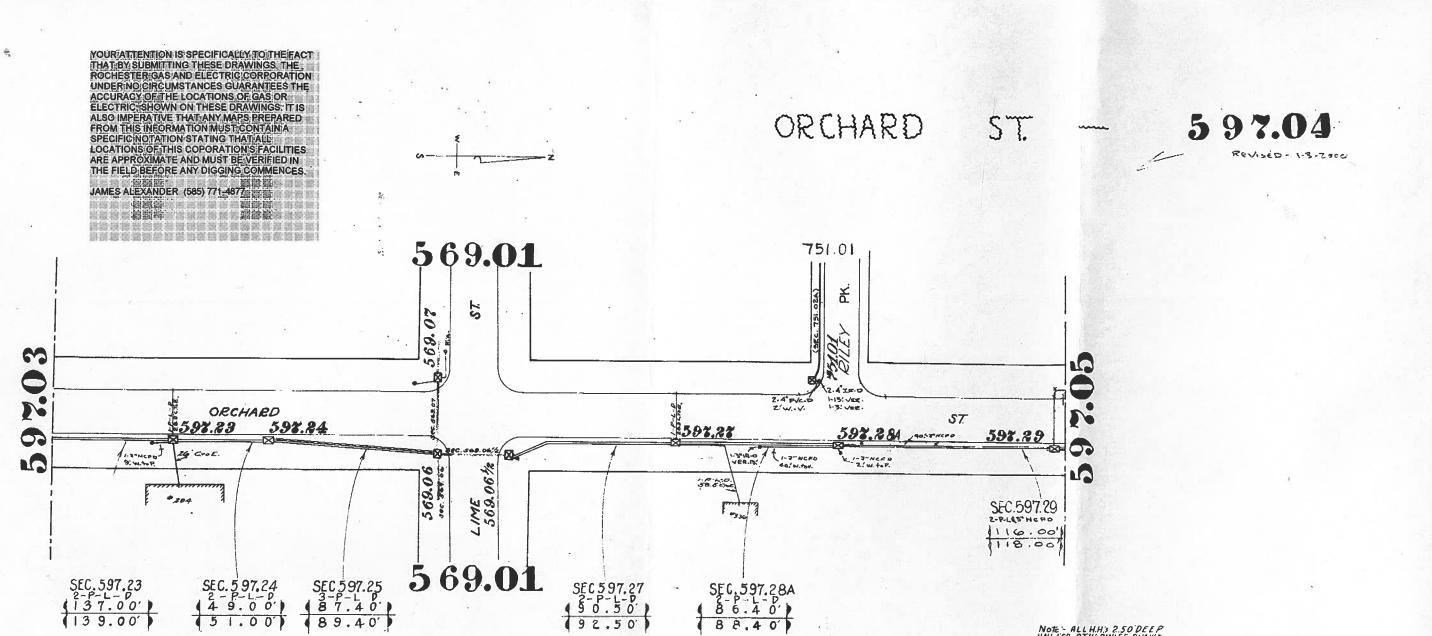
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JAMES ALEXANDER (585) 771-4877

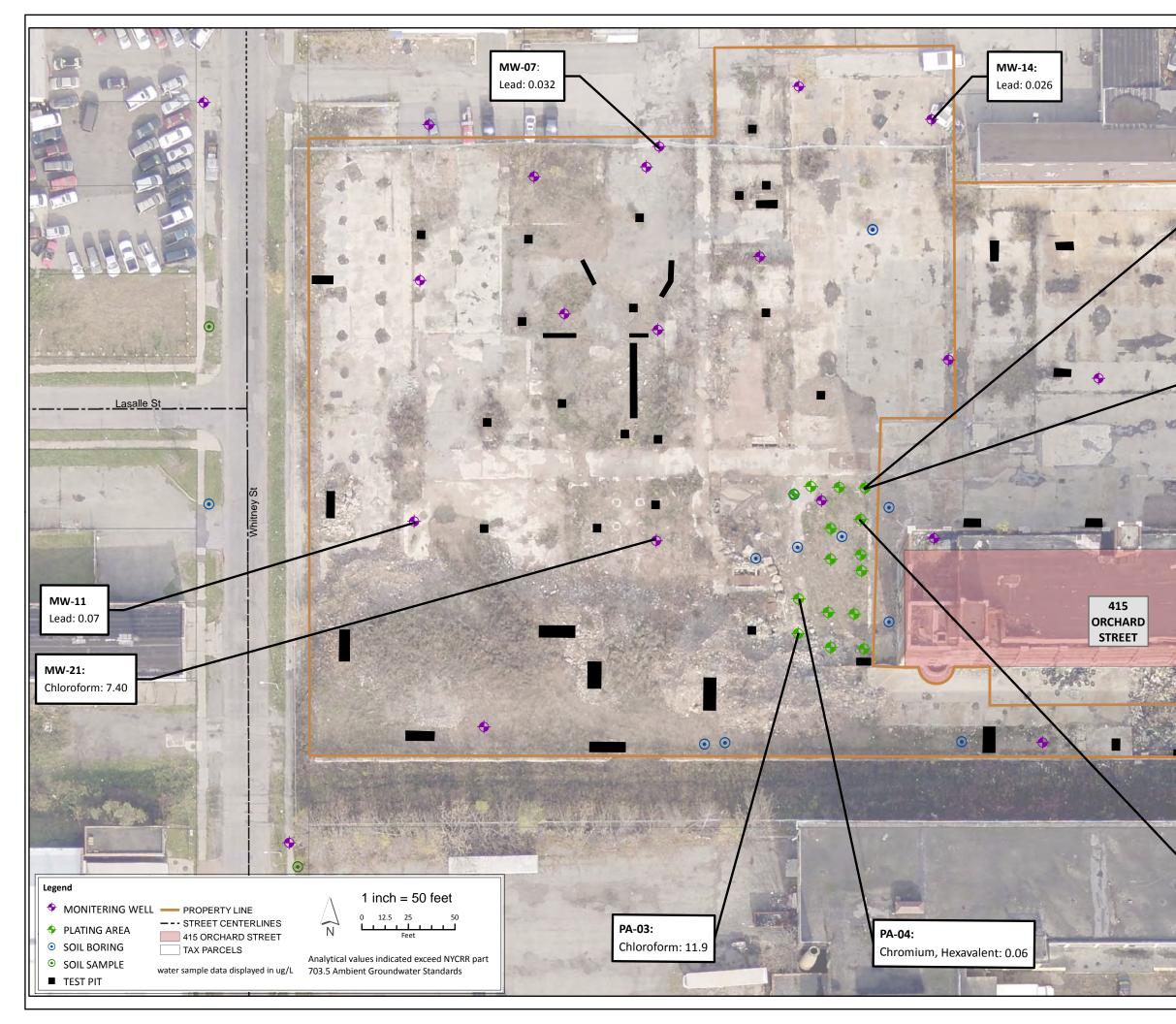


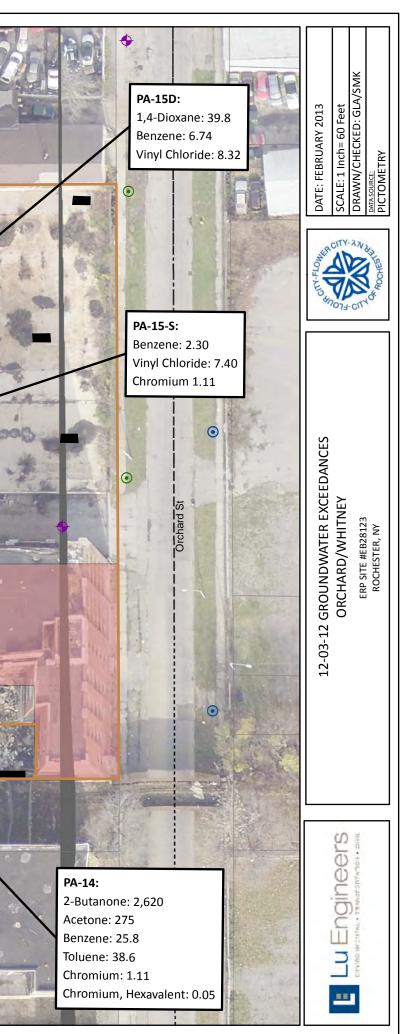


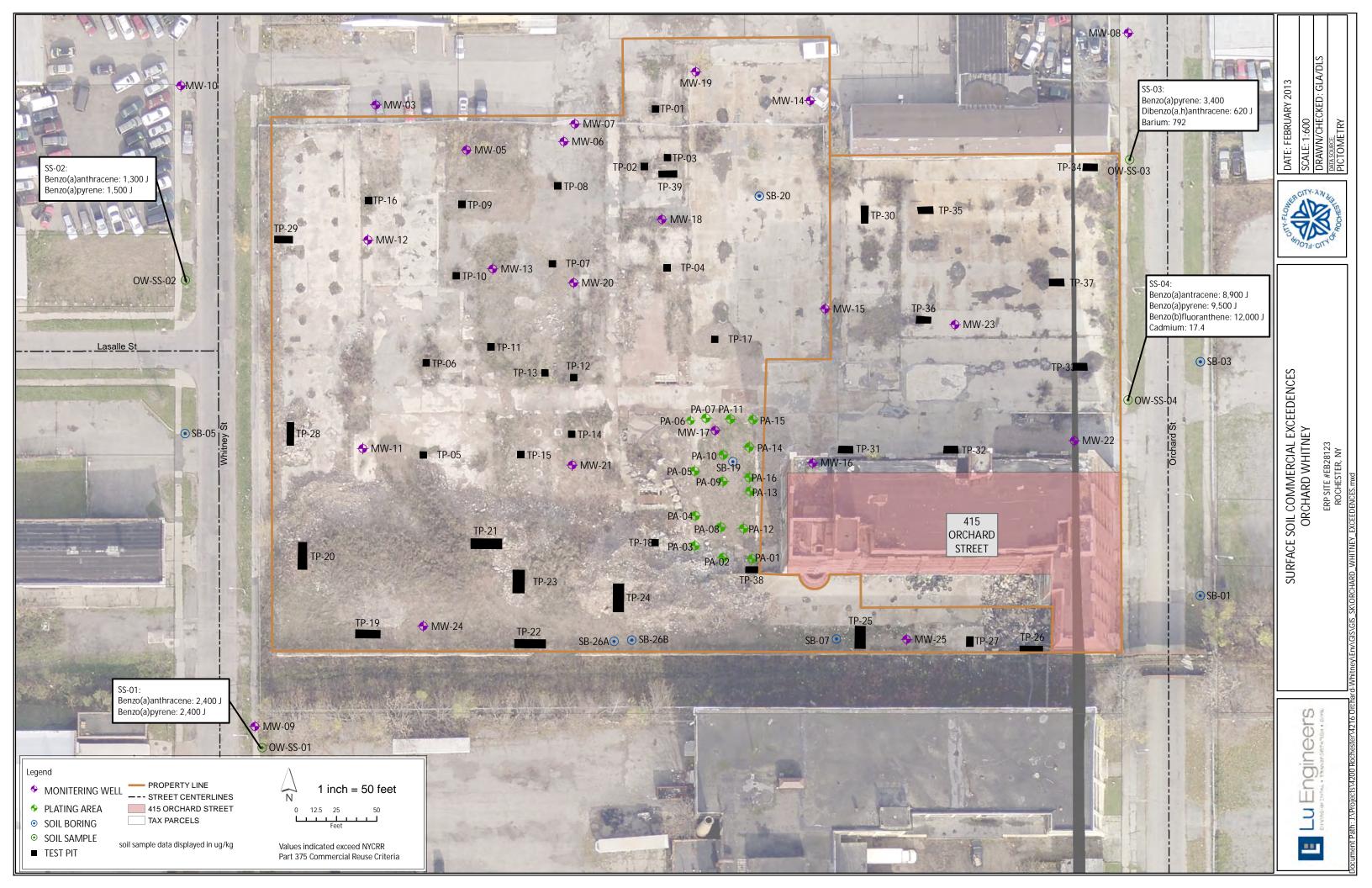


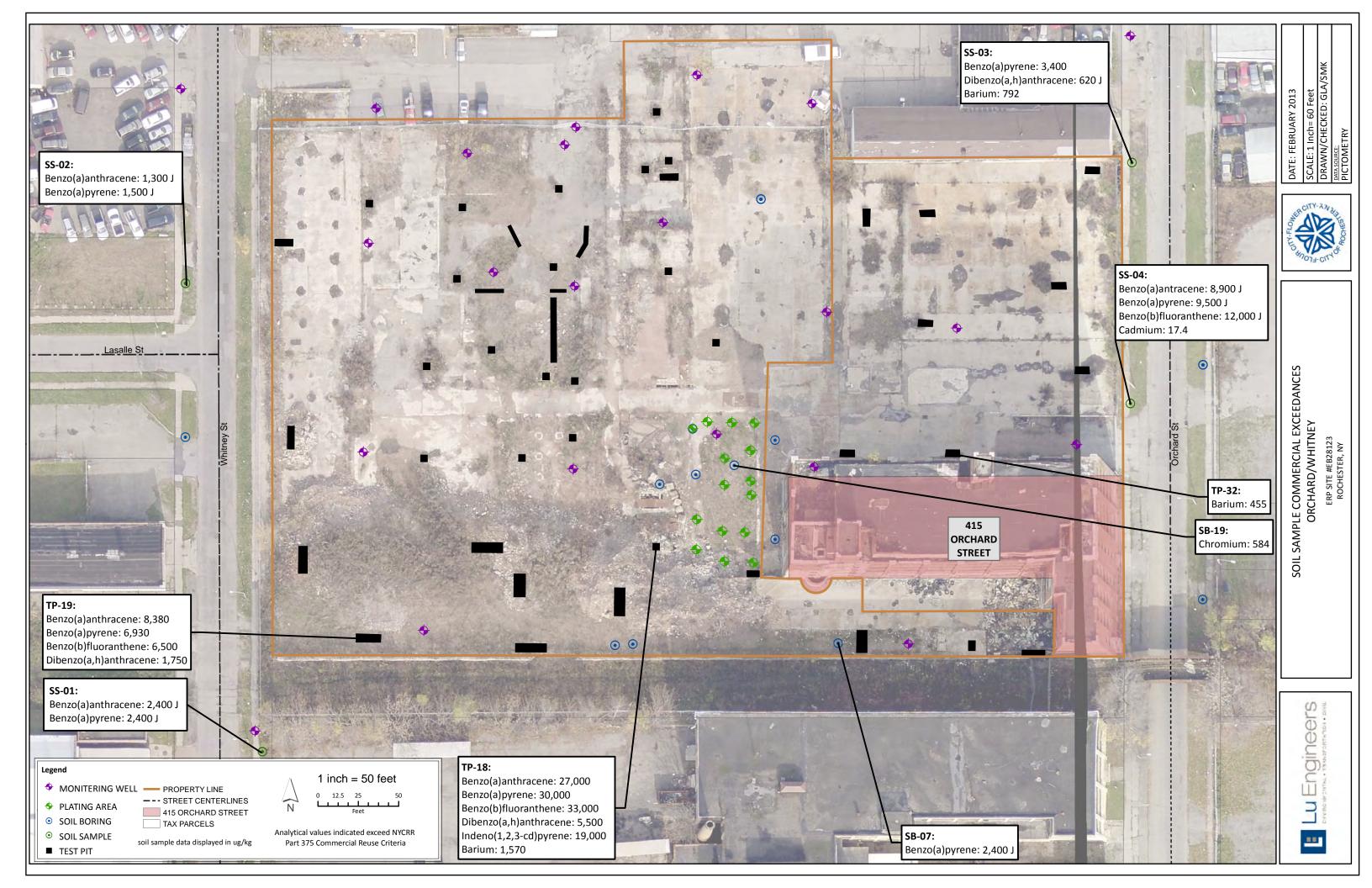
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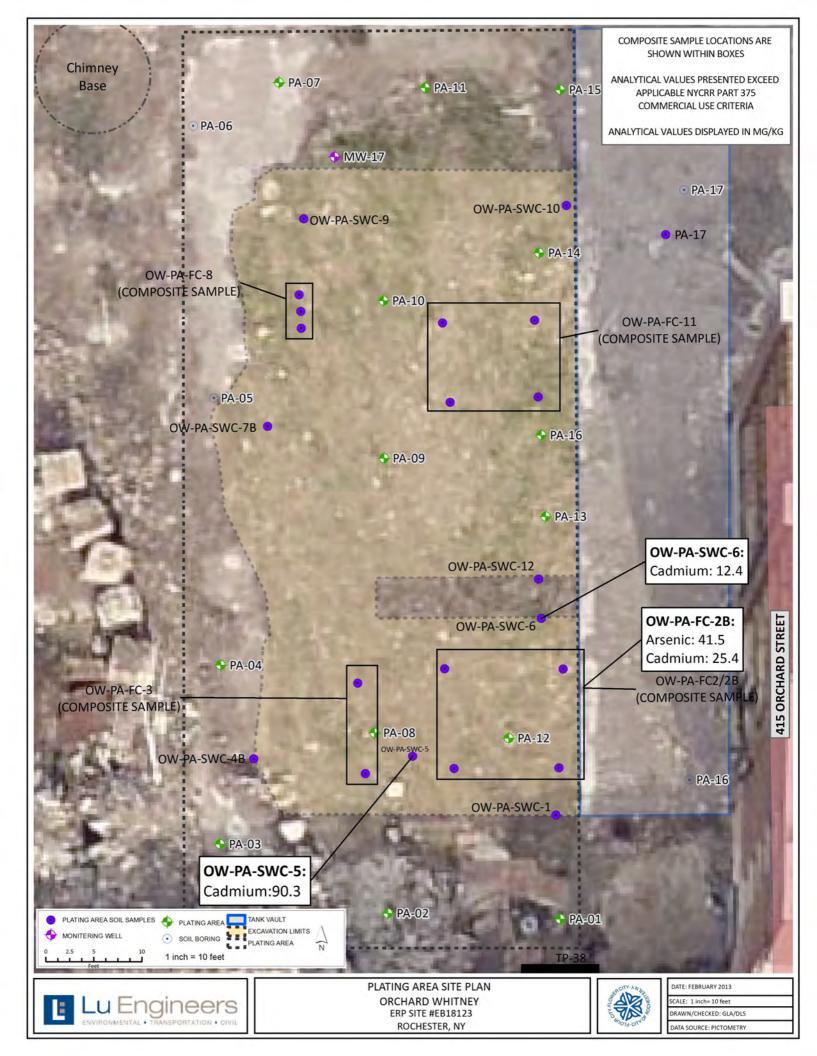
Appendix 1 Visual Summary of Environmental Findings





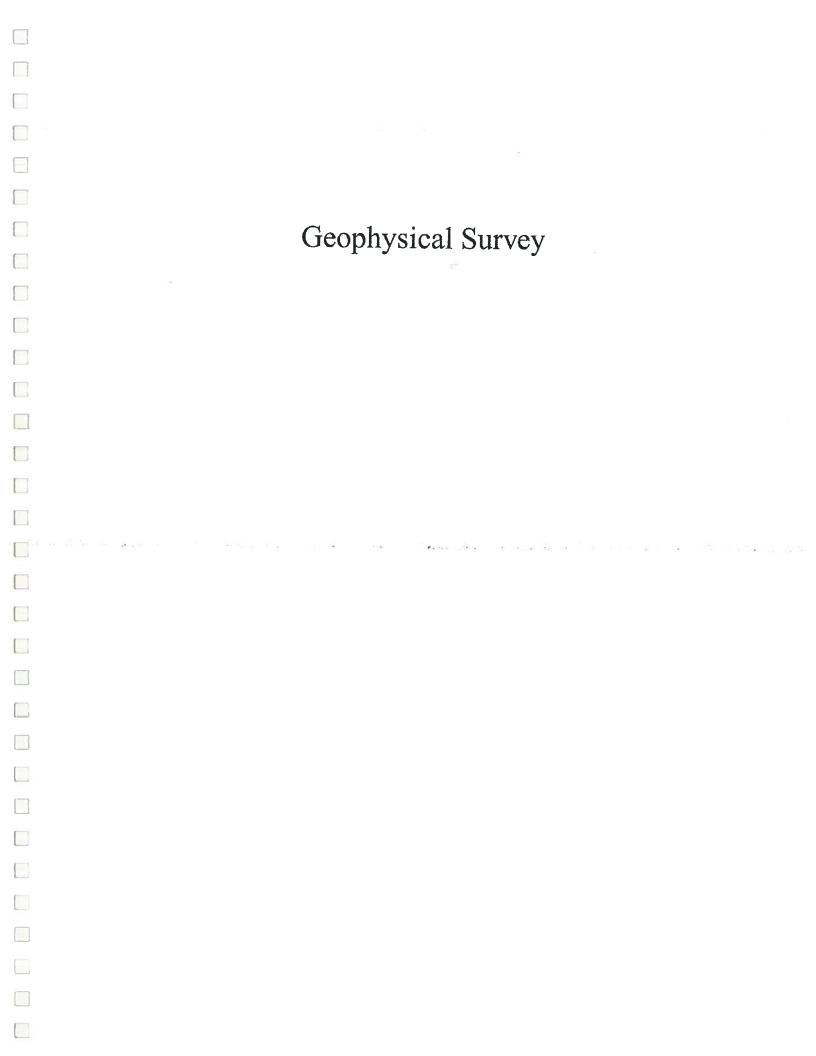






Appendix 2 Geophysical Report (2005)





90B John Muir Drive, Suite 104 Amherst, New York 14228 (716) 565-0624 • Fax (716) 565-0625



August 5, 2005

Charles Guzzetta Empire Geo-Services, Inc. 535 Summit Point Drive Henrietta, New York 14467

Subject: Geophysical Survey Results, 354 Whitney St, Rochester, NY

Dear Mr. Guzzetta

1.0 INTRODUCTION

This letter report presents the results of the geophysical investigation performed for SJB Services in support of their environmental investigation of portions of a former GE facility at 354 Whitney St. located in Rochester, NY.

The geophysical investigation was designed to geophysically characterize the subsurface and focus a follow-up intrusive investigation. The information provided herein is intended to assist SJB with their assessment of potential environmental concerns at the Site. The specific objective of the investigation was to explore for large underground conduits that may act as preferential pathways for contaminant migration.

A geophysical investigation was performed at the Site utilizing frequency domain (EM31), and time-domain (EM61) electromagnetic techniques. Geomatrix Consultants, Inc. (Geomatrix) performed data acquisition on July 14, 2005.

2.0 METHODOLOGY

The following sections present the geophysical methodology utilized for this investigation.

2.1 Reference Grid

A reference grid was installed by Geomatrix personnel to facilitate data acquisition along lines spaced 5 feet apart for the EM61 and 10 feet apart for the EM31. Reference grids utilized separate and distinct coordinate systems. The EM61 survey was performed using a local

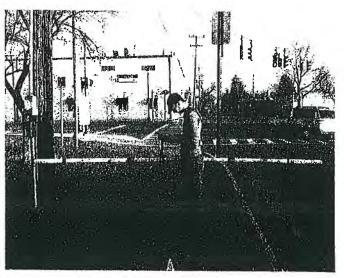


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coordinate system established for the site. The EM31 survey utilized a differential GPS system and the coordinates are based on the WGS 84 datum.

2.2 Electromagnetic EM31 Survey Methodology

Α Geonics EM31 Terrain Conductivity meter was used to measure and record the quadrature component (ground conductivity) and the inphase component of the EM field along the survey lines. The quadrature component of the EM field is a measurement of the apparent ground conductivity. The inphase component of the EM field is sensitive to metallic objects. Comparison of the quadrature component of the EM field data (expressed in units of milliSiemens per meter (mS/m)) and the inphase component data (expressed in units



EM31 in use (photo not from this site)

of parts per thousand (ppt)) results in increased anomaly definition. The character of the EM response, low or high, is partially dependent on the orientation of the buried target relative to the orientation of the EM31 device during data acquisition, and the survey direction. A buried metal pipe, for example, will exhibit a high valued response when the trend of the pipe is parallel to the survey direction. Alternatively, when a survey line crosses a buried metal pipe whose trend is perpendicular to the survey direction, it is characterized by a low response. Similarly, other complex buried metal anomalies are indicated by a coupling of a high and low response.

All readings were taken with the instrument oriented parallel to the direction of travel, in the vertical dipole mode and with the instrument at waist height. The depth of penetration with the instrument in this configuration is approximately 12 to 15 feet below ground surface. Data were collected and stored in a solid state memory data logger during the survey. The data logger was interfaced to a portable computer and the data were transferred to a floppy disk for subsequent processing and interpretation. A survey base station was established on-site and



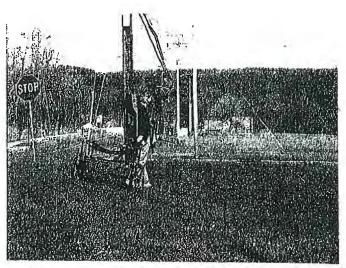
Page 3

was revisited throughout the survey to check for instrument drift and malfunction. No significant drift or malfunction was observed.

The terrain conductivity and inphase data were initially edited and then plotted as profile lines for interpretation. Contour maps of the data were then constructed and utilized for final interpretation. The geophysical data are presented in final form as a series of color contour maps. The color maps allow for an illustration of detected anomalies that are associated with conductive materials such as buried metals, wastes, fill, utilities, and changes in soil texture and/or moisture content.

2.3 Electromagnetic EM61 Survey Methodology

Portions of both sites were geophysically surveyed using the Geonics EM61. The EM61 unit is a high sensitivity, high resolution time domain electromagnetic (TDEM) metal detector that can detect both ferrous and nonferrous metallic objects. It has an approximate investigation depth of 10 feet. The processing console is contained in a backpack worn by the operator which is interfaced to a digital data logger. The transmitter and two receiver coils are located on a two-wheeled cart that is pulled by the operator.



EM61 in use (photo not from this site)

The device's transmitter coil generates

a pulsed primary EM field at a rate of 150 pulses per second, inducing eddy currents into the subsurface. The decay rates of these eddy currents are measured by two, 3.28 foot by 1.64 foot (1 meter by $\frac{1}{2}$ meter) rectangular receiver coils. By taking the measurements at a relatively long time frame after termination of the primary pulse, the response is practically independent of the survey area's terrain conductivity. Specifically, the decay rates of the eddy currents are much longer for metals than for normal soils allowing the discrimination of the two.



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Data are collected from the EM61's two receiver coils. One of the receiver coils is located coincident to the transmitter coil. The other receiver coil is located 1.31 feet (0.4 meters) above the transmitter coil. Data from the top receiver coil are stored on Channel 1 of a digital data logger. Data from the bottom receiver coil are stored on Channel 2 of the data logger. Channel 1 and Channel 2 data are simultaneously recorded at each station location. The instrument responses are recorded in units of milliVolts (mV). Data were recorded digitally by a data logger at a rate of approximately 2 measurements per foot along the survey lines which were spaced 5 feet apart.

3.0 RESULTS

The following sections present the results from the geophysical investigation.

The geophysical conductivity and inphase data from the EM31 and EM61 surveys are presented as a series of color contour maps in Figures 1 through 3. Actual data measurement points are superimposed on the maps and are shown as closely spaced tick marks.

3.1 EM31 Results

Terrain Conductivity data for the site is shown in Figure 1. Conductivity values at the site were observed to range from below 0 mS/m to over 100 mS/m. This variation in conductivity may be related to any one or combination of the following conditions:

- A change in soil/fill type. For example, an increase in relative clay content may increase the measured conductivity;
- A change in soil moisture. Moisture content would be expected to increase in areas of low topographic elevation as more saturated sediments lie within the depth of investigation of the EM instrument;
- A change in pore fluid specific conductance. For example, the presence of salt-impacted water within the pore space of the shallow soil will increase the measured conductivity primarily due to the presence of chloride ions; or
- Interference from surface metallic anthropogenic features such as powerlines, fences, pipes, reinforced concrete and other metallic structures.

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The EM-31 inphase data for the site is shown in Figure 2. The inphase component of the electromagnetic field, measured by the EM-31, is sensitive to buried metals. Rapid fluctuations in inphase readings over relatively short lateral distances are usually indicative of buried metal objects.

3.2 EM61 Results

The EM61 data for the site are shown in Figure 3. The color bar to the right of the map indicates the colors associated with the respective measured values. Areas suspected to be free of buried metals are shown as color shades of blue. All areas exhibiting a response greater than background (0 to 30 mVolts) likely contain buried metals. These areas are depicted in shades of dark blue through yellow on the figures.

The targets of the survey, underground conduits, were not uniquely detected by the geophysical equipment. A portion of a conduit was observed through a break in the ground surface. This area is identified on the figures with the text "vault". A careful examination of this "vault" revealed subsurface conduit running north-south. There was however no corresponding north-south trending linear anomaly coincident with this known subsurface conduit. The EM61 did detect some subsurface utility lines and these are shown with a solid gray line on Figure 3. These linear anomalies do not appear to be the target of this investigation.

The overall response from both the EM31 and EM61 are typical of an area with reinforced concrete. The presence of metallic reinforcement within the subsurface masks other features of interest, including our target.

4.0 LIMITATIONS

The geophysical methods used during this survey are established, indirect techniques for nondestructive subsurface reconnaissance exploration. As these instruments utilize indirect methods, they are subject to inherent limitations and ambiguities. Metallic surface features (electrical wires, scrap metal, etc.) preclude reliable non-invasive data/results beneath, and in the immediate vicinity of, the surface features. Targets such as buried drums, buried tanks, conduits, etc. are detectable only if they produce recognizable anomalies or patterns against the background geophysical data collected. As with any remote sensing technique, the anomalies identified during a geophysical survey should be further investigated by other techniques such as historical aerial photography, test pit excavation and/or test boring, if warranted.



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Page 6

Please do not hesitate to contact us if you have any questions or require additional information.

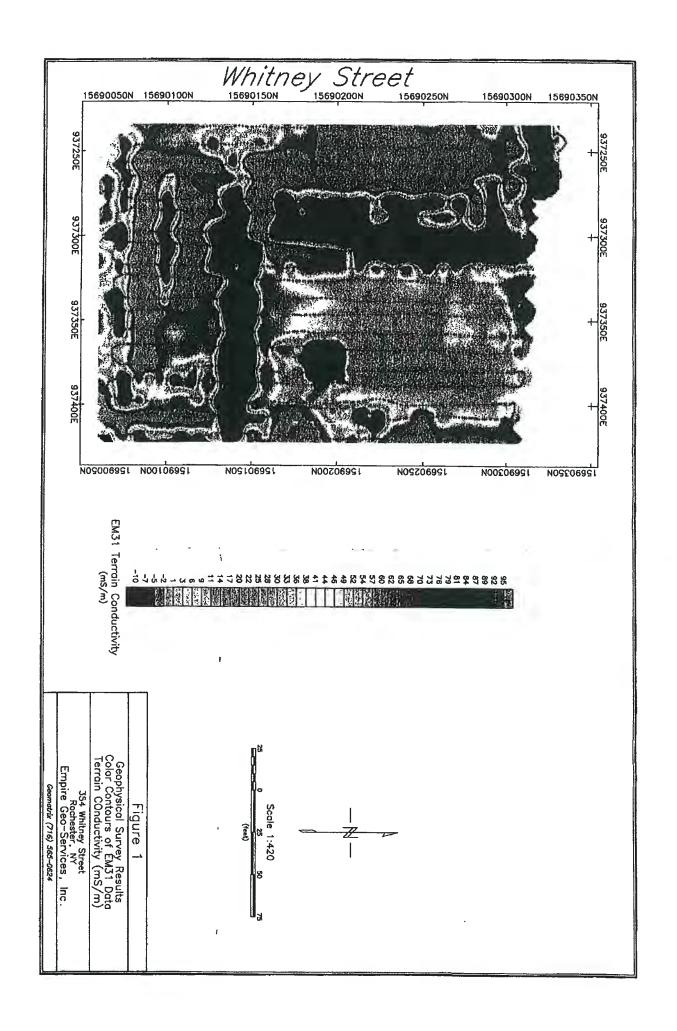
Sincerely yours, GEOMATRIX CONSULTANTS, INC.

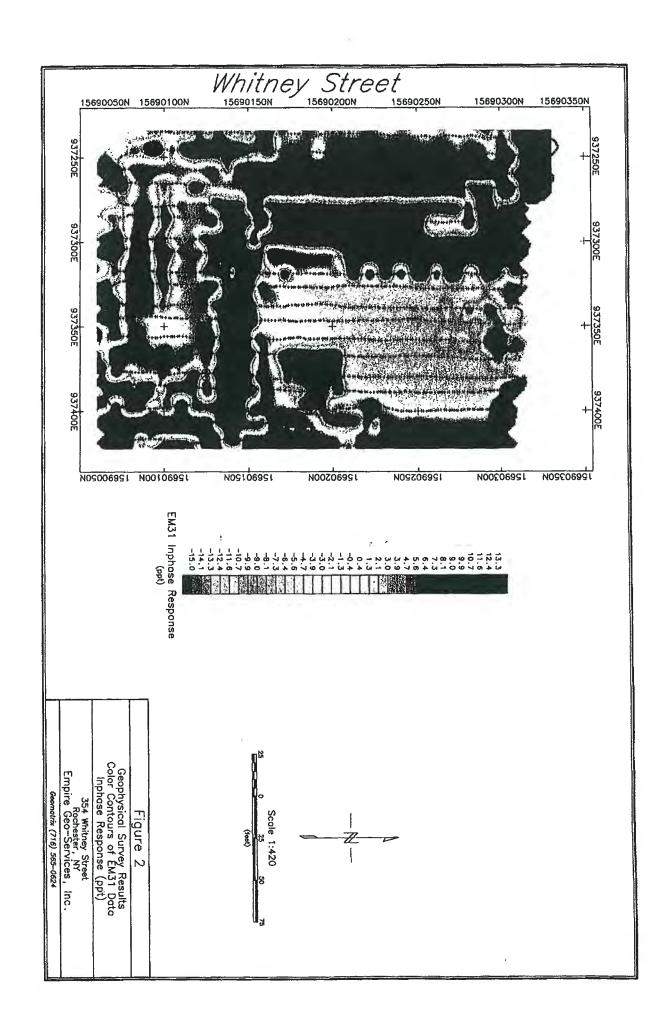
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John Luttinger Senior Geophysicist

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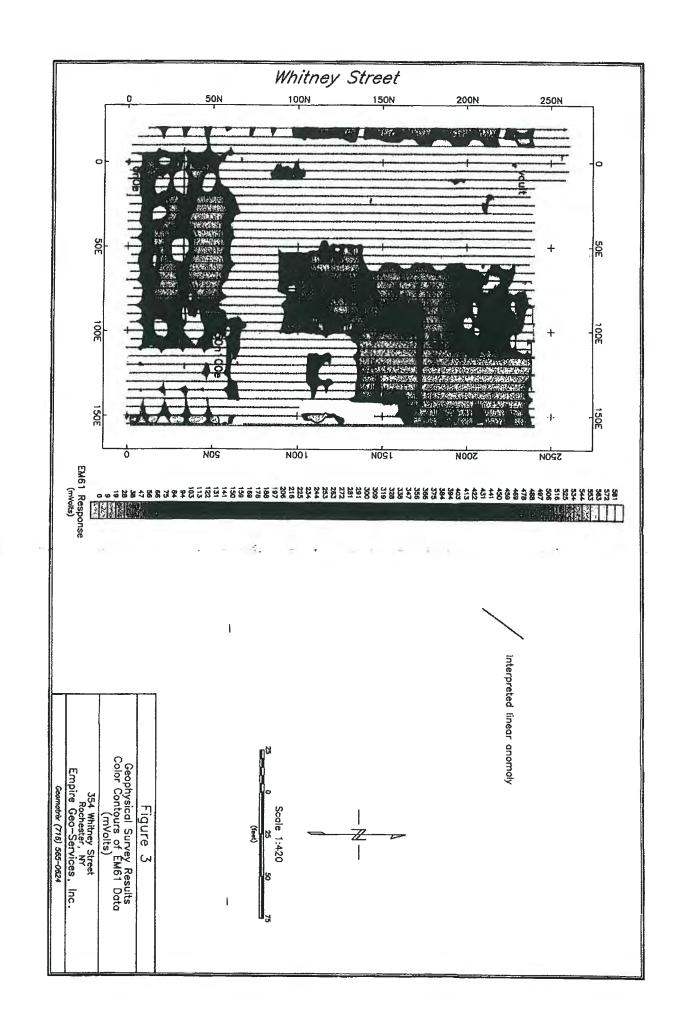
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Appendix 3

Predevelopment Geotechnical Assessment Report



415 ORCHARD STREET ROCHESTER, NEW YORK

PRE-DEVELOPMENT GEOTECHNICAL ASSESSMENT NOVEMBER 18 2011 DRAFT REPORT

1.0 INTRODUCTION

This report outlines our Pre-Development Assessment for the 415 Orchard Street parcel in Rochester, New York. We base this evaluation on our review of U.S.G.S. and N.Y.S.D.O.T. topographic mapping; historic mapping; old building plans made available for our review, test boring and test pit exploration done as part of the environmental assessment; and consultation with the design team. We intend this report for the use exclusively in assessing geotechnical cost impacts on developing the parcel and conceptual layout of new building(s) on the parcel. A more detailed geotechnical evaluation is required for specific building layouts, designs, and loadings. This study is limited to the geotechnical aspects of the site development; the geo-environmental aspects are being addressed by others.

Lu Engineers retained Foundation Design, P.C. as part of their contract with the City of Rochester to provide the services outlined in our October 17, 2011 Geotechnical Services Proposal, P2876.0R. Our services included reviewing the existing information; spot-checking portions of the environmental drilling and reviewing the soil samples; evaluating the results; and developing a list of geotechnical impacts that could be considered a premium cost associated with developing this parcel as compared to a 'green' site. We agreed to submit this report outlining our findings and conclusions.

For this assessment, we have assumed that the future buildings will be less than 5-stories (60 feet) high. The structures envisioned for this parcel consist of three to four story wood-DRAFT Pre-Development Geotechnical Assessment November 2011 415 Orchard Street, Rochester, NY



framed residential housing, or steel-framed residential, office, manufacturing or commercial buildings. We have also assessed the possibility of installing a basement/below-grade parking.

Attached to the end of this text is an ASFE paper entitled *Important Information about Your Geotechnical Engineering Report* that you should read. It describes how we intend this report to be used and discusses risks and risk allocation. We will continue to work cooperatively with you and other interested parties to achieve win/win solutions.

2.0 SITE CONDITIONS/HISTORY

415 Orchard Street lies in the western portion of downtown Rochester, New York. This is an older portion of the City whose development is multi-dimensional and dates back to at least the Erie Canal era. The parcel is roughly delineated by Orchard Street to the east, Whitney Street to the west, a railroad corridor and other industrial structure to the south, and industrial/retail structures and then Lyell Avenue to the north. The parcel contains the remains/debris from a demolished AC Delco plant. This includes some slab(s) on grade, tunnels crossing and connecting the former structures, and mechanical/utility space such as coal storage bins and a smokestack foundation. A multi-story brick structure remains in the southeast corner of the parcel. Opposite this is a large pile of brick and block rubble along with some debris. This material was reportedly generated from previous demolish activities including some undertaken as post-fire cleanup and site stabilization.

Historic mapping dating back to the late 1880's shows that development of this parcel was generally residential. Early in the 1900's the Rochester Lift Company occupied the southwest end of the site. By 1935 (AC) Delco has taken over the site, incorporating the Rochester Lift Company structure into their facility and adding other structures.

3.0 EXPLORATION AND TESTING

As part of this study, we observed portions of the environmental investigation test borings, examined associated samples, and reviewed the (provided) test boring and test pit logs. Outlined



below are the test hole logs we reviewed. Their locations are plotted on the (Lu Engineers test boring location plan) and logs are included in (the appropriate Lu Engineering reports.)

- Oct/Nov 2008 Test Borings and Monitoring Wells done by Paragon.
- Oct 2008 Test Pits number TP-01 through TP-17 logged by Lu Engineers.
- March, 2011 Test Pits number TP-19 through TP-37 logged by Lu Engineers.
- July 2011 Plating Area borings PA-01 through PA-18 and other soil boring/monitoring well logs performed at this time by Nothnagle Drilling for Lu Engineers.

We point out that environmental exploration and sampling is undertaken to investigate and define potential contamination, not to define load-bearing capabilities of soil and bedrock strata. Sampling points are often focused around environmental areas of interest such as tanks, etc. that may occupy a small percentage of the overall site area. The sampling points may not include areas without suspected contamination but still relevant to the geotechnical classification of the site. Therefore environmental sampling protocols and procurement methods differ as well as the type of information recorded on test pit and soil boring logs. This evaluation is based on the environmental test hole data. While we have strived to interpret the soil strata descriptions in terms of their relevant geotechnical engineering properties there is still a fair amount of interpretation that introduces a higher degree of unknowns into the inferred soil profile. Again, this is a planning-level study, not a detailed geotechnical evaluation.

4.0 SOIL, BEDROCK, AND GROUNDWATER CONDITIONS

The following interpretations of the soil, bedrock, and groundwater conditions are based on the available data and our conclusions are subject to the limitations thereof. Variations from the inferred subsurface profile are possible, especially on this historically developed site. Call us immediately if such variations are found so we may evaluate the impact on our conceptual findings.

Soil conditions are somewhat variable and dependant upon previous development within the area under consideration. Fills consist of reworked native soil and/or debris. Fill depths vary between none to eight feet (former house basement at TP-34) to 13.7 feet (smoke stack foundation at PA-DRAFT Pre-Development Geotechnical Assessment

Pre-Development Geotechnical Assessment 415 Orchard Street, Rochester, NY 

06). As was customary, we expect that the AC Delco floor slabs were constructed over the previous construction such that areas of former houses likely contain poor quality fills. See the attached *Historical Usage Schematic Plan*.

Test holes indicate that beneath the fill is firm native silt/clay and then dense glacial till. The till was generally encountered between six and eight feet below grade. While the soil borings do not contain typical SPT N-values some of them show hammer blows to drive the sampler each four foot increment. This data generally classifies the upper silt/clay as 'firm' and the lower till as 'very dense'. The soil interface between the two native materials is loose/wet due to water perching above the dense glacial till soil. This condition is likely to fluctuate seasonally. Water will also perch within the fills or available void spaces.

Depth to bedrock varies with greater depth towards the southern portion of the site. Bedrock elevations appeared to be between elevation 505 and 500 in the northwest quadrant of the sit, generally near 500 across the middle/diagonal of the site, and below 500 near the plating area. We do not know if this lower depth was a natural condition or if they blasted/fractured the rock to install the tanks. Bedrock is thickly to massively bedded dolomite with few shaley inclusions. The upper foot of the bedrock is weathered, the rock is hard and competent below this. Rock Quality, RQD, is typically 50 percent to percent.

5.0 CONCLUSIONS

We judge that the debris-laden soil is not acceptable for support of new structures or floor slabs. While it appears to have served AC Delco's needs for floor slab support we conclude that this material will likely settle with time and new loads. Quantifying the amount of this material will be difficult with the multiple generations of previous development, additional test pit exploration could serve to reduce the level of uncertainty.

The upper firm and wet natural soil should be sufficient for support of modest structural loads.



The deeper dense glacial till soil can support more significant loads from multi-story, heavy structures such as the existing facility.

Bedrock depths should be deep enough to facilitate typical near-surface construction. Deep utilities or a basement may conflict with the bedrock and require mechanical fracturing. Likewise, the groundwater appears to be able to be handled using typical construction practices for near surface construction but may pose challenges for deeper work or permanent structures.

Based on these findings, we draw the following general conclusions/recommendations:

5.1 Site Preparation: Removal and Replacement

It is our opinion that the in-place fill material is not suitable to support new construction. The in-place fill contains debris and sporadic areas where highly compressible ash and cinders have been deposited. This material would consolidate and compress under new structural loads, leading to unacceptable settlement of the structure and floor slabs. Expect to remove in-place fill from within any future building footprint. The extent of this removal is expected to coincide with the previous areas/types of previous construction. The best way to quantify this is to overlay previous development areas with new construction limits and then assume an expected removal depth. For planning purposes we suggest assuming that the older, pre-AC Delco development areas will require eight feet of removal and replacement. Near the AC Delco smokestack removal depth should be less than fifteen feet. Other AC Delco sub-slab features such as the utility tunnel, utility lines, or basement areas will require appropriate depths of removal. A review of either AC Delco plans or detailed historic mapping such as EDR/Sanborn Fire Insurance mapping may help better define these potential work items.

Backfill for these over-excavations should be a granular material such as sand and gravel or appropriately graded recycled concrete/bricks. The existing rubble pile contains debris from previous fires and site stabilization. Although using this material will require hand-



sorting to remove wood, etc. we believe that it will still yield a workable product. Newly created rubble from controlled demolition of the existing structure and slab, etc. is likely to be a more consistent and higher-quality product.

Utilizing a basement or partial basement could limit the quantity of structural backfill required but could also result in bedrock conflicts. Limit basement/foundation depths to less than seven feet in general or as specific boring logs indicate.

5.2 Foundation System: Spread Footings

As this stage in project planning we expect that you will to utilize a spread footing foundation system. For near-surface footings (bear at typical frost depth) we expect that the footings will bear at low to moderate bearing pressures on the order of 2,000 psf. For deeper footings bearing at least eight feet \pm below grade, the design pressure could easily be double or triple that value.

If the new construction consists of very heavy loads (greater than 400 kips) then consideration should be given to a deep foundation system. Plan for a drilled shaft system bearing at a depth of fifteen to twenty feet below grade at a bearing pressure of seven to ten tons per square foot. Again, this system would only be utilized to reduce the size of the near-surface foundations for project economics.

5.3: Seismic Considerations

According to the 2010 NYS Building Code seismic hazard mapping for a Site Classification of B, structures in Rochester, New York may experience short dynamic period spectral accelerations (S_S) of 0.164g and 1-second period spectral response accelerations (S_1) of 0.060g. We recommend assuming a seismic site classification of C (dense soil) in your conceptual estimating. Slab/basement and bedrock elevations could improve this to a site classification of A (hard rock).



Foundation Design, P.C.

5.4 Pavement/Sidewalk Measures

Where asphalt and concrete pavements or sidewalks are placed over the in-place fill, owners and developers should expect less-than-typical time before cracking, waviness, 'bird-baths', and potholes start to form and maintenance is required. Due to the potential exorbitant costs of removing and replacing this material, we recommend that developers/future owners accept these risks.

For your preliminary estimating, we suggest budgeting for a slightly thicker than "normal" pavement, say 1.5 inches of asphalt top, 2.5 inches of asphalt binder, and 15 inches of crusher-run stone subbase. To extend the life and improve expected pavement performance, budget to install a geogrid similar, to Mirafi BXG-12, under the pavement and sidewalk subbase layers. Some undercutting and/or reworking of unsuitable fill will be required to remove the large debris from within the top 24 inches of the pavement subgrade; plan to backfill areas undercut with suitable on-site soil.

Plan for pavement slopes of at least 2.0 percent. Install weeps at low points in the pavement to facilitate drainage out of the granular subbase and into the stormwater system. Plan for higher maintenance costs associated with these pavements.

5.5 Premium Cost Items

The following is a list of premium cost items for redevelopment of this parcel as compared to construction on a 'green' site.

Structural/Design Costs

Removal/hoe-ramming of existing structure, slab, and buried foundations Off-site disposal of excavated materials (foundations/utility trenches/debris-laden fill) Processing of rubble/import of structural fill for undercut backfill Thicker pavement and sidewalk sections including geogrid

Geotechnical Construction Oversight Costs

Full-time site presence during fill removal/replacement Periodic site visits during the pavement/sidewalk subgrade preparation work

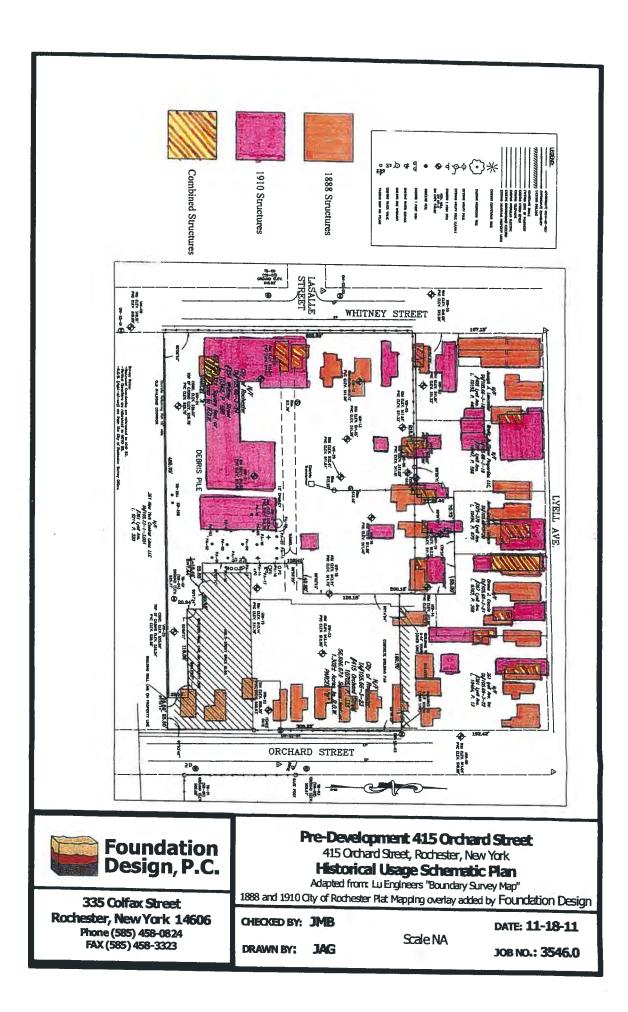
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5.0 CLOSURE

The conclusions outlined in this Pre-Development Geotechnical Assessment are provided with our limited information on the final uses of this parcel. We point out that additional geotechnical exploration, testing, and/or engineering analysis will be required after the building locations, sizes, design loads, and site grading have been established. Call if you have questions regarding our interpretations of the soil, bedrock, and groundwater conditions as you develop concepts to develop this parcel. We look forward to hearing from you again as potential developers assess options for developing this parcel.



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December 22, 2011

Lu Engineers 175 Sully's Trail Corporate Crossings Office park Pittsford, New York 14534

- Attention: Greg Andrus, CHMM Environmental Division Director
- Reference: 415 Orchard Street, Rochester, New York Pre-development Investigation DRAFT Earthwork Cost Estimate, 3546.0

Dear Mr. Andrus:

This letter is our formal submission of our *Opinion of Probable Earthwork Costs* for the 415 Orchard Street parcel. This *Opinion of Probable Earthwork Costs* is based on remediation of the entire parcel. In estimating these costs, we have made the following assumptions:

- The proposed grades will be near existing.
- Shallow unsuitable fill was identified intermittently in the environment test logs. We estimate that the amount of unsuitable material averages 6-inches (0.5 feet) across the entire site.
- Tunnels and old house basements have been filled with unsuitable material that will be removed from the site. (see the attached sketch)
- Proposed buildings will be supported on shallow spread foundations with slab-on-grade floors.

Other clean up costs that were not included in our estimate include the following:

- Demolition of the existing building.
- Environmental clean up.
- Removal and/or processing of remaining stockpiled rubble



Opinion of Earthwork Cost for 415 Orchard Street

Undercut areas

Orchard St. Basements:

East-West Tunnel:

234 ft x 40 ft x 6 ft deep = 56,000 cubic ft 2,080 cubic yards

290 ft x 15 ft x 8 ft deep = 34,800 cubic ft 1,289 cubic yards

North-South Tunnel:

Vaults and Tanks:

General Shallow Fills:

150 ft x 35 ft x 8 ft deep = 42,000 cubic ft 1,556 cubic yards

3 @ 20 ft x 20 ft x 12 ft deep = 14,000 cubic ft 533 cubic yards

300 ft x 500 ft x 0.5 ft deep = 75,000 cubic ft 2,778 cubic yards

Total Yards of Removal = 8,236 cubic yards

Cost for Removal of unsuitable fill est: \$22/cubic yard

Total cost of Removal = \$181,192

Concrete Processing

Concrete Slabs (32,125 ft²+27,500ft²+11,000ft²+25,800ft²+15,300ft²) x 0.5 ft thick = 55,887 cubic ft

Concrete Foundations (exterior) (730 + 900 + 1075) lineal feet x 6 ft² (4 foot wall with 3 foot foundation) = 16,230 cubic ft

Concrete Foundations (interior) 290 est. foundations averaging 9 ft³ = 2,610 cubic ft

Total Yards of Removal = 2,768 cubic yards



Cost for concrete processing and placement est: \$25/cubic yard

Total cost of Concrete Processing = \$149,472

Rubble Processing (for excavation backfill)

Balance of backfill necessary after concrete processing 8,236 + 698 (foundation removal excavations) - 2,768

= 6,167 cubic yards

Cost for processing and placement of rubble est: \$9 cubic yard

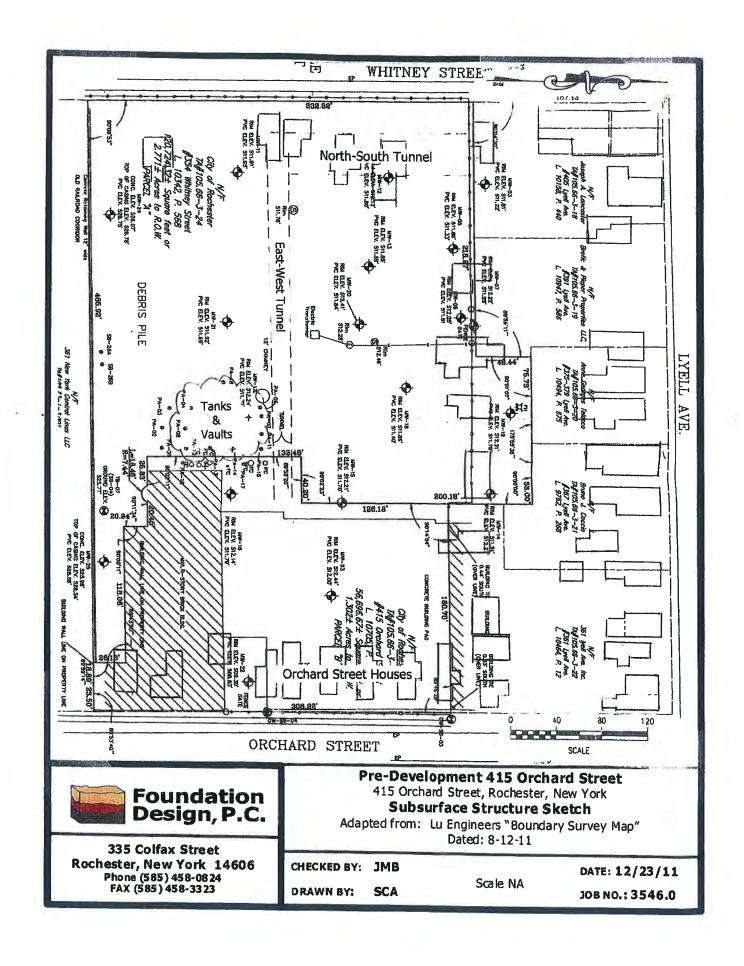
Total Cost of Rubble Processing = \$55,503

Oversite and Inspection

Four week of engineering and soils/lab testing = **\$20,000**

Total Earthwork Cost: \$406,149

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Appendix 4 Test Pit Logs





Test Pit LogProject No.: 4216Page 1 of 1Project Name: Orchard /Whitney RI/IRMClient: City of RochesterDimensions: 20'x6'x10'Weather: Sunny, 50°Tech.:ERD/GLA

Site Photos

	No Photo Available					No Photo Available	
unny, 50° Tech.:ERD/GLA : 10/01/08 Oper.: Nate Equipment: 200 Series Komatsu	Soil & Rock Classifications/Remarks		0-3' Concrete and sub base material Clay tile drainage "crock" found at 1' bgs containing black sandy sludge with strong odor - clean pipe attached oriented southward		3-6.5' bgs brown f-m sand and silt , moist w/ building demo fill. Groundwater observed - no sheen or odor Terminated test pit at 6.5' bgs		
Weather: Sunny, 50° Completed: 10/01/08 ental	(mqq) OI4	0	15	0	0	0	0
Environm	Depth of Sample						
Dimensions: 20'x6'x10' Wea Date Started: 10/01/08 Con Sub-Contractor: Paragon Environmental	Sample Number		TP-01A (waste)		TP-01B (soil)		ie
Dimension Date Start Sub-Contr	Depth Below Surface (Ft.)	~	4	9	- ∞	10	12

Remarks: Waste materials from crock staged in 55-gallon drum and secured pending characeterization and disposal. Bedrock not encountered.

No Photo Available No Photo Available Site Photos [] $\left[\right]$ 3-5.5' bgs brown f-m sand and silt , moist w/ building demo fill. Clay tile drainage "crock" found at 2' bgs , empty with no odor Soil & Rock Classifications/Remarks 0-2' Loose asphalt underlain by thin gravel layer Equipment: 200 Series Komatsu Tech.:ERD/GLA clean pipe attached oriented southward Test Pit: TP-02 Groundwater not observed - no odor **Oper.: Nate** Terminated test pit at 5.5' bgs **Engineers** ENVIRONMENTAL . TRANSPORTATION . CIVIL Completed: 10/01/08 Weather: Sunny, 50° **Test Pit Log** Page 1 of 1 PID (ppm) 0 0 0 0 0 0 Sub-Contractor: Paragon Environmental Project Name: Orchard /Whitney RI/IRM Depth of Sample **Client: City of Rochester** Dimensions: 20'x6'x10' Date Started: 10/01/08 Number Sample **TP-02** (soil) Project No.: 4216 翻翻 Surface Below Depth (Ft.) 10 42 2 4 ω ဖ

Remarks: Bedrock not encountered.

No Photo Available No Photo Available Site Photos Sand and gravel soil stained and exhibits petroleum/solvent odor Soil & Rock Classifications/Remarks Soils wet at 7.5' bgs, odor and slight sheen noted. Concrete and sub base to approximately 2.0' bgs Location looks like an abandoned hydraulic lift Equipment: 200 Series Komatsu Tech.:ERD/GLA Test Pit: TP-03 **Oper.: Nate** Brown sand and gravel to 7.0' bgs Terminated test pit at 9.0' bgs **Engineers** ENVIRONMENTAL . TRANSPORTATION . CIVIL Weather: Sunny, 50° Completed: 10/01/08 **Test Pit Log** Page 1 of 1 PID (ppm) 0 15 0 0 0 0 Sub-Contractor: Paragon Environmental Project Name: Orchard /Whitney RI/IRM Depth of Sample **Client: City of Rochester** Dimensions: 20'x9'x10' Date Started: 10/01/08 Sample Number TP-03B (oily mtl.) **TP-03A** (Soil) Project No.: 4216 8 Surface Below Depth (Et.) 4 2 N 4 ဖ ω

Remarks: Bedrock not encountered.

No Photo Available No Photo Available Site Photos Native soils below floor slab, saturated brown cmf sand and gravel Soil & Rock Classifications/Remarks Water present in concrete pit (former basement) Equipment: 200 Series Komatsu at approximately 5.0' bgs, no odor, no sheen Terminated TP at approximately 11.0' bgs Tech.:ERD/GLA Test Pit: TP-04 Concrete and gravel to approx 9.0' bgs Concrete floor of former engine room **Oper.: Nate** Engineers ENVIRONMENTAL . FRANSPORTATION . CIVIL Weather: Sunny, 50° Completed: 10/01/08 **Test Pit Log** Project No.: 4216 Project Name: Orchard /Whitney RI/IRM PID (ppm) 15 0 0 0 0 0 Sub-Contractor: Paragon Environmental Depth of Sample **Client: City of Rochester** Dimensions: 20'x9'x10' Date Started: 10/01/08 Sample Number **TP-04** (soil) 墨 部 Depth Below Surface (Ft.) 10 N 42 4 ဖ ω

Remarks: Bedrock not encountered.

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Site Photos

Test Pit: TP-05

Test Pit Log

Project Name: Orchard /Whitney RI/IRM Client: City of Rochester

	No Photo Available					No Photo Available	
Weather: Sunny, 50° Tech.:ERD/GLA Completed: 10/01/08 Oper.: Nate intal Equipment: 200 Series Komatsu	Soil & Rock Classifications/Remarks		0-3' Concrete and sub base material Clay tile drainage "crock" found at 1' bgs containing black sandy sludge with strong odor - pipe attached containing sludge	removed all piping and containerized with TP-01 waste	3-6.5' bgs brown f-m sand and silt, moist w/ building demo fill. Groundwater observed - no sheen or odor	Terminated boring on bedrock at 9.5' bgs	
Weather: Complete ental	PID (ppm)	o	0	о О	0	0	0
Environm	Depth of Sample						
Dimensions: 20'x9.5'x10' Wea Date Started: 10/01/08 Con Sub-Contractor: Paragon Environmental	Sample Number				TP-05 (soil)		
Dimension Date Start Sub-Contr	Depth Below Surface (Ft.)	Q	4	G	ο ∞	10	12

Remarks: Waste materials from crock and pipe staged in 55-gallon drum and secured pending characterization and disposal.

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Site Photos

Tech.:ERD/GLA Test Pit: TP-06 Dimensions: 20'x9.5'x10' Weather: Sunny, 50° Date Started: 10/01/08 Completed: 10/01/08 Sub-Contractor: Paragon Environmental Test Pit Log Project Name: Orchard /Whitney RI/IRM Client: City of Rochester

Oper.: Nate Equipment: 200 Series Komatsu

	No Photo Available						-	No Photo Available			
	Soil & Rock Classifications/Remarks		0-3' Concrete and sub base material Moist fill material mixed with native sand and gravel soils Strong solvent odor noted at approximately 4.0' bgs	No piping or crock observed, odor dissipated quickly.		3-6.5' bgs brown f-m sand and silt, moist w/ building demo fill. Groundwater observed - no sheen or odor	Native brown sand and gravel soils underlain by thin till layer	to 9.5' bgs Terminated boring on bedrock at 9.5' bgs			
	PID (ppm)	0	28.5	0		0		0		0	
	Depth of Sample										
2	Sample Number		TP-06								
	Depth Below Surface (Ft.)	2	4		6		8		10		12

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Remarks:

No Photo Available No Photo Available Site Photos 3-8.5' bgs brown f-m sand and silt, moist mixed native soils and fill. Groundwater observed - no sheen, odor present in soils Soil & Rock Classifications/Remarks Brown mf sand, silt and cmf gravel below 3.0' bgs Equipment: 200 Series Komatsu 0-3' weathered asphalt and sub base material Tech.:ERD/GLA Test Pit: TP-07 **Oper.: Nate** Terminated boring at 8.5' bgs -ngineers ENVIRONMENTAL . TRANSPORTATION . CIVIL Completed: 10/01/08 Weather: Sunny, 50° **Test Pit Log** Page 1 of 1 PID (ppm) 400 0 0 0 0 0 Sub-Contractor: Paragon Environmental Project Name: Orchard /Whitney RI/IRM Depth of Sample **Client: City of Rochester** Dimensions: 20'x9.5'x10' Date Started: 10/01/08 Sample Number TP-07 (soil) Project No.: 4216 Surface Depth Below (Ft.) 10 2 4 12 9 ω

Remarks: Bedrock not encountered

No Photo Available No Photo Available Site Photos 3-8.5' bgs brown f-m sand and silt, moist mixed native soils and fill. 0-3' weathered asphalt and sub base material, some masonry Groundwater observed - no sheen, no odor present in soils Soil & Rock Classifications/Remarks Brown mf sand, silt and cmf gravel below 3.0' bgs Equipment: 200 Series Komatsu Terminated boring at 9.0' bgs on bedrock Tech.:ERD/GLA Test Pit: TP-08 **Oper.: Nate Engineers** ENVIRONMENTAL . TRANSPORTATION . CIVIL 8.5 - 9.0' bgs grey till Completed: 10/02/08 Weather: Sunny, 50° **Test Pit Log** Project No.: 4216 Project No.: 4216 Project Name: Orchard /Whitney RI/IRM PID (ppm) 0 0 0 0 0 0 Sub-Contractor: Paragon Environmental Depth of Sample Dimensions: 20'x9.0'x10' **Client: City of Rochester** Date Started: 10/02/08 Sample Number TP-08 (Soil) Below Surface Depth (Ft.) 10 42 2 ဖ 4 ω

Remarks: Bedrock encountered at 9.0 feet bgs

No Photo Available No Photo Available Site Photos \Box 3-8.5' bgs brown f-m sand and silt, moist mixed native soils and fill. 0-3' weathered asphalt and sub base material, some masonry Groundwater observed - no sheen, no odor present in soils Soil & Rock Classifications/Remarks Brown mf sand, silt and cmf gravel below 3.0' bgs Equipment: 200 Series Komatsu Terminated boring at 9.0' bgs on bedrock Tech.:ERD/GLA Test Pit: TP-09 **Oper.: Nate** Engineers 8.5 - 9.0' bgs grey till ENVIRONMENTAL • TRANSPORTATION • 0 Completed: 10/02/08 Weather: Sunny, 50° **Test Pit Log** Project No.: 4216 Project Name: Orchard /Whitney RI/IRM PID (ppm) 0 0 0 0 0 0 Sub-Contractor: Paragon Environmental Depth of Sample **Client: City of Rochester** Dimensions: 15'x9.0'x10' Date Started: 10/02/08 Sample Number FP-09 (Soil) Below Surface Depth (Ft.) 10 N ဖ 42 4 ω

Remarks: Bedrock encountered at 9.0 feet bgs

No Photo Available No Photo Available Site Photos 3-8.5' bgs brown f-m sand and silt, moist mixed native soils and fill. 0-3' weathered asphalt and sub base material, some masonry Groundwater observed - no sheen, no odor present in soils Soil & Rock Classifications/Remarks Brown mf sand, silt and cmf gravel below 3.0' bgs Equipment: 200 Series Komatsu Terminated boring at 9.5' bgs on bedrock Tech.:ERD/GLA Test Pit: TP-10 **Oper.: Nate** -ngineers ENVIRONMENTAL . TRANSPORTATION . CIVIE 8.5 - 9.5' bgs grey till Completed: 10/02/08 Weather: Sunny, 50° Test Pit Log Page 1 of 1 PID (ppm) 0 0 0 0 0 0 Sub-Contractor: Paragon Environmental Project Name: Orchard /Whitney RI/IRM Depth of Sample **Client: City of Rochester** Dimensions: 15'x9.5'x10' Date Started: 10/02/08 Sample Number TP-10 (Soil) Project No.: 4216 i 🖉 Depth Below Surface (Et.) 9 2 42 4 ဖ ω

Remarks: Bedrock encountered at 9.5 feet bgs

 \square No Photo Available No Photo Available Site Photos 3-8.5' bgs brown f-m sand and silt, moist mixed native soils and fill. 0-3' weathered asphalt and sub base material, some masonry Groundwater observed - no sheen, faint petrol. odor in soils Soil & Rock Classifications/Remarks Brown mf sand, silt and cmf gravel below 3.0' bgs Equipment: 200 Series Komatsu Terminated boring at 9.5' bgs on bedrock Tech.:ERD/GLA Test Pit: TP-11 **Oper.: Nate** =ngineers ENVIRONMENTAL . TRANSPORTATION . CIVIL 8.5 - 9.5' bgs grey till Completed: 10/02/08 Weather: Sunny, 50° **Test Pit Log** Project No.: 4216 Project Name: Orchard /Whitney RI/IRM PID (ppm) 0 0 0 0 0 0 Sub-Contractor: Paragon Environmental Depth of Sample **Client: City of Rochester** Dimensions: 15'x9.5'x10' Date Started: 10/02/08 Sample Number **FP-11** (Soil) Depth Below Surface (Ft.) Q 5 4 ဖ ω 42

Remarks: Bedrock encountered at 9.5 feet bgs



Site Photos							
	Test Pit: TP-12		Tech.:ERD/GLA	Oper.: Nate	Equipment: 200 Series Komatsu		
Test Pit Log	Page 1 of 1	RI/IRM	Weather: Sunny, 50°	Completed: 10/02/08			-
	Project No.: 4216	Project Name: Orchard /Whitney RI/IRM Client: City of Rochester	Dimensions: 15'x3'x10'	Date Started: 10/02/08	Sub-Contractor: Paragon Environmental	Depth	Below

No Photo Available						No Photo Available			
Soil & Rock Classifications/Remarks		0-3' masonry debris, sand and gravel - no odor, dry Terminated boring at 3.0' bgs on massive concrete							
PID (ppm)	0	0	0		0		0	0	
Depth of Sample	ļ								
Sample Number									
Depth Below Surface (Ft.)	~	4		9	-	ω	10		12

Remarks: Massive concrete slab encountered at 3.0 feet bgs. No sample taken (all fill material)

No Photo Available No Photo Available Site Photos Soil & Rock Classifications/Remarks 0-3' masonry debris, sand and gravel - no odor, dry Terminated boring at 3.0' bgs on massive concrete Equipment: 200 Series Komatsu Tech.:ERD/GLA Test Pit: TP-13 **Oper.: Nate** Engineers ENVIRONMENTAL . TRANSPORTATION . CIVIL Weather: Sunny, 50° Completed: 10/02/08 **Test Pit Log** Page 1 of 1 PID (ppm) 0 0 0 0 0 0 Sub-Contractor: Paragon Environmental Project Name: Orchard /Whitney RI/IRM Depth of Sample **Client: City of Rochester** Dimensions: 15'x3'x10' Date Started: 10/02/08 Number Sample Project No.: 4216 **8** 8 Depth Below Surface Et.) 9 N 2 4 ø ω

Remarks: Massive concrete slab encountered at 3.0 feet bgs. No sample taken (all fill material)

No Photo Available No Photo Available Site Photos 3-8.5' bgs brown f-m sand and silt, moist mixed native soils and fill. 0-3' weathered concrete and sub base material, some masonry Groundwater observed - no sheen, no odor present in soils Terminated boring at 9.0' bgs. Bedrock not encountered Soil & Rock Classifications/Remarks Brown mf sand, silt and cmf gravel below 3.0' bgs Equipment: 200 Series Komatsu Tech.:ERD/GLA Test Pit: TP-14 TP is adjacent to 4' diam steel caisson **Oper.: Nate** Engineers ENVIRONMENTAL . TRANSPORTATION . CIVIL 8.5 - 9.0' bgs grey till Completed: 10/02/08 Weather: Sunny, 50° **Test Pit Log** Page 1 of 1 PID (ppm) 0 0 0 0 0 0 Sub-Contractor: Paragon Environmental Project Name: Orchard /Whitney RI/IRM Depth of Sample Dimensions: 15'x9.0'x10' **Client: City of Rochester** Date Started: 10/02/08 Number Sample FP-14 (Soil) Project No.: 4216 **E B** Surface Below Depth (Ft.) 10 2 12 4 ဖ ω

Remarks: Bedrock not encountered at 9.0 feet bgs

0 No Photo Available No Photo Available Site Photos 0-3' weathered concrete and sub base material, some masonry 7.0-9.5' bgs brown f-m sand and silt, moist mixed native soils . Groundwater observed - no sheen, no odor present in soils Terminated boring at 10.5' bgs. Bedrock encountered Soil & Rock Classifications/Remarks Brown mf sand, silt and cmf gravel below 3.0' bgs Equipment: 200 Series Komatsu 4.0-7.0' bgs grey clay and cmf sand layer Tech.:ERD/GLA Test Pit: TP-15 **Oper.: Nate** Solvent odor - dissipates quickly **Engineers** ENVIRONMENTAL . TRANSPORTATION . CIVIL 9.5 - 10.5' bgs grey till Weather: Sunny, 50° Completed: 10/02/08 **Test Pit Log** Project No.: 4216 Project No.: 4216 Project Name: Orchard /Whitney RI/IRM PID (ppm) 950 0 0 0 0 Sub-Contractor: Paragon Environmental Depth of Sample Dimensions: 15'x10.5'x10' **Client: City of Rochester** Date Started: 10/02/08 Sample Number TP-15 (Soil) **M M** Depth Below Surface (Et.) 10 N 4 ဖ ω

Remarks: Bedrock encountered at 10.5 feet bgs

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No Photo Available No Photo Available Site Photos 0-3' weathered concrete and sub base material, some masonry 7.0-9.5' bgs brown f-m sand and silt, moist mixed native soils . Groundwater observed - no sheen, no odor present in soils Soil & Rock Classifications/Remarks Terminated boring at 10.0' bgs. Bedrock encountered Brown mf sand, silt and cmf gravel below 3.0' bgs Equipment: 200 Series Komatsu Tech.:ERD/GLA Test Pit: TP-16 **Oper.: Nate** Drainage tile (empty, no odor) Engineers ENVIRONMENTAL . TRANSPORTATION . CIVIL 9.5 - 10.0' bgs grey till Weather: Sunny, 50° Completed: 10/02/08 **Test Pit Log** Project No.: 4216 Project No.: 4216 Project Name: Orchard Whitney RI/IRM PID (ppm) 0 0 0 0 0 0 Sub-Contractor: Paragon Environmental Depth of Sample Dimensions: 15'x10.0'x10' **Client: City of Rochester** Date Started: 10/02/08 Sample Number M 🗰 🛛 Below Surface Depth (Ft.) \square 10 2 4 ဖ 2 ω

Remarks: Bedrock encountered at 10.0 feet bgs. No sample obtained due to proximity of MW-12.

No Photo Available No Photo Available Site Photos 0-3' weathered concrete and sub base material, some masonry 7.0-9.5' bgs brown f-m sand and silt, moist mixed native soils . Groundwater observed - no sheen, no odor present in soils Terminated boring at 10.5' bgs. Bedrock encountered Soil & Rock Classifications/Remarks Brown mf sand, silt and cmf gravel below 3.0' bgs (____ Equipment: 200 Series Komatsu Tech.:ERD/GLA Test Pit: TP-17 **Oper.: Nate** Engineers ENVIRONMENTAL . TRANSPORTATION . CIVIL 9.0 - 10.5' bgs grey till Completed: 10/02/08 Weather: Sunny, 50° **Test Pit Log** المان الممان الممان المان المان المان المان المان المان المان المان المان الم PID (ppm) 0 0 0 0 0 0 Sub-Contractor: Paragon Environmental Depth of Sample Dimensions: 15'x10.0'x10' **Client: City of Rochester** Date Started: 10/02/08 Sample Number TP-17 (Soil) . Below Surface Depth (Ft.) 10 N 4 ဖ ω

Remarks: Bedrock encountered at 10.5 feet bgs.

2

Appendix 5 Boring Logs



		_				PROJECT			BORING SB2	23 PA-01	·····	
	101		En	gine	ers	Orchard Whitney			SHEET 1 OF			
		ENVIRC	E Henry F. F. VIMENSAL •	TRANSPORTAN					JOB #: 4216			
CONT	RACTOR	: Nothr	nagle Drillin			BORING LOCATION			CHKD. BY:			
DRILL	ER: Kevir	1	-	•		GROUND SURFACE	ELEVATIO	N:	DAT	UM: N/A		
JCL P	ERSONN	EL: ED/	GLA			START DATE: 7/5/11		END D/	TE: 7/6/11			
TYPE	OF DRILI	RIG: E	3k81 (CME	85)			DATE	TIMAE		EVEL DATA		
CASI	NG SIZE A	ND TY	PE: 2"				DATE	TIME	WATER	CASING	REMARKS	
OVEF	BURDEN	SAMPL	LING METH	HOD: Autoham	imer, 4' malvoco	pre band						
		GMEI	HOD: NA	· · · · · · · · · · · · · · · · · · ·		1						
E			SAMPLE	E DATA								
Р				<u>. </u>			SA	MPLE	DESCRIPT	TION		PID
Т Н	BLOW /6"	NO.	DEPTH	N-VALUE	RECOVERY							(ppm)
	35	1 1	(FT.)	/RQD(%) NA	(%) 50%	Grov brown cilt wit	h omf oon	d				
1		V			<u> </u>	Grey-brown silt wit	n cmi san	u some	cmt gravel,	dry		0-4': 0
						1						
2						@ 2'; medium bro	wn cmf sa	nd with	silt; some ci	mf gravel; m	oist	
						4				•		
3						4						
4			4.0	·		@ 4'; pushed thro	unh conce	oto (OM				
1 1		2			45%		agn concr	ele (21)				4-8': 0
5		\downarrow]						
]						
6						@ 6'; wet						
7						 @7'; wet						
		<u> </u>				wer, wei						
8			8.0			@8'; saturated, m	0.40%					
		3			50%				une nu cum	a, intro orini ş	Jiavoi	8-12': 0
9		$\downarrow \downarrow$			↓ ↓]						
10												
1					···	@ 10'(+/-) grey sil						
11						-						
						1						
12			12			@ 12'; grey silt wi	th f sand;	some c	mf gravel (ro	ounded); mo	ist-dry	12-14.7': (
13		4			10%	4					-	
13		<u>↓</u>	 		¥	-						
14			<u> </u>			-						
						4						
15			14.7]						
16	375		 	<u> </u>								
"	3/5	<u>5</u> ↓			95%	@ 16'; grey-browr	n f sand w	ith silt a	nd cmf roun	ded gravel;	dense; moist	16-20': 0
17	¥	├ ──	<u> </u>		95%	4						
					<u> </u>	1						
18]						
						4						
19						4						
20		†	<u> </u>	<u> </u>		4						
<u> </u>		LEGEN	1 <u>D</u>		I	Spoon refusal; no ele	evated PID	readinos	odors noted			@ 20': 0.
			SPOON SOI									
1			TURBED SC CORE SAMI									
 	GENERAL	NOTES:	:									
	1)) Stratifi	ication Line	s represent ap	proximate bour	ndary between soil type	es; transitio	ns may t	e gradual.			
	2)) PID re	adings wer below grou	e taken directl	y on exposed so	bil in disposable sleeve	, immediate	ely follow	ing retrieval fr	rom boring.		
L			pelow grou parts per r							PODINO "	2000 04 04	
								· · · · ·		BORING #	5623 PA-01	

]

	and the second second					PROJECT			BORING PA	-01				
	10	Lu	En	gine	ers	Orchard Whitney	-		SHEET 2 OF	2				
		ENVIRG-	NEW AL	"PANEPUGRIAN	CN • CIVIL				JOB #: 4216					
CONT	RACTOR	: Nothr	agle Drillin	g		BORING LOCATION	SEE PI AN		CHKD. BY:					
DRILL	ER: Kevir	1		-		GROUND SURFACE	ELEVATIO	IN:	DAT	UM: N/A				
JULP	ERSONN	EL: ED/	GLA			START DATE: 7/5/11		END D/	ATE: 7/6/11					
TYPE	OF DRILL	L RIG: E	3k81 (CME	85)			DATE	TIME		EVEL DATA	DEMONIC			
CASIN	IG SIZE A	ND TY	PE: 2"				DATE		WATER	CASING	REMARKS			
OVEF	BURDEN	SAMPL	ING METH	HOD: Autoham	nmer, 4' malvoco	ore band								
D	DRILLIN	GMEN	HOD: NA			1								
E			SAMPLE	E DATA										
Р						1	SA	MPLE	DESCRIPT	ION			BID	
T H	BLOW /6"	NO.	DEPTH	N-VALUE	RECOVERY								PID (ppm)	
	370	6	(FT.) 20	/RQD(%)	(%) 75%	(a) 201 similar soils	In the second second		1				(PP.1.)	
21	<u> </u>	↓ ↓	20		15%	@ 20' similar soils @ 20.5'; moist	but with c	mt san	d; saturated	@ 20.5; mo	ist		20': 0	
					· · · · ·	6 20.0, moisi							21': 0.1	
22						1							201-0.0	
													22': 0.2	
23						4							23': 0	
24					180	4								
	280	7			80%	-							24': 0	
25	4	V				@ 25.5'; saturated	l: mf grave	al lonco	with cilt				24-26.5': 0	
							i, ini giave	1101130	WILL SIL					
26						1								
0.7			26.5											
27						Augered from 24 to	o 28' (throi	ugh bou	ulder) no san	nple from 26	i.5 to 28'			
28					50%	@ 28's grov mf oo	ndu little te							
	160	8	28		- 0070 	@ 28'; grey mf sar	na, intie to	no siit;	saturated				28-32': 0	
29		\checkmark				1								
]								
30														
31						4								
					<u> </u>	4								
32			32											
		9			90%								32-35': 0	
33	_				¥									
34														
1 1		+				@ 34'; grey cmf g	ravel with	mf sand	d; little silt; s	aturated				
35		1	35	· · · · · · · · · · · · · · · · · · ·		1								
					0	1								
36]								
		 				T.D. with macrocov	ve= 36' bg	s, Auge	ers to 36'					
37					 	-								
38		<u> </u>			<u> </u>	4								
				· · · · · · · · · · · · · · · · · · ·		1								
39					L	1								
]								
40				L										
	S	LEGEN SPLIT S	I <u>D</u> SPOON SOI			Build microwell: screen 36-26; sand 36-24, bentonite 24-22'								
1			TURBED SO			Cuttings to grade								
 			CORE SAME	PLE										
1	GENERAL													
	2)	PID re	adings wer	e taken directi	proximate boun	dary between soil type il in disposable sleeve	s; transitior	is may b	e gradual.	ana hartar				
	-,	bgs ≃ I	below grou	nd surface	,	aleposable siceve		ay TUROW	ing retrieval fr	om boring.				
L		ppm =	parts per r	nillion						BORING # F	PA-01			

						PROJECT			BORING PA	-02			
	136		Fn	gine	ore	Orchard Whitney			SHEET 1 OF				
	54		i i i i i i i i i i i i i i i i i i i	TRANSPORTAT	CI S				JOB #: 4216-	-03			
CONT			agle Drillin		ON TRIMES				CHKD. BY:				
DRILL	.ER: Kevir		agie Drillin	g		BORING LOCATION GROUND SURFACE	SEE PLAI	N					
	ERSONN					START DATE: 7/6/11			DAT ATE: 7/6/11	UM: N/A			
						0.1.1.1. 0.1.1.		LIND DA		EVEL DATA			
TYPE	OF DRILL	RIG: E	3k81 (CME	85)			DATE	TIME	WATER	CASING	REMARKS		
	NG SIZE A												
ROCH	DRILLIN	G METH		HOD: Autonam	mer, 4' malvoco	pre band		<u> </u>					
D			100.111					L					
E			SAMPLE	E DATA									
P							SA	MPLE	DESCRIPT	TION			PID
	BLOW	NO.	DEPTH	N-VALUE	RECOVERY	7							(ppm)
H-H-		1	(FT.)	/RQD(%)	(%)								(ppiii)
	<u>~~~</u>				50%	medium brown silt	wih mf sa	ind and	cmf gravel; i	moist			0-4:0
'	<u>¥</u>				↓	-							
2						4							
						-							
3						@ 3'; 3" clay lense	<u>م</u>						
							,, ·						
4			4.0			1							4.0
	28	2			40%	1							4-8: 0
5					\downarrow]							
]							
6		<u> </u>											
7						4							
1 1					l								
8			8.0	 		@ 7.5' (+/-); medi	um brown	silt and	I cmf sand; s	some cmf gr	avel; wet		ľ
	260	3	0.0		75%	0 9 5' modium b			***				8-12: 0
9		<u> </u>			V V	@ 8.5'; medium b @9'; green yellow	discolora	na withs	iiit; some cm	f gravel, mo	ist		
							00001010)				
10						@ 10'; rose-grey t							
]		-					
11]							
12	305	4	12.0		050/								12-16:0
13		4			85%	@ 12.5'; grey silt;	little f sar	nd; mois	t-dry; little ro	ounded mf g	ravel		
1.0	¥			<u> </u>	<u>↓</u>	-							
14				<u> </u>		-							
			1	<u> </u>		4							
15					1	1							
1]							
16			16.0			@ 16'; wet							16-17.7: 0
I	250	5	<u> </u>			@ 16.5'; rose-gre	y						10-17.7.0
17	<u>↓</u>	+				4							
18	<u> </u>	┼──	477		<u> </u>	4							
1 '		+	17.7	<u> </u>		4							
19		+		<u> </u>	<u> </u>	4							
		1	<u> </u>	1	<u> </u>	1							
_20				<u> </u>	<u> </u>	1							
		LEGEN			·	Collected soil sample @9' (discoloration)							
			SPOON SO			Collected soil sample	from 16-1	7.7'	·,				
				DIL SAMPLE		Spoon refusal @ 17.							
	GENERAL		CORE SAM	PLE		Set well @ 18.5	w/ 10' sc	reen; s	andpack 18	3.5-7.5 ben	tonite 7.5-5.5		
	1) Stratif	ication Line	es represent ar	proximate bour	ndary between soil type	s: transitio	ne mav k	ne gradual				
	2) PID re	eadings we	re taken directl	y on exposed so	pil in disposable sleeve	, immediat	tely follow	/ing retrieval fi	rom boring			
		bgs =	below grou	ind surface									
L		ppm =	parts per	million						BORING #	PA-02		

						PROJECT			BORING PA	-03			
	123 233	Lu	En	gine	ers	Orchard Whitney			SHEET 1 OF	- 1			
		ENVIRO:	VINENTAL • 1	TRACEPORTETS	01 U V				JOB #: 4216-	03			
CONT	RACTOR	: Nothr	agle Drillin	q		BORING LOCATION	SEE PLAT		CHKD. BY:				
DRILL	ER: Kevir	1	-	-		GROUND SURFACE	ELEVATIO	DN:	DAT	UM: N/A			
JCL F	PERSONN	EL: ED				START DATE: 7/6/11		END D	ATE: 7/7/11				
TYPE		BIG: F	3k81 (CME	85)			DATE	1. 17 18 417		EVEL DATA			
CASI	NG SIZE A	ND TY	PE: 2"				DATE	TIME	WATER	CASING	REMARKS		
OVEF	RBURDEN	SAMPL	ING METH	IOD: Autoharr	mer, 4' malvocc	re band							
D	CORILLIN	G METI	HOD: NA										
E			SAMPLE										
P							64		DESCRIPT				
Т	BLOW	NO.	DEPTH	N-VALUE	RECOVERY	1	SA		DESCRIPT	ION			PID
н	/6"		(FT.)	/RQD(%)	(%)								(ppm)
	120				30%	Grey-brown silt and	d mf sand	and cm	nf gravel fill; (dry			0': 0
1	↓	\downarrow			↓	-							1': 0.2
2													
				<u></u>		4							2': 0.6
3						1							
						1							3': 0.1
4			4			@ 4'; medium bro	wn cmf sa	and with	silt; cmf gra	vel; moist			4': 0
	42	2			44%								4-8': 0
5		↓			<u>↓</u>	@ 5' (+/-); 3" clay							
6						@ 5.75' (+/-); 2" cl	ay lense;	moist					
		 				4							
7		<u> </u>			<u> </u>	4							
			-			@ 7.5'; saturated							
8			8.0			@8'; grey brown s	ilt with f s	and: litt	le mf gravel:	moist			8-12': 0
		3			88%]			g,				0-12:0
9		<u>↓ ↓</u>			¥]							
10	<u>380</u> ↓					@ 9.5'; grey f san							
	<u> </u>					-							
11						-							
						1							
12			12.0			1							12-16': 0
		4			75%	@ 12.5'; wet							12-10:0
13		4			¥	@ 12.75'; moist							
14	<u>375</u> ↓					@ 15.0': weathere							
14	¥					@ 15.25'; grey silf	with f sai	nd; som	e mf rounde	d gravel; mo	pist		
15						-							
			<u> </u>			1							
16			16.0			1							16-17.6': 0
	320	5			100%]							10-17.6:0
17	<u>↓</u>	1			*	4							
18	<u> </u>		17.0		<u> </u>	4							
18		+	17.6		<u> </u>	4							
19						-							
		1	<u> </u>			1							
20													
		LEGEN				Spoon refusal= 17.6'; Augers refusal @ 18.3'							L
1			SPOON SOI TURBED SC			Sandpack 18.3-7.3';	Bentonite 7	7.3 - 5.3' c	uttings to grac	le			
L			CORE SAM										
	GENERAL	NOTES				.k		·					
	1)) Stratif	ication Line	s represent ap	proximate boun	dary between soil type	s; transitio	ns may b	oe gradual.				
1	2)) PID re bos -	adings wer below grou	e taken directi nd surface	y on exposed so	il in disposable sleeve	, immediat	ely foliow	ing retrieval fr	om boring.			
			parts per r							BORING # F	24.02		
											<u>A'03</u>		

						PROJECT			BORING PA-	04			
		1.	En	gine	ore	Orchard Whitney			SHEET 1 OF				
	12	LU		Y IIE	ers				JOB #: 4216-				
		ENVIRC	MARCH AL .	TRANSPUT AL	DAT • REPORTA				CHKD. BY:	00			
			nagle Drillin	9		BORING LOCATION	SEE PLAN	1					
	ER: Kevir					GROUND SURFACE	ELEVATIO	DN:	DAT	UM: N/A			
JULP	ERSONN	EL: ED				START DATE: 7/711		END D/	TE: 7/7/11				
TVDE		DIC. I	3k81 (CME	95)						EVEL DATA			
CASI	NG SIZE A		SK81 (CME)	85)			DATE	TIME	WATER	CASING	REMARKS		
OVER	BURDEN	SAMP			mer, 4' malvoco	are bend		<u> </u>					
ROCH	CORILLIN	G MET	HOD: NA	IOD. Autonan	mer, 4 maivoct	ore bang	<u> </u>			 			
D					······	T	1	L		1			
E			SAMPLE	E DATA									
P							CV		DESCRIPT				
T	BLOW	NO.	DEPTH	N-VALUE	RECOVERY	1	04		DESCRIPT	ION			PID
н	/6"		(FT.)	/RQD(%)	(%)								(ppm)
	24	1			25%	Brown silt with cmf	sand: sor	ne cmf	nravel: mois	t			0.00
1	\checkmark				4	1			graver, mois				0-4': 0
						1							
2						1						:	
						1							
3						@ 3.8'; brown cmf	sand with	a cilta litt		maint			
		<u> </u>			l			, snt, itt	ie nii yravel	, moist			
4			4	······		1							
	45	2	<u> </u>		40%	@4.5" aliva brown	v cilt. 1:441 -	mform	de dum m = -1-	. 1244			4-8': 0
5		<u> </u>			+078	4.5'; olive-browr	i siit; iittie	mi san	; trace clay	; little cmf gr	avel; moist-wet		
						-							
6						-		()	Perched wate	er over till)			
						-							
7		<u>+</u>	<u> </u>			-							
		<u> </u>				@ 7 FL have a							
8		+	8			@ 7.5'; brown mf :	sand with	silt, and	cmf gravel;	wet			
I ĭ	308	3	· · · ·		70%								8-12': 0
9		<u>⊢ </u>			72%	@8.2'; light brown	t sand wi	th silt; s	ome cmf rou	unded grave			
	¥				↓	grades to rose/lig	ht brown	to grey	@ 9.5' (+/-));	; moist			
10		<u> </u>				-							
1		<u> </u>				4							
11						4							
1 ''						-							
12			10			4							
12	375	4	12			-							12-16': 0
13		4			80%	@ 12.2'; grey f sa	nd with sil	t; little c	mf gravel; m	noist			
13					<u>↓</u>	4							
		<u> </u>	 			4							
14		+				4							
						4							
15				<u> </u>		-							
	<u> </u>			ļ		@ 15.75'; grey silt	with f sar	nd; trace	e mf rounded	d gravel, mo	ist		
16			16	L		4							
	27.5	5			100%	4							
17	↓	 			¥	4							
		<u> </u>		L		1							
18		<u> </u>	17.9	L									
		 				1							
19		L											
20													
1		LEGEN				Spoon refusal= 17.9'; Auger to 18'; set miniwell							
			SPOON SOI			screen 18.8' sandpad	k 18.6' ber	tonite 6	-4' with cutting	gs to grade			
			TURBED SC							-			
 			CORE SAM	PLE		l							
1	GENERAL												
1	1)	PID ro	adings was	is represent ap	proximate boun	dary between soil type	s; transitio	ns may b	e gradual.				
	2)	bre –	below grou	e lanen directi nd surface	y on exposed so	il in disposable sleeve	, immediate	ety follow	ing retrieval fr	om boring.			
			parts per r							DODUC			
		E.C. 11	parto por 1							BORING # F	'A-04		

Ι.						PROJECT			BORING PA	-05				
	切	Lu	En	gine	ers	Orchard Whitney			SHEET 1 OF					
		ENVINCE	alentinae •	SANEPOR AP	28 • 10 × 12				JOB #: 4216-	03				
CONT	RACTOR	: Nothr	agle Drilling			BORING LOCATION	SEE PLAN	J	CHKD. BY:					
	ER: Kevi					GROUND SURFACE	ELEVATIO		DAT	JM: N/A				
JCLP	ERSONN	EL: ED				START DATE: 7/7/11		END D/	ATE: 7/7/11					
TYPE	OF DRIL	L RIG: E	k81 (CME	35)			DATE	TIME	WATER LI WATER	EVEL DATA CASING	DEMADIKO			
CASI	NG SIZE /	AND TY	PE: 2"						WAIEN	CASING	REMARKS			
OVEF	RBURDEN	SAMPL	ING METH	IOD: Autoham	mer, 4' malvoco	re band								
D	DRILLIN	GIVIET	100: NA					L						
E			SAMPLE	E DATA										
Р							SA	MPLE	DESCRIPT	ION		PID		
T H	BLOW /6"	NO.	DEPTH	N-VALUE	RECOVERY							(ppm)		
	44	+1	(FT.)	/RQD(%)	(%) 55%	@ 0': modium here			-114 4 .					
1	\downarrow					@ 0'; medium bro	wn mi san	u; trace	e siit; trace ci	mi gravel, gi	avel	0-4': 0		
					· · · · ·	@ 1.5'; brown silt	and cmf s	and wit	h cmf gravel	moist				
2									giardi	,				
]								
3						ł								
4			4.0											
	57	2	- +.0		23%	@ 3.9'; olive-brow @4.5'; trace clay;		clay; so	ome cmt grav	/el, moist		4-8': 0		
5	\downarrow				<u> </u>		WCl							
						1								
6		ļ]								
7						-								
'						-								
8			8.0			@ 8.5'; grey-brow	a cilt with	feand	little omf are	uelu wetu En				
	390	3			90%	G 0.0, grey-blow	I SHE WILLI	r sanu,	nue chi gra	vei; wei; Fe	mottling	8-12': 0		
9	\downarrow				\downarrow									
						@ 9.4'; grey f san	d, some s	ilt and o	cmf gravel; m	noist				
10						4								
11		+				-								
		<u>+</u>				-								
12			12.0									12-16': 0		
	400	4			90%							12-10:0		
13	<u>↓</u>	┢───			↓									
14						-								
'		+			<u> </u>	-								
15						1								
						@15.5'; grey silt; I	ittle f sand	d; trace	cmf gravel:	moist				
16	<u> </u>											16-16.9': 0		
17	122	5	16.0			@ 16.2'; push through rock (dolostone)								
''	↓	+ +	16.9		<u> </u>	@ 16.0'; grey f sa	nd; some	silt and	cmf gravel;	moist				
18		+				1								
						1								
19						1								
		<u> </u>]								
20					L									
	s	LEGEN	I <u>D</u> SPOON SOI	LSAMPLE		Spoon refusal @ 16.9'; Auger refusal @ 17.3'; Not enough water on roch to install well, plug boring from 16.9- 11' with bentonite to not let perched shallow								
				IL SAMPLE		water downhole								
┣			CORE SAMI	PLE		1								
	GENERAL				Drovimete he	don bobuorr***								
	2) PID re	adings wer	e taken directi	v on exposed so	dary between soil type il in disposable sleeve	s; transition	ns may t	e gradual.	om boring				
		bgs =	below grou	nd surface			,iouidit	., ioii04	my remeval f	om boning.				
L		ppm =	parts per r	nillion						BORING # F	PA-05			

						PROJECT			BORING PA	00					
	112		1En	gine	ore	Orchard Whitney			SHEET 1 OF						
		Erseine	∎ honnar F. F. Hossiska∏ kar ∎	TELEVER DE LA	CI S				JOB #: 4216-						
CON	TRACTOF	R: Noth	nagle Drillin	0	CA Cherry	BORING LOCATION	055 01 1		CHKD. BY:						
DRIL	LER: Kevi	n		5		GROUND SURFACE		N NV·	DAT	UM: N/A					
JCL F	PERSONN	IEL: ED				START DATE: 7/7/11			ATE: 7/7/11	UNI. IN/A					
TYPE		L BIG: I	Bk81 (CME	85)				_	WATER LI	EVEL DATA					
CASI	NG SIZE /	AND TY	'PE: 2"				DATE	TIME	WATER	CASING	REMARKS				
OVE	RBURDEN	SAMP	LING METH	HOD: Autohan	nmer, 4' malvoc	ore band									
D		IG MET	HOD: NA												
E			SAMPLE	Ε ΠΑΤΑ											
Р				_ 0////			64		DECODIDT						
T	BLOW	NO.	DEPTH	N-VALUE	RECOVERY	1	3A		DESCRIPT	ION			PID		
H-H-	<u>/6"</u> 18	<u> </u>	(FT.)	/RQD(%)	(%)								(ppm)		
1		1			55%	0-0.5' concrete/asp	halt						0-4': 0		
'		<u> </u>			↓	@ 0.5'; light brown	mf sand	and cm	f gravel; little	silt; moist i	ill; brick to 1'		0-4.0		
2		<u> </u>													
						@ 2'; grey brown s	sul with f s	and; so	me cmf grav	el; moist					
3						1									
						@4'; trace clay									
4	00		4.0]									
5	28	2			30%]									
l °					<u>↓</u>	_							5': 0.6		
6						4							5:0.6		
Ĭ						4							6-8': 0		
7						07' modium hrow									
[@7'; medium brown									
8			8.0			@8'; saturated mf sand with silt; not enough recovery for analytical sample									
	34				5%]	ound with	311, 1101	enough reci	overy for an	alytical sample	1			
9					V]									
10															
						-									
11						-									
						4									
12						•									
	32				0%	1						12	2-13.7': 0		
13					↓	1									
						@13.7'; wood on to	p of conc	rete in s	shoe						
14						(likely wood from ch	nimney foo	ter forn	and concre	te footer sit	s on top of rock:				
15						no til observed, like	ly excava	ted to b	edrock)						
						1									
16						1									
[1									
17						1									
]									
18															
19															
			+												
20															
		LEGEN													
	S-	SPLIT S	POON SOIL	SAMPLE											
			URBED SOI												
	C- GENERAL N		ORE SAMPL	E											
	1)	Stratific	ation Lines	represent and	roximate hours	lan hoters'' '	A								
	-,	· • • • • • •	uniga were	anen unechy	On exposed soi	lary between soil types I in disposable sleeve, i	transitions	may be	gradual.						
		•	3.0411	a 0anaço			uneulater	FIDHOWIF	iy retrieval froi	m boring.					
		ppm = I	parts per m	illion					[BORING # P/	A-06				

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						PROJECT			BORING PA	-07			
	22	Lu	I En	gine	ers	Orchard Whitney			SHEET 1 OF	= 1			
		FAK BO	영상문장 (4년 🔺	「ちんにという」について	SE + 9896				JOB #: 4216- CHKD. BY:	-03			
CON	RACTOR	R: Nothr	nagle Drillin	g		BORING LOCATION	SEE PLA	V	CHKD. BY:		·····	3	
	ER: Kevi					GROUND SURFACE	ELEVATIO			UM: N/A			
						START DATE: 7/8/11		END D/	ATE: 7/8/11	EVEL DATA	· · · · · · · · · · · · · · · · · · ·		
TYPE	OF DRIL	L RIG: I	Bk81 (CME	85)			DATE	TIME	WATER	CASING	REMARKS		
OVER	NG SIZE . RBURDEN	AND TY I SAMPI	PE: 2" ING METH	HOD: Autobarr	mer, 4' malvoco							_	
ROCI		IG MET	HOD: NA		mer, 4 maivuu	Die band				<u> </u>			
DE			0440				····	L					
P			SAMPLI	EDATA			~						
Т	BLOW	NO.	DEPTH	N-VALUE	RECOVERY	-	SA	MPLE	DESCRIPT	ION			PID
H.	/6"	<u> </u>	(FT.)	/RQD(%)	(%)								(ppm)
	22	1			25%	0- 0.5'; concrete as	sphalt						1': 1.5
	<u>v</u>	+			<u>↓</u>	0.5'; orange-brown	f sand; tr	ace mf	gravel; with I	orick fragme	nts; moist (fill)		
2						-							
]							2-4': 0
3		+]							
4		+	4.0			4							
	27	2			35%	-							
5					↓ ↓	-							
]							5': 0.5 5.5-8': 0
6						4							0.0 -0 :U
7						a 7's actumeted							
		<u> </u>				@7'; saturated @7.8'; olive-browr	silt: som	o clavru	wot				
8			8.0				1 3/11, 30/11	e ciay, i	wei				
	100	3			45%	@8.3'; grey-brown	f sand wi	th silt; s	ome cmf gra	avel (rounde	d); moist		8-12': 0
9		+			↓↓	4				•	,,		
10		+				-							
						-							
11						@11.0'; grey silt w	ith f sand	; trace r	nf gravel mo	ist			i
12			12.0			-			-				
1	280	4	12.0		75%	-						1	2-16': 0
13	\downarrow				- <u>,,,,</u>	@13.1'; grey f san	d with silt	· little cr	nf aravel: m	oiet			
							a with Site		in giavei, inc	JISI			
14													
15		+											
						@15'; wet							
16			16.0			@16'; push throug	h weather	red bed	rock				
	240	5	16.6		100%]						16	6-16.6': 0
17		╂───			↓	4							
18		+				4							
						1							
19		1]							
20						4							
20		LEGEN	D		L	Spoon refusel @ 10.0	Autor	hun-1 0	10.7				
		- SPUT	SPOON SOII			Spoon refusal @ 16.6 Set miniwell @ 16.7	10' screen	iusal @) sandna	16.7 ck 16.7-5' be	ntonite 5'-2'			
			TURBED SO					, sanapa					
 	GENERAL		CORE SAMP	<u>PLE</u>		L							
	1) Stratifi	cation Line	s represent ap	proximate boun	dary between soil type:	s: transition	is may b	e oradual				
	2) PID re	adings were	e taken directly	on exposed so	il in disposable sleeve,	immediate	ly followi	ng retrieval fro	om boring.			
L		bys – i	pelow grour parts per n	nu sunace									
										BORING # P	A-07		

SAMPLE DATA SAMPLE DATA PLO 0 5 1 1 1 1 1 1 1 1 1 0 1 0 1 0 1 0 1 0 1							PROJECT						
CONTROL Normalie Drilling BORING LOCATION: BEE PLAN DATUM: NA CARLEPS worm DATE TAKE NOTE: NAME DATE TAKE NOTE: NAME CARLEPS worm DATE TAKE NOTE: NAME DATE TAKE NOTE: NAME DATE TAKE NOTE: NAMELING METOD: Autohammer, if makcobse band DATE TAKE NOTE: NAMELING METOD:		31		En	nine	ore							
CONTRACTOR: Nothingb Ending DORING LOCATION: BEE FUND DATUM: INA CONTRACTOR: Nothingb Ending GORNO CONTROL EXAMPLE DATUM: INA CLEPERONNEL: ED START DATE: 78/11 END DATE: 78/11 CARING SIZE AND TYPE: 2' DATUM: INA CARING SIZE AND TYPE: 2' SAMPLE DESCRIPTION PD SAMPLE DATA SAMPLE DATA SAMPLE DESCRIPTION PD Q Q Q Q Q Q Q Q Q Q Q Q Q Q Q Q Q Q Q Q Q Q Q Q Q Q Q Q Q <t< td=""><td></td><td></td><td>ENERCI</td><td></td><td></td><td></td><td></td><td></td><td></td><td>JOB #: 4216-</td><td></td><td></td><td></td></t<>			ENERCI							JOB #: 4216-			
DRILLER, Kevin GROUND SUPPORE ELEVITOR DRIVE VA GROUND SUPPORE ELEVITOR STAPT DRE: 78/11 END OTAX FILEVEL DATA STAPT DRE: 78/11 END OTAX FILEVEL DATA CASING SIZE AND YRE : OVERSUMDEN SAMPLING INFLOD: Auchimmer, 4' matriceore band GROUND SUPPORE 78/11 END OTAX FILEVEL DATA CASING SIZE AND YRE : OVERSUMDEN SAMPLING INFLOD: Auchimmer, 4' matriceore band GROUND SUPPORE 201	CON	TRACTOR	: Nothr	agle Drillin	a	ion • onen				CHKD. BY:			
BACK PERCENTION END CATE: 7/8/1 END CATE: 7/8/1 VAREE LEVEL DATA DATE: 1/8/1 END CATE: 7/8/1 CASING SIZ: AND TYTE: 20 DATE: 1/8/1 CASING SIZ: AND TYTE: 20 DATE: 1/8/1 CASING SIZ: AND TYTE: 20 DATE: 1/8/1 CASING SIZ: AND TYTE: 20 DATE: 1/8/1 END CASING TERMINES DATE: 1/8/1 CASING SIZ: AND TYTE: 20 SAMPLE DATA SAMPLE DATA SAMPLE DESCRIPTION PID I BLOW NO. OEPTIME NO. AND. RECOVERTY SAMPLE DESCRIPTION PID I BLOW NO. OEPTIME NO. AND. RECOVERTY SAMPLE DESCRIPTION PID I Control (CON) OEPTIME NO. SAMPLE DATA END CONSTRUCTION PID I DATE: 1/8/1 Control (CON) OEPTIME NO. SAMPLE DATA END CONSTRUCTION PID I DATE: 1/8/1 Control (CON) OEPTIME NO. SAMPLE DATA END CONSTRUCTION PID I DATE: 1/8/1 Control (CON) OEPTIME NO. SAMPLE DATA END CONSTRUCTION PID I DATE: 1/8/1 <th< td=""><td>DRILL</td><td>ER: Kevir</td><td>า</td><td></td><td>0</td><td></td><td></td><td></td><td></td><td></td><td>184+ NI/A</td><td></td><td></td></th<>	DRILL	ER: Kevir	า		0						184+ NI/A		
DATE DATE DATE DATE CASH 327, MD FEMARKS CASH 327, MD, TYPE; CASH 327, MD FEMARKS CASH 327, MD FEMARKS COMPENSIONES MANUAL METHOD: NUMBERHOR: 4' malvocole band CASH 327, MD CASH 327, MD FEMARKS Compensiones SAMPLE DATA SAMPLE DESCRIPTION PID Compensiones CASH 327, MD FEMARKS PID Compensiones Compensiones Compensiones PID Compensiones Compensiones Compensiones Compensiones PID Compensiones Compensiones Compensiones Compensiones Compensiones Compensiones Compensiones Compensiones	JCL F	PERSONN	EL: ED				START DATE: 7/8/11						
CASING SIZE AND TYPE: 2* Image: 1************************************	TYPE		L RIG: E	3k81 (CME)	85)			DATE					
CRCC DPLING METHOD: NA SAMPLE DATA SAMPLE DATA PID F SAMPLE DATA SAMPLE DESCRIPTION PID 1 V I PRODUCT RECOVERY (cs) 1 V I PRODUCT RECOVERY (cs) (cs) 1 V I PRODUCT RECOVERY (cs) (cs) 2 I I PRODUCT RECOVERY (cs) (cs) 2 I I PRODUCT RECOVERY (cs) (cs) 2 I I I PRODUCT PRODUCT (cs) (cs) 2 I I I I (cs) (cs) (cs) (cs) (cs) 3 I<	CASI	NG SIZE A	ND TY	PE: 2"				DATE	TIME	WATER	CASING	REMARKS	
BLOW NO. DEPTH NVALUE RECOVERY SAMPLE DESCRIPTION PID 22 1	OVER		SAMPL	ING METH	IOD: Autoham	mer, 4' malvoc	ore band						
P EXAMPLE DESCRIPTION PID BLOW NO. EFTH AVALE RECOVERY (pm) 1 - - - - (pm) 1 - - - - - (pm) 2 - <			GMEII	HOD: NA			· · · · · · · · · · · · · · · · · · ·						
T BLOW NO DEPTH INVALUE RECOVERY (FC) (FC)	E			SAMPLE	E DATA								12
i as/w No. DET1 NVALUE NECOVERY (bm) i as/w NO. DET1 NVALUE NECOVERY (bm) i as/w NO. DET1 NVALUE NECOVERY (bm) i as/w i as/w as/w as/w 0 0 i as/w as/w as/w as/w as/w 0 0 1: oile-ight brown sit with nf sand; some onf gravel; moist 0 0 4 0 0 4 0 0 4 0 0 4 0 0 4 0 0 4 0 0 4 0 0 4 0 0 4 0 0 4 0 0 4 0<						_		SA	MPI F	DESCRIPT			
22 1 0 36% 0-1'; store and brown silt cmf gravel; moist 0-4'; 0 1 4 4 4 4 0 0 0-4'; 0 2 1 4 4 4 0 0 0-4'; 0 3 1 1 1 0 0 0 0-4'; 0 4 4 0 0 2; red-brown silt with mi sand; some cmf gravel; wet 4'; 0 0-4'; 0 4 4.0 0 0 2; red-brown silt with mi sand; some cmf gravel; wet 4'; 0 5 1 1 0 0 0 0 4; 0 6 0			NO.										
1 1 1 1 0 <td></td> <td></td> <td></td> <td>(F1.)</td> <td>/RQD(%)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>(ppin)</td>				(F1.)	/RQD(%)								(ppin)
2 2 red	1		<u> </u>				0-1"; stone and bro	wn silt; cn	of grave	l; moist			0-4': 0
3 2 1 1 4 3 3 4 4 4 3 3 4 4 4 3 3 4						·		own slit w	ith cia; i	ittle mt grave	el; moist		
3 4	2						@ 2'; red-brown si	It with mf	sand: s	ome omf gra	val-wat		
4 4.6:0 6 5.5 sit with cay as above (6 11) 4.6:0 30 2 5% 4.6:0 4.6:0 6 4 4.0 4.6:0 4.6:0 6 4 4.0 4.6:0 4.6:0 6 4 4.0 4.6:0 4.6:0 7 4 4.0 4.6:0 4.6:0 8 8.0 90% 4.6:0 8.5' (+/); olive- light brown f sand with silt; little cmf gravel, Fe mottling, moist 8-12:0 9 4 4.0 4.6:0 4.6:0 10 4 4.0 4.6:0 8.5' (+/); olive-light brown f sand with silt; little cmf gravel, Fe mottling, moist 8-12:0 11 4 4 4.6:0 4.6:0 4.6:0 12 12 12 12 12 12 12 12 12 12 12 12 13 4 4 4.6:0 12-16:0 12-16:0 14 4 4.6:0 4.6:0 12-16:0 </td <td></td> <td></td> <td><u> </u></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>onio onii gia</td> <td>vei, wei</td> <td></td> <td></td>			<u> </u>							onio onii gia	vei, wei		
a 2	3						@ 3'; silt with clay	as above	(@ 1')				
30 2 5% 4.8:0 6 4.8:0 4.8:0 7 8.0 90% 9 4.8:0 90% 9 4.8:0 90% 9 4.8:0 90% 9 4.8:0 90% 9 4.8:0 90% 9 4.8:0 90% 9 4.8:0 90% 9 4.8:0 90% 9 4.8:0 90% 10 4.8:0 90% 11 4.8:0 9.5; rose-grey 12 12 12 13 4.9:0 95% 14 4.9:0 14.5; grey silt; some f sand; trace mf gravel; moist 15 4.9:0 16:saturated 16 16:0 4.9:0 17 4.00 100% 18 18: 18: weathered bedrock 19 18:8 18: Nager to 20; dive final spoon to refusal @ 20.4; set nested pair of minwels; Deep well set @ 20.4; (5 screen from 20.15; sandpack 20.14; 3 bentonte (14.11); Shakow well screen 10.5.5; and set @ 20.4; (5 screen from 20.15; sandpack 20.14; 3 bentonte (14.11); Shakow well				- 10			@ 4; no clay; cm g	jravel; we	t				
5 4 0		30	2	4.0		5%	4						4-8':0
6 1	5						-						
7 8 8.0 90% 90% 8.5' (+/-); olive- light brown f sand with silt; little cmf gravel, Fe mottling, moist 8-12: 0 9 4 4 4 4 6 9.5'; rose-grey 12 10 1						¥	1						
8 8.0 90% 4.12:0 8.5' (+/-); olive- light brown f sand with silt; little cmf gravel, Fe mottling, moist 8-12:0 9 4 4 4 4 6 9.5'; rose-grey 12 10 10 10 10 10 10 11 12 <td>6</td> <td></td>	6												
8 8.0 90% 4.12:0 8.5' (+/-); olive- light brown f sand with silt; little cmf gravel, Fe mottling, moist 8-12:0 9 4 4 4 4 6 9.5'; rose-grey 12 10 10 10 10 10 10 11 12 <td></td>													
380 0:0 90% @ 8.5' (+/:); olive-light brown f sand with silt; little cmf gravel, Fe mottling, moist 8-12: 0 10 0							-						
380 0:0 90% @ 8.5' (+/:); olive-light brown f sand with silt; little cmf gravel, Fe mottling, moist 8-12: 0 10 0	8			80			-						
9 0		380		0.0		90%	ORF () () alive	Carlant to unco					8-12': 0
10 0 0 0 0 12<	9						0.5 (+/-); olive-	light brow	n f sand	d with silt; litt	le cmf grave	el, Fe mottling, moist	
10 1							@ 9.5'; rose-grev						
12 12 <td< td=""><td>10</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>	10												
12 12 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>													
260 95% 13 14 14 14 15 16 16 16.0 17 16 18 16 19 18.8 20 20.4 18 18.8 20 20.4 18 18.8 20 20.4 18 20 19 18.8 20 20.4 18 20 19 18.8 20 20.4 18 20 19 18.8 20 20.4 1000% 18'; weathered bedrock 20 20.4 18 20.4 19 18.8, Auger to 20; drive final spoon to refusal @ 20.4; set nested pair of miniwells; Deep well set @ 20.4 (5' screen) from 20-15'; sandpack 20-14'; 3' bentonite (14-11)'; Shallow well screen 10.5-5.5' and and 11-4'; bentonite 4-2' GENERAL NOTES: 1) Stratification Lines represent approximate boundary between soil type; transitions may be gradual. 2) PID readings were taken directly on exposed soil in disposable sleeve, immediately following retrieva	''						4						
260 95% 13 14 14 14 15 16 16 16.0 17 16 18 16 19 18.8 20 20.4 18 18.8 20 20.4 18 18.8 20 20.4 18 20 19 18.8 20 20.4 18 20 19 18.8 20 20.4 18 20 19 18.8 20 20.4 1000% 18'; weathered bedrock 20 20.4 18 20.4 19 18.8, Auger to 20; drive final spoon to refusal @ 20.4; set nested pair of miniwells; Deep well set @ 20.4 (5' screen) from 20-15'; sandpack 20-14'; 3' bentonite (14-11)'; Shallow well screen 10.5-5.5' and and 11-4'; bentonite 4-2' GENERAL NOTES: 1) Stratification Lines represent approximate boundary between soil type; transitions may be gradual. 2) PID readings were taken directly on exposed soil in disposable sleeve, immediately following retrieva	12			12			-						
13 4 4 14 4 4 14 4 4 15 4 4 16 16.0 6 400 100% 17 4 4 18 4 4 18 4 4 19 18.8 4 20 20.4 4 20 20.4 20.4 18 4 4 19 18.8 4 20 20.4 20.4 18 4 4 4 19 18.8 4 20 20.4 20.4 20 20.4 20.4 20 20.4 20.4 20 20.4 20.4 21 20.4 20.4 22 20.4 20.4 23 20.4 20.4 24 20.4 20.4 25 5PUT secon Soil SamPLE 5Poon refusal @ 18.8; Auger to 20; drive final spoon to refusal @ 20.4; set nested pair of miniwells; Dee		260				95%	1						12-16': 0
15 14.5'; grey silt; some f sand; trace mf gravel; moist 16 16.0 400 100% 17 1 18 1 19 18.8 20 20.4 20 20.4 11 100% 20 20.4 18 18.8 20 20.4 20 20.4 20 20.4 20 20.4 20 20.4 20 20.4 20 20.4 20 20.4 20 20.4 20 20.4 20 20.4 21 20.4 22 20.4 23 20.4 24 20.4' (5' screen) from 20-15'; sandpack 20-14'; 3' bentonite (14-11)'; Shallow well screen 10.5-5.5' and sand 11-4'; bentonite 4-2' GENERAL NOTES: 1) Stratification Lines represent approximate boundary between soil types; transitions may be gradual. 2) PID readings were taken directly on exposed soil in disposable sleeve, immediately following retrieval from boring. bgs = below ground surface	13						1						
15 14.5'; grey silt; some f sand; trace mf gravel; moist 16 16.0 400 100% 17 1 18 1 19 18.8 20 20.4 20 20.4 11 100% 20 20.4 18 18.8 20 20.4 20 20.4 20 20.4 20 20.4 20 20.4 20 20.4 20 20.4 20 20.4 20 20.4 20 20.4 20 20.4 21 20.4 22 20.4 23 20.4 24 20.4' (5' screen) from 20-15'; sandpack 20-14'; 3' bentonite (14-11)'; Shallow well screen 10.5-5.5' and sand 11-4'; bentonite 4-2' GENERAL NOTES: 1) Stratification Lines represent approximate boundary between soil types; transitions may be gradual. 2) PID readings were taken directly on exposed soil in disposable sleeve, immediately following retrieval from boring. bgs = below ground surface]						
16 16.0 100% 17 1 100% 18 1 1 18 1 1 18 1 1 19 18.8 1 20 20.4 1 19 18.8 1 20 20.4 1 19 18.8 1 20 20.4 1 19 18.8 1 20 20.4 1 20 20.4 1 20 20.4 1 20 20.4 1 20 20.4 1 20 20.4 1 20 20.4 1 20 20.4 1 20 20.4 1 20 20.4 1 20 20.4 1 20 20.4 1 20 20.4 1 20 20.4 1 20 20.4 1 20 20.4<	14												
16 16.0 100% 17 400 100% 18 1 1 18 1 1 19 18.8 1 20 20.4 1 19 18.8 1 20 20.4 1 19 18.8 1 20 20.4 1 19 18.8 1 20 20.4 1 19 18.8 1 20 20.4 1 20 20.4 1 20 20.4 1 20 20.4 1 20 20.4 1 20 20.4 1 20 20.4 1 20 20.4 1 20 20.4 1 20 1 10.1 20 1 10.1 20 1 10.1 20 1 10.1 20 1 10.1 20	15						@ 14.5'; grey silt; s	some f sa	nd; trac	e mf gravel;	moist		
400 100% 17 100% 18 100% 18 110% 19 18.8 20 20.4 LEGEND S. SPLIT SPOON SOIL SAMPLE UNDISTURBED SOIL SAMPLE C. ROCK CORE SAMPLE 19 11.42; bentonite 4-2' GENERAL NOTES: 1) Stratification Lines represent approximate boundary between soil types; transitions may be gradual. 2) PID readings were taken directly on exposed soil in disposable sleeve, immediately following retrieval from boring.							1						
400 100% 100% 16-18.8: 0 17 1 1 1 1 18 1 1 1 1 19 18.8 1 1 1 20 1 20.4 18.8; Auger to 20'; drive final spoon to refusal @ 20.4'; set nested pair of miniwells; Deep well set @ 20.4' (5' screen) from 20-15'; sandpack 20-14'; 3' bentonite (14-11)'; Shallow well screen 10.5-5.5' and C- ROCK CORE SAMPLE sand 11-4'; bentonite 4-2' GENERAL NOTES: 1) Stratification Lines represent approximate boundary between soil types; transitions may be gradual. 2) PID readings were taken directly on exposed soil in disposable sleeve, immediately following retrieval from boring. 0gs = below ground surface 000000000000000000000000000000000000	16			16.0			@ 16': saturated						
18 18 18.8 19 18.8 19 20 ↓ 20.4 LEGEND Spoon refusal @ 18.8; Auger to 20'; drive final spoon to refusal @ 20.4'; set nested pair of miniwells; Deep well set @ 20.4' (5' screen) from 20-15'; sandpack 20-14'; 3' bentonite (14-11)'; Shallow well screen 10.5-5.5' and sand 11-4'; bentonite 4-2' GENERAL NOTES: 1) Stratification Lines represent approximate boundary between soil types; transitions may be gradual. 2) PID readings were taken directly on exposed soil in disposable sleeve, immediately following retrieval from boring. bgs = below ground surface DT						100%	, saidiaidu						16-18.8': 0
19 18.8 20 ↓ 20.4 LEGEND Spoon refusal @ 18.8; Auger to 20'; drive final spoon to refusal @ 20.4'; set nested pair of miniwells; Deep well S. SPLIT SPOON SOIL SAMPLE Spoon refusal @ 18.8; Auger to 20'; drive final spoon to refusal @ 20.4'; set nested pair of miniwells; Deep well U UNDISTURBED SOIL SAMPLE Set @ 20.4' (5' screen) from 20-15'; sandpack 20-14'; 3' bentonite (14-11)'; Shallow well screen 10.5-5.5' and C- ROCK CORE SAMPLE sand 11-4'; bentonite 4-2' GENERAL NOTES: 1) Stratification Lines represent approximate boundary between soil types; transitions may be gradual. 2) PID readings were taken directly on exposed soil in disposable sleeve, immediately following retrieval from boring. bgs = below ground surface DOM DOM	17					↓]						
19 18.8 20 ↓ 20.4 LEGEND Spoon refusal @ 18.8; Auger to 20'; drive final spoon to refusal @ 20.4'; set nested pair of miniwells; Deep well S. SPLIT SPOON SOIL SAMPLE Spoon refusal @ 18.8; Auger to 20'; drive final spoon to refusal @ 20.4'; set nested pair of miniwells; Deep well U UNDISTURBED SOIL SAMPLE Set @ 20.4' (5' screen) from 20-15'; sandpack 20-14'; 3' bentonite (14-11)'; Shallow well screen 10.5-5.5' and C- ROCK CORE SAMPLE sand 11-4'; bentonite 4-2' GENERAL NOTES: 1) Stratification Lines represent approximate boundary between soil types; transitions may be gradual. 2) PID readings were taken directly on exposed soil in disposable sleeve, immediately following retrieval from boring. bgs = below ground surface DOM DOM													
83 20 20.4 20 ↓ 20.4 LEGEND Spoon refusal @ 18.8; Auger to 20'; drive final spoon to refusal @ 20.4'; set nested pair of miniwells; Deep well S- SPLIT SPOON SOIL SAMPLE Set @ 20.4' (5' screen) from 20-15'; sandpack 20-14'; 3' bentonite (14-11)'; Shallow well screen 10.5-5.5' and U- UNDISTURBED SOIL SAMPLE sand 11-4'; bentonite 4-2' GENERAL NOTES: 1) Stratification Lines represent approximate boundary between soil types; transitions may be gradual. 2) PID readings were taken directly on exposed soil in disposable sleeve, immediately following retrieval from boring. bgs = below ground surface Drug	1 '						@ 18'; weathered t	pedrock					
83 20 20.4 20 ↓ 20.4 LEGEND Spoon refusal @ 18.8; Auger to 20'; drive final spoon to refusal @ 20.4'; set nested pair of miniwells; Deep well S- SPLIT SPOON SOIL SAMPLE Set @ 20.4' (5' screen) from 20-15'; sandpack 20-14'; 3' bentonite (14-11)'; Shallow well screen 10.5-5.5' and U- UNDISTURBED SOIL SAMPLE sand 11-4'; bentonite 4-2' GENERAL NOTES: 1) Stratification Lines represent approximate boundary between soil types; transitions may be gradual. 2) PID readings were taken directly on exposed soil in disposable sleeve, immediately following retrieval from boring. bgs = below ground surface Drug	19			18.8									
LEGEND Spoon refusal @ 18.8; Auger to 20'; drive final spoon to refusal @ 20.4'; set nested pair of miniwells; Deep well S- SPLIT SPOON SOIL SAMPLE set @ 20.4' (5' screen) from 20-15'; sandpack 20-14'; 3' bentonite (14-11)'; Shallow well screen 10.5-5.5' and U- UNDISTURBED SOIL SAMPLE sand 11-4'; bentonite 4-2' GENERAL NOTES: 1) Stratification Lines represent approximate boundary between soil types; transitions may be gradual. 2) PID readings were taken directly on exposed soil in disposable sleeve, immediately following retrieval from boring. bgs = below ground surface		83											
S- SPLIT SPOON SOIL SAMPLE U- UNDISTURBED SOIL SAMPLE C- ROCK CORE SAMPLE GENERAL NOTES: 1) Stratification Lines represent approximate boundary between soil types; transitions may be gradual. 2) PID readings were taken directly on exposed soil in disposable sleeve, immediately following retrieval from boring. by the table of tab	20	\downarrow		20.4									
U- UNDISTURBED SOIL SAMPLE C- ROCK CORE SAMPLE GENERAL NOTES: 1) Stratification Lines represent approximate boundary between soil types; transitions may be gradual. 2) PID readings were taken directly on exposed soil in disposable sleeve, immediately following retrieval from boring. bgs = below ground surface DDM - pade per million							Spoon refusal @ 18.8	Auger to	20'; drive	final spoon to	refusal @ 20	.4': set nested pair of miniumles	
C- ROCK CORE SAMPLE GENERAL NOTES: 1) Stratification Lines represent approximate boundary between soil types; transitions may be gradual. 2) PID readings were taken directly on exposed soil in disposable sleeve, immediately following retrieval from boring. bgs = below ground surface pnm = pade per million							381 8 20.4 (3 SCIERI) from 20-1	5'; sand	oack 20-14'; 3	bentonite (14	4-11)'; Shallow well screen 10.5-5.	5' and
 GENERAL NOTES: 1) Stratification Lines represent approximate boundary between soil types; transitions may be gradual. 2) PID readings were taken directly on exposed soil in disposable sleeve, immediately following retrieval from boring. bgs = below ground surface 							sand 11-4'; bentonite	4-2'					
2) FID readings were taken directly on exposed soil in disposable sleeve, immediately following retrieval from boring. bgs = below ground surface	-	GENERAL	NOTES:				L						
2) FID readings were taken directly on exposed soil in disposable sleeve, immediately following retrieval from boring.		1)	Stratific	ation Lines	represent app	proximate bound	fary between soil types	; transition	s may be	gradual.			
		2)	rib rea	angs were	taken directly	on exposed soi	I in disposable sleeve,	immediate	ly followir	ng retrieval fro	m boring.		
JBORING # PA-08			- bgu - b	elow groun	u sunace					_			
											DURING # P	A-U8	

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	1000 C		Industry			PROJECT	·		BORING PA	-09		
	82	Lu	I En	gine	ers	Orchard Whitney			SHEET 1 OF	1		
	al local division	ENV.EC	NIMENNAL .	THANSPERIAL	1010 • 1388/1				JOB #: 4216-	03		
CON	TRACTOF	R: Nothi	nagle Drillin	ng		BORING LOCATION:	SEE PLA	N	CHKD. BY:			
	LER: Kevi					GROUND SURFACE	ELEVATIO	DN:	DATI	JM: N/A		
JOLI	PERSONN	EL: ED				START DATE: 7/11/1	1		ATE: 7/11/11			
TYPE		L RIG: I	3k81 (CME	85)				1	WATER LE	EVEL DATA		
CASI	NG SIZE /	AND TY	PE: 2"				DATE	TIME	WATER	CASING	REMARKS	
OVE	RBURDEN	SAMP	LING METH	HOD: Autohan	nmer, 4' malvoc	ore band		<u> </u>				
D	K DRILLIN	G MET	HOD: NA									
E			SAMPLE	Ε ΠΑΤΑ								
Р			O, WA EL				C A					
Т	BLOW	NO.	DEPTH	N-VALUE	RECOVERY	-	SA	WPLE	DESCRIPT	ION		PID
н	/6"		(FT.)	/RQD(%)	(%)							(ppm)
	25	1			25%	@ 0.0'; brown silt;	some cm	f sand a	nd cmf grav	el; dry		0.450
'					↓	@ 0.5'; black cinde	ers/slag fi	ł	÷			0-4': 0
2					<u> </u>	4						
						-						
3						@ 3'; brown silt wit	h mf oon	d				
							in nn san	u; some	cm gravel; r	noist		
4			4.0			@ 4.0'; olive-grey :	silt/clav le	nse. m	vist			
	21	2			50%	@ 4.2; brown silt; i	mf sand a	ind som	e cmf gravel	· moist		4-8': 0
5					↓				grandi	,		
6						4_						
Ĭ						@ 6.0' (+/-); wet						
7						@ 7.04 modium h						
						@ 7.0'; medium br	own f san	id; some	silt; little mf	gravel; satu	urated	
8			8.0			@8.3'; rose-grey f	cand with	cilt: co				
	285	3			90%		Sanu with	Siit, SOI	ne cmr round	ded gravel;	moist	8-12': 0
9					L +]						
10]						
10]						
11						-						
						4						
12			12.0			-						
[415				100%	4						12-16': 0
13	\downarrow			1.1	4	@ 13.0'; grey silt; l	ittle f san	d: trace	mf gravol			
							inter i ourn	a, nace	nin graver			
14]						
15		┝──┤				4						
		┝──┤				4						
16			16.0			@ 16 0'1	-l					
[210				100%	@ 16.0'; grey f san	u; trace s	iit; satui	ated			16-16.9': 0
17	\downarrow				0	1						
						1						
18]						
		┝──┥										
19		┝───┨				ł						
20												
<u> </u>		LEGEN	1			Spoon rofused @ 40.5						
	S-	SPLIT S	POON SOIL	. SAMPLE		spoon refusal @ 16.9	; auger ref	usal @ 1	7.0'; set miniw	ell @ 17' with	10' screen; sand pack to 5'; 2	.5' bentonite
	U-	UNDIST	URBED SOI	L SAMPLE								
<u> </u>			ORE SAMP									
'	GENERAL I		ation Lines		Provimate L.							
	2)	PID rea	idinas were	e taken directiv	On exposed set	dary between soil types	transition	s may be	gradual.			1
	,	bgs = b	elow groun	id surface	onposed SO	il in disposable sleeve, i	immediate	y tollowir	g retrieval from	m boring.		
L		ppm = j	parts per m	illion					l.	BORING # P/	A-09	
									······································		100	

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						PROJECT			BORING PA	-10		
		Lu	ıEn	gine	ers	Orchard Whitney			SHEET 1 OF			
		ENvinc	13628 4.	TEANEPORTAN					JOB #: 4216-	03		
CONT	RACTOR	: Nothr	nagle Drillin	ng		BORING LOCATION		N	CHKD. BY:			
DRILL	ER: Kevir	1		•		GROUND SURFACE	ELEVATIO	DN:	DATI	UM: N/A		
JCL P	ERSONN	EL: ED				START DATE: 7/11/1	1		ATE: 7/11/11			
TYPE		BIG. F	3k81 (CME	85)						EVEL DATA		
CASIN	IG SIZE A	ND TY	PE: 2"				DATE	TIME	WATER	CASING	REMARKS	
OVER	BURDEN	SAMP	LING METH	HOD: Autoham	imer, 4' malvoc	ore band						
D	DRILLIN	G MET	HOD: NA									
E			SAMPLE									T
P							C 4		DE00000-			
T	BLOW	NO.	DEPTH	N-VALUE	RECOVERY	-	SA	IVIPLE	DESCRIPT	ION		PID
14		<u> </u>	(FT.)	/RQD(%)	(%)							(ppm)
	21	1			50%	@ 0.0'; brown silt,	mf sand a	and cmf	gravel; dry f	ill		0-4:0
					↓	@ 0.5'; black cinde	er/slag/as	h laver	(6")			0-4.0
2						@ 1' (+/-) brown f	sand; son	ne silt; s	ome cmf gra	avel; moist		
[-						
3						-						
						1						
4			4.0		50%	@ 4.2'; olive-grey	silt/clav la	ver: mo	ist			
╎╷	44	ļ			\downarrow			.,, inite				4-8: 0
5												
6												
1 1						@ 5'; orange-brow	n f sand;	little sa	nd; saturated	I		
7					<u> </u>	- @ 7' modium brou						
						@ 7'; medium brov	witi sili witi	n r sand	and cmt gra	vel; saturat	ed	
8			8.0			-						
	220				77%	@ 8.75'; light brow	n f sand;	little silt	; some cmf o	aravel: wet		8-12: 0
9	<u> </u>				↓	_						
10						4						
"												
11						@ 10.5'; grey, moi	st					
						1						
12			12.0			1						
	410				100%]						12-16: 0
13					¥	@ 13.1'; grey silt; I	ittle trace	f sand;	moist			
14				<u> </u>		-						
''ŀ					<u> </u>	4						
15						4						
						1						
16	1.5.5					@ 16'; grey f sand	; little silt:	saturat	ed			10.000
	130						-,					16-16.9: 0
17			16.9			4						
18						4						
"F						4						
19						1						
						1						
20						1						
		LEGEN				Spoon refusal= 16.9';	set nested	pr. of m	niwells; Deep:	17 to 12 scr	en;	 L
			SPOON SOIL			Auger refusal= 17					·	
L			CORE SAMP									
6	ENERAL	NOTES:				<u>L </u>						
	1)	Stratific	cation Lines	s represent ap	proximate boun	dary between soil types	; transition	is may be	e gradual.			
	2)	miD rea	adings were below grour	e taken directly	on exposed so	bil in disposable sleeve,	immediate	ly followi	ng retrieval fro	m boring.		
		uys = t	pelow grour parts per m	io sunace								
										BORING # P	A-10	

						PROJECT			BORING PA	11		
	53	Lп	En	gine	ore	Orchard Whitney			SHEET 1 OF			
		LO	E Emmilia P	gine	015				JOB #: 4216-			
CONT	TRACTOR	hinter	agle Drillin	HANSPER AT	COL • CIRC				CHKD. BY:			
DRIL	LER: Kevi	n Nothr	lagie Drillin	g		BORING LOCATION	SEE PLAI	N				
	ERSONN					GROUND SURFACE START DATE:	ELEVATIO			UM: N/A		
						OTAIT DATE.		END D/		EVEL DATA		
TYPE	OF DRIL	l Rig: e	3k81 (CME	85)			DATE	TIME	WATER	CASING	REMARKS	
CASI	NG SIZE	AND TY	PE: 2"								TILLIN AT ILCO	
BOC		I SAMPI		IOD: Autohan	nmer, 4' malvoco	ore band						
D			HUD: NA				I	<u> </u>				
E			SAMPLE	- DATA								
Р							SA		DESCRIPT			
T	BLOW	NO.	DEPTH	N-VALUE	RECOVERY	1	0/1		DEGORIFI			PID
н	/6"		(FT.)	/RQD(%)	(%)							(ppm)
	70	1			30%	@ 0'; orange-brow	n f sand;	little silt	; moist			0-4': 0
1	<u>/</u>				↓							0-4.0
					L							
2					<u> </u>	@ 2'; encounter ro	ock fragm	ents and	d concrete			
3	<u> </u>					4						
1 °						-						
4			4.0	· · · · · ·								
		2	4.0		55%	@ 4.1'; olive-grey	clay with	silt; moi	st; medium p	plasticity		4-8': 0
5					<u> </u>			-1				
					<u>↓</u>	@ 5'; with mf sand @ 5.2; same as 4		ei				
6						9 J.2, Same as 4	. I					
						4						
7						1						
						@ 7.9'; saturated						
8			8.0				prown silt	and cla	v: some cmf	oravel: som	e mf sand; saturated	0.101-0
	215	3			40%]			,,	gravel, 5011	o mi sana, saturateu	8-12': 0
9	<u> </u>				↓							I
10												
11	<u> </u>	+	<u> </u>		ļ	4						
						4						
12	<u> </u>	4	12.0		<u> </u>							
1 .	410	<u> </u>	12.0		80%	@ 12.2'; grey silt v	with f sand	d; trace	of gravel; sa	turated		12.2': 1.8
13	_				<u> </u>	-						12.5': 37
					¥	-						13': 10
14						@ 14'; grey f sand	with cilt.	eaturate	ad			14': 18
1					·		with only	Saturate	su -			
15						@ 15.6'; weather i	ock; cmf	aravel (saturated)			454.5-
]	,	3				15': 5.7
16			16.0									16': 1
1												10.1
17	<u> </u>					1						
	 	+				4						
18						4						
19		+			<u> </u>	4						
'9		+			<u> </u>	4						
20	├ ───	+			+	4						
<u> </u>		LEGEN	1 ID	l	L	12-16'; petrol-type od	or (light -	and a a				
1	s		SPOON SOI	L SAMPLE		Miniwell screen= 16'-				to 2' her		
			TURBED SO			Auger/spoon refusal	@ 16'		,	10 E DYS		
 			CORE SAME	PLE								
	GENERAL											
	2) PID re	adings wer	e taken directi	proximate boun	dary between soil type il in disposable sleeve,	s; transition	ns may b	e gradual.			
	-	bgs =	below grou	nd surface	y on exhosed so	in in uisposable sieeve,	mmediate	ery tollow	ing retrieval fro	om boring.		
			parts per r							BORING # P	A-11	
											<u></u>	

						PROJECT			BORING PA-	12			 _	
	8		IFn	gine	ore	Orchard Whitney			SHEET 2 OF	2				
		E C	E Human E F. Million (March 1997) - All		010				JOB #: 4216-	03				
CON	BACTOR	L. Noth	nagle Drillin	A CONTRACTOR OF A CONTRACT	ere ng Vi				CHKD, BY:					
DRILI	ER: Kevir		age Duill	A		BORING LOCATION GROUND SURFACE	SEE PLAN	N						
	ERSONN					START DATE: 7/12/1			DATU ATE: 7/12/11	JM: N/A				
				· · · · · · · · · · · · · · · · · · ·		GIAIL DALE. INZI		ENDDA		EVEL DATA				
TYPE	OF DRIL	L RIG: I	Bk81 (CME	85)			DATE	TIME	WATER	CASING	REMA	BKS	 	
CASI	NG SIZE A	AND TY	PE: 2"							Griointa	TICIAL		 	
BOCI	DRILLIN	I SAMPI		HOD: Autoham	nmer, 4' malvoco	pre band							 	
D	(DINELIN		HUD: NA			· · · · · · · · · · · · · · · · · · ·								
E			SAMPLE	= DATA										
Р				/			64		DESCRIPT					
Т	BLOW	NO.	DEPTH	N-VALUE	RECOVERY	1	5A		DESCRIPT	ION				PID
H	/6"		(FT.)	/RQD(%)	(%)									(ppm)
1	360				80%								 	
21					↓	@ 21'; saturated								19-23: 0
	<u> </u>													19-23: 0
22		<u> </u>]								
23	100													
24	165	-]								
24		24				-								
25						-								
20		+			<u> </u>	4								
26		+	<u> </u>			-								
						4								
27		+				4								
						4								
28		+				4								
						4								
9		1				-								
						1								
10						1								
						1								
11						1								
						1								
12						1								
		L]								
13														
			<u> </u>											
14		+												
		+	<u> </u>			4								
15		+				4								
16		+	<u> </u>		 	4								
10		1	 			4								
17		+	<u> </u>			4								
		+				4								
18		+	<u> </u>		<u> </u>	4								
						4								
19		1	<u> </u>			1								
					<u> </u>	1								
20		1	† ·			1								
		LEGEN		L	L	Spoon refusal @ 24.	auger ref	usal- 24	2					
1	S	- SPLIT	SPOON SOI	L SAMPLE			., aager rei	uodi≕ 24	r. <u>c</u>					
	U	- UNDIS	TURBED SC	DIL SAMPLE										
 			CORE SAM	PLE										
	GENERAL												 	
	ן ד יפ) Stratif	adings wor	e taken direct	proximate boun	dary between soil type	s; transitior	ns may b	e gradual.					
	۵,	bas =	below grou	e laken uirectij nd surface	y un exposed so	il in disposable sleeve	, immediate	ely follow	ing retrieval fro	om boring.				l l
			parts per r							BODING # 5	10		 	
										BORING # F	A-12			

Ι.						PROJECT			BORING PA	-14			
			Fn	gine	ors	Orchard Whitney		···.	SHEET 1 OF				
		Électre o	E Benne I T State State I I I	TRACENCE					JOB #: 4316-	03			
CONT	RACTOR	Noth	nagle Drittin	0	ALC - AUT	BORING LOCATION	OFF DI AL		CHKD. BY:				
DRILL	ER: Kevir	ı		9		GROUND SURFACE			DAT	18.4- NI/A			
	ERSONN					START DATE: 7/13/1	1		DA II ATE: 7/13/11	JM: N/A			
								2110 07		EVEL DATA			
			3k81 (CME	85)			DATE	TIME	WATER	CASING	REMARK	(S	
	NG SIZE A				nmer, 4' malvoco			·					
ROCI	CORILLIN	G MET	HOD: NA	HOD. Autonam	imer, 4 maivoco	pre band							
D						T	I	L			L		
E			SAMPLE	E DATA									
P			_				SA	MPLE	DESCRIPT	ION			PID
T	BLOW	NO.	DEPTH	N-VALUE	RECOVERY]							(ppm)
	<u>/6"</u> 24	<u> </u>	(FT.)	/RQD(%)	(%)								(PP)
1	<u> </u>				50%	@ 0': brown cmf s	and; little	silt; son	ne cmf grave	el; moist			0': 0
	<u> </u>				<u>↓</u>	-							1': 0
2		<u> </u>				-							
		<u> </u>				-							2':0
3						-							
						4							3': .2
4			4.0			4							
	24				50%	1							4': 1.9
5	\downarrow				4	@5'; red-brown f s	and with	silt: litte	mf gravel: w	vet			
									ini giavei, v	YCI			5': 2.0
6						@6'; olive-brown s	silt; little f s	sand: lit	tle cmf grave	el: wet: petro	leum odr	or	C'LO E
								,		,, pour		<i>/</i>	6': 0.5
7						@7'; saturated							7': 286.4
						4							1.200
8		<u> </u>	8.0			-							8': 176.4
9					75%	-							
	290				<u>↓</u>	-							9': 117
10						@ 10 ¹ : grout cond							
						@10'; grey f sand	, some sm	; intie c	mi gravel; m	oist			10': 502
11					1	4							·
						-							11': 50
12			12.0			1							11.5': 13.
					100%	@ 12.5'; grey silt;	little f san	d: trace	mf gravel: n	noist			12': 16.3
13					\checkmark]			3				13': 63
													13.03
14		<u> </u>				4							14': 66
4.	<u>↓</u>	<u> </u>			<u> </u>	4							
15			<u> </u>		·	4							15': 86
16			16.0										
"	206	 	10.0	<u> </u>	100%	@ 16.8'; saturated	i i sand wi	nn silt					16': 6.4
17		†	<u> </u>			1							l
			17.6	<u> </u>	<u>├────</u> ───	1							17': 1
18						1							17.6': 0.5
						1							
19]							
	<u> </u>]							
20	L	1555	L										
	6	LEGEN	<u>ID</u> SPOON SOI			Spoon refusal= 17.6							
			SPOON SOI TURBED SC			Screen miniwell from	18-8' with s	sandpac	k to 6'				
			CORE SAM										
	GENERAL	NOTES:	:			4			·				
	1)	Stratif	ication Line	es represent ap	proximate bour	dary between soil type	s; transitior	ns may b	e gradual.				
	2)	PID re	adings wer	e taken directl	y on exposed so	il in disposable sleeve	, immediate	ely follow	ing retrieval fro	om boring.			
			below grou parts per r							DODULT			
			parto por l							BORING # F	'A-14		

						PROJECT	· · ·		BORING PA	-13			
	-	11	En	gine	ore	Orchard Whitney			SHEET 1 OF				
	127	LU	E Emil I I	Sin E	010	·			JOB #: 4216-				
		EPHA (1923)	WARDEN STATE	"当人民居尸侵民"去自	00. • GIRIE				CHKD. BY:				
	ER: Kevir		nagle Drillin	g		BORING LOCATION	SEE PLAN	V					
	ERSONN					GROUND SURFACE START DATE: 7/12/1				UM: N/A			
						DATE: //12/1	1	EIND D/	ATE: 7/13/11 WATER II	EVEL DATA			
TYPE	OF DRILI	RIG: E	3k81 (CME	85)			DATE	TIME	WATER		REMARKS	•	
CASI	NG SIZE A	ND TY	PE: 2"								TIEWATING	·······	
IOVER	BURDEN	SAMPL	LING METH	IOD: Autoham	imer, 4' malvoco	pre band						· · · · · · · · · · · · · · · · · · ·	
D	UNILLIN	GIVIET	HUD: NA				L	L					
E			SAMPLE										
Р			0, 1111 20				SV		DESCRIPT				
Т	BLOW	NO.	DEPTH	N-VALUE	RECOVERY	1	04		DESCRIPT	ION			PID
н	/6"		(FT.)	/RQD(%)	(%)								(ppm)
	36				45%	Brown silt with cmf	sand and	I cmf gr	avel; moist				0-4': 0
1					<u> </u>								04.0
						@ 1.7'; soil behav	es similar	to asph	halt patch, flo	wing and "s	ticky"; wet		
2						1					-		
						-							
3					l								1
4			4.0			@ 3.8'; olive-grey	clay lense	ej; mois	t				1
	32		. 4.0		25%	MA 5h hanne		-11					4-8': 0
5	\downarrow				2570	@4.5'; brown cmf	sand with	SHT; SO	me cmt grave	el; wet			
					<u>├</u> ─── <u>─</u>	-							
6						1							
						1							
7						@ 7'; brown silt; s	ome cmf	sand: so	ome cmf grav	vel: saturate	d		
						1			give sint give	in outbrate	u		
8			8.0]							
					75%	@ 8.7'; grey f san	d; some s	ilt; som	e cmf gravel;	; wet			8.5': 24.6
9					<u> </u>	@9'; moist							9': 18
10	275					-							9.5': 62
	<u> </u>				<u> </u>	-							10': 17
11						4							
					<u> </u>	-							11': 20
12			12.0			1							11.5': 6.7
						-							12': 3.4
13						1							101-1-0
	_ 260												13': 1.2
14													14': 0.3
						-							
15	<u> </u>					-							15': 0.2
16		<u> </u>		l	<u> </u>	4							
10	<u> </u>					-							16': 2.4
17	140	 			<u> </u>	-							
	<u> </u>				<u> </u>	-							17': 0
18			17.8			4							17.8': 0
					1	1							
19						1							
]							1
_20						1							
	-	LEGEN				Boring is west of tank	< 6 vault (ki	nown cor	ntamination fro	m UST remo	vals))		L
			SPOON SOI TURBED SO			Spoon refusal @ 17.8	8'; Auger re	efusal @	19.5'				
			CORE SAM										
	GENERAL					L							
	1)	Stratifi	ication Line	s represent ap	proximate boun	dary between soil type	s; transitio	ns mav H	e gradual				
	2)	PID re	adings wer	e taken directi	y on exposed so	il in disposable sleeve	, immediate	ely follow	ing retrieval fr	om boring.			
		bgs =	below grou	nd surface					-				
L		ppm =	parts per r	nillon						BORING # F	PA-13		

Ι.	_					PROJECT			BORING PA	-15			
	72		En	aine	ers	Orchard Whitney			SHEET OF				
		NIV-BOA	100000 1 1 1 100453 61 1	Strates in an						03			
CONT	RACTOR					BOBING LOCATION	SEE DI AN	1	CHKD. BY:				
DRILL	ER: Kevir		3.5 - 1 11 1							IM· N/∆			
JCL P	ERSONN	EL: ED								5.01. IVA			
								_	WATER LI				
				55)			DATE	TIME	WATER	CASING	REMARKS		
				IOD: Autoham	mer. 4' malvoco	ore band							
ROCI	DRILLIN	G METH	IOD: NA							<u> </u>			
D									·	······	······		
E P			SAMPLE	DATA					_				
-	BLOW	NO.	DEPTH	N-VALUE	RECOVERY		SA	MPLE	DESCRIPT	ION		PID	
н	/6"		(FT.)									(ppm)	
	45	1			12%	@ 0'; brown silt wi	th clay; litt	le cmf :	sand: cmf or	avel: red sto	ne @ 1-2' (very little recovery)	0.4% 0	
1						moist			sana, ann gn		and a rez (very nulle recovery),	0-4'; 0	
]							
2													
1	Bit Discrete Construction Discrete Construction <thdiscrete constructin<="" th=""> <thdiscrete constru<="" td=""></thdiscrete></thdiscrete>												
Ĭ						4							
4			4.0			-							
	55	2			18%	-						4-8': 0	
5						- @5' (+/-): black-br	own mf sa	nd and	slan/cinder	fill: dry			
						1			olag olindol	ini, ary			
6]							
]							
7						@ 7.0'; light browr	silt with o	omf grav	vel; trace f sa	and; saturate	ed		
8			8.0			4							
Ĭ		3	0.0		70%	4							
9					10%	1							
	80					1						9': 15	
10						@ 10'; olive-light t	prown silt v	with f sa	and: moist			101.5	
						@ 10.7'; grey silt;	some f sa	nd; trac	e mf gravel:	moist		10:5	
11]			•			11'-02	
10			10.0			4							
12	316		12.0		759/							12': 0	
13	010				/5%		rounded g	ravel; r	noist				
						-							
14						1							
						@ 14.75'; saturate	d (grev f s	and wit	th silt)				
15]	,						
]							
16						4							
17						4							
''						4						1	
18					· · · · · · · · · · · · · · · · · · ·	1							
						1							
19						1							
]							
20													
	0	LEGEN	<u>D</u> SPOON SOII	SAMPLE		Set nested pair each	with 2.5' so	reen (16	6.0-13.5' with s	and to 13.0; I	bentonite from 13 to 10.5'; 2.5 shall	bw screen fr	
			URBED SO										
			CORE SAMP										
	GENERAL	NOTES:											
	1)	Stratifi	cation Line	s represent ap	proximate boun	dary between soil type	s; transitior	is may b	e gradual.				
	2)		adings wer below groui	e taken directly	y on exposed so	il in disposable sleeve,	immediate	ly follow	ing retrieval fro	om boring.			
	·		parts per n							BODING # 5	04_15		
										BORING # F	rA-15		

		_				PROJECT			BORING PA	.12		
	5		I En	gine	ore	Orchard Whitney			SHEET 1 OF			
			E lasan E F	PRANSPORTAN	013				JOB #: 4216-			
CONT	IBACTOR	ENVIRO	1416123 A.	TRANSPOR AF	07. • 宗教師				CHKD. BY:			
	LER: Kevir	: Nothi	nagle Drillin	g		BORING LOCATION	SEE PLA	1				 14
	ERSONN					GROUND SURFACE				JM: N/A		
					·	START DATE: 7/12/1	1	END D/	ATE: 7/12/11			
TYPE	OF DRIL	L RIG: I	Bk81 (CME	85)			DATE	TIME	WATER LE	VEL DATA		
CASI	NG SIZE A	ND TY	'PE: 2"				DATE		WATER	CASING	REMARKS	
OVER	RBURDEN	SAMP	LING METH	HOD: Autoham	mer, 4' malvoco	ore band		<u> </u>	<u> </u>			
HOCI	CORILLIN	G MET	HOD: NA									
D									· · · · · · · · · · · · · · · · · · ·	L		1
E			SAMPLE	E DATA								
T	PI OW		DEPTH				SA	MPLE	DESCRIPT	ION		PID
H H	BLOW /6"	NO.	DEPTH		RECOVERY							(ppm)
	21	<u> </u>	(FT.)	/RQD(%)	(%)							(ppin)
1		<u> </u>			50%	Brown silt with cmf	sand and	cmf gra	avel; moist			 0-4': 0
'					<u>↓</u>	-						
2						4						
1						-						
3		<u> </u>		<u> </u>								
						@ 3'; 3" clay lense	; olive-gr	ey, mois	st			
4			4.0			-						
	25	2	4.0		50%	4						4-8': 0
5	<u>- 20</u>	<u>-</u>			50%	4						
Ĭ					4							
6						@ 5'; wet						
Ĭ						-						
7												
						@ 7; saturated						
8			8.0									
	180		0.0		68%	@ 9; rose-grey f sa	and with s	ilt; som	e cmf gravel	; wet, moist		8-12': 0
9		3				{						
		<u> </u>			└──┴──	ł						
10												
						@ 10; grey silt; so	me t sand	; true f	gravel; moist			
11		—				-						
						-						
12			12.0			4						
	430		12.0	· · · · · · · · · · · · · · · · · · ·	100%	@ 10.0. group light	h					12-14.6': 0
13	\downarrow				\	@ 12.2; grey-light	prown t s	and; sor	me silt; little r	nf gravel; m	oist; dense	
						4						
14			14.6			4						
						{						
15						@ 15'; grey						
	440				95%	g is, giey						15-19': 0
16					35%	1						
	·				······ ····	1						
17		· · · · ·				1						
					·	1						
18						1						
						1						
19					·	1						
[360				80%	1						
20					V	1						
		LEGEN	<u>D</u>		¥	Spoon refusal @ 14.6	' auger to	15' conti				
		SPLIT S	SPOON SOIL				, adger to		nue sampling			
	U-	UNDIST	FURBED SO	IL SAMPLE								
 			CORE SAMP	LE								
1	GENERAL											
1	1)	Stratific	cation Lines	s represent ap	proximate bound	dary between soil types	; transition	s may be	e gradual.			
	(ے	L ID 169	adings were below grour	e taken directiv	on exposed soi	il in disposable sleeve,	immediate	ly followi	ng retrieval fro	m boring.		
		Ug5 = I	parts per m	lo sunace								
			Parto per II					·		BORING # P	A-12	

		이 안 안 같다.	이상부산(신도 🔸		ers	PROJECT Orchard Whitney			BORING PA SHEET 1 OF JOB #: 4216- CHKD. BY:	2		
CONT	RACTOR	Noth	agle Drillin	g		BORING LOCATION	SEE PLAN		CHKD. BT:			
	LER: Kevin					GROUND SURFACE	ELEVATIO		DATU	JM: N/A		
	PERSONN	L: ED				START DATE: 7/13/1	1		TE: 7/13/11			
TYPE	OF DRILL			05)					WATER LE	VEL DATA		
CASI	NG SIZE A	ND TV	>KOT (UNIE PE・2*	85)			DATE	TIME	WATER	CASING	REMARKS	
					mer, 4' malvoco	are bend				L		
ROCK	K DRILLING	G MET	HOD: NA	.ep. / lolo/lai		ore band						
D			<u></u>	· ·	· · · · · · · · · · · · · · · · · · ·			J				
ε			SAMPLI	E DATA		:						
P							SA	MPLE	DESCRIPT	ION		PI
] [BLOW	NO,	DEPTH	1	RECOVERY	7						(pp
н	/6"		(FT.)	/RQD(%)	(%)							1 (PP
	NA				NA	0-6'; bldg demo ma	terial fron	berm				+
						1						
						-						
2						4						
				<u> </u>		4						1
3					·	4						1
4						4						
"						4						
5					l	4						1
						4						1
6												1
Ĭ						6-9'; flowable fill ma	aterial					
7						4						
						-						
8						4						
1					<u> </u>	-						
9					<u> · · · · · · · · · · · · · · · · · · ·</u>	@9'; concrete vau	It floor. 1	thick				
							1001-1	THUCK				
10						@ 10': 2" laver bla	ck slag/ci	nf grave	el·little.cmf.s	and: netrol	odor; saturated (likely concrete	
	90				70%	@10.2'; grey-brow	n silt with	cmf sai	d: cmf grav	el: sautrate	d; litght petrol odor; trace clay	
11						1			ia, onn giar	or, oddirator	a, light perior odor, trace clay	10.5
]						11
12												12
												1 2
13												13':
			ļ			4						
14			 			@ 14'; rose-grey f	sand with	silt' soi	ne cmf grav	el; moist		14
	400			ļ	100%	4			-			
15					 	4						15-1
16				<u> </u>		4						
^{''}	<u> </u>				ł	4						
17					<u> </u>	4						1
	Auger			 	<u> </u>	4						
18					95%	@ 18'; saturated						
					33%	saturated						18-19
19					<u> </u>	@ 19'; moist						
	19.3		<u> </u>		t							1
20					100%	@ 20.5'; some silt	' saturato	4				
			20.9			@ 20.7; moist	Juluiale	<u>.</u>				20-20
				DIL SAMPLE								
┝			CORE SAM	PLE								
	GENERAL											
	() 2)	PID re	adings we	is represent ap	proximate bour	ndary between soil type bil in disposable sleeve	s; transitio	is may b	e gradual.			
I I	-)	bos =	below arou	nd surface	y on exposed so	n in uisposable sieeve	immediate	ny tollowi	ng retrieval fro	om boring.		

						PROJECT			BORING PA	16		
	10		Fn	gine	ers	Orchard Whitney			SHEET 2 OF			
1.0		Electron of	(Human L - E) 11.765311 A - # 1	MAKEPURTAN					JOB #: 4216-	03		
CONT			agle Drilling			BORING LOCATION:			CHKD, BY:			
DRILL	ER: Kevir	1	agio britani	8		GROUND SURFACE				JM: N/A		
JCL P	ERSONN	EL: ED				START DATE: 7/13/1			TE: 7/13/11			
TYPE			k81 (CME							EVEL DATA		
CASI	NG SIZE A	ND TY	PE: 2"	50)			DATE	TIME	WATER	CASING	REMARKS	
OVEF	BURDEN	SAMPL	ING METH	OD: Autoham	mer, 4' malvoco	re band						
ROCK D	DRILLIN	G METH	HOD: NA									
E			SAMPLE									
P				- 0/(//			SA		DESCRIPT			
T	BLOW	NO.	DEPTH	N-VALUE	RECOVERY	1	0,1					PID (ppm)
<u>н</u>	/6"		(FT.)	/RQD(%)	(%)							(ppin)
21	Auger		20.9			4						
						1						
22						•						00.041.0
					60%	@ 23.5'; cobble						22-24': 0
23	210											
24		┟──┤	24.0			4						
24			_24.0			4						
25												
	200					1						
26					100%	@ 26'; grey mf sai	nd; little si	lt; satur	ated			26-26.6': 0
27			26.6			4						
21						4						
8						4						
						1						
9						1						
10												
11						-						
12												
13												
14						-						
						4						
15						1						
16						4						
17			L			4						
		†				4						
18						1						
]						
19		<u> </u>				4						
20						-						
<u> </u>		LEGEN	D		L	Spoon refusal= 26.6';	auger rout	upal OF				
		SPLIT	SPOON SOI			Encounter natural ga	s pocket wi	nen remo	oving augers			
			TURBED SO			Oxygen= 19.8 ppm, (Carbon Mor	noxide=	55 ppm down	augers/no im	pact in breathing zone, no well i	nstallation
	GENERAL		CORE SAME	PLE								
	1)	Stratifi	cation Line	s represent ap	proximate boun	dary between soil type	s; transition	ns mav h	e gradual			
	2)	PID re	adings wer	e taken directl	on exposed so	il in disposable sleeve	immediate	ly follow	ing retrieval fr	om boring.		
		bgs = l	below grou parts per r	nd surface								
		phiii ≂	parts per l							BORING # P	PA-16	

				1000		PROJECT			BORING PA	17		
		Lι	Fn	dino	ore	Orchard Whitney			SHEET 1 OF			
	в		t hum E F	gine	013				JOB #: 4216-			
		ENVIRO	~과정만적) 석도 🖷	TEAM STUDIES ALL	28 • 24¥3				CHKD. BY:			
	LER: Kevi	I: Nothi	nagle Drillin	g		BORING LOCATION	SEE PLA	V				
	PERSONN	n IEI - ED				GROUND SURFACE				UM: N/A		
	LIIOONI	ICL. ED				START DATE: 7/14/1	1	END D/	ATE: 7/14/11			
TYPE		L BIG: I	Bk81 (CME	85)			DATE	1		EVEL DATA		
CASI	NG SIZE	AND TY	PE: 2"				DATE	TIME	WATER	CASING	REMARKS	
OVE	RBURDEN	SAMP	LING METH	HOD: Autohan	nmer, 4' malvoce	ore band						
ROC	K DRILLIN	IG MET	HOD: NA					<u> </u>				
D											L	 T
E			SAMPLI	E DATA								
P							SA	MPLE	DESCRIPT	ION		PID
T	BLOW	NO.	DEPTH	N-VALUE	RECOVERY	1						(ppm)
H	/6"	<u> </u>	(FT.)	/RQD(%)	(%)				G			(ppin)
1			<u> </u>		L	0-6'; Construction a	and demo	lition ba	ckfill (fill)			<u>+</u>
r			<u> </u>		ļ	4						
						4						
2		+	<u> </u>			4						
3		+				4						
1 3		+	 		 	4						
4		<u>+</u> -			<u> </u>	4						
*		+			<u> </u>	4						
5		+				4						
		+				4						
6		┼──										
ľ		+				@ 6'; flowable fill						
7		+				4						
'						4						
8		+			ł <u> </u>	-						
Ĭ		+	<u> </u>		<u> </u>	-						
9		+			<u> </u>	4						
		<u> </u>	1		<u> </u>	-						
10		+	1			4						
		<u> </u>				4						
1 11			t			-						i i
		<u> </u>	<u> </u>		75%	@ 11.5'; vault floo	-					
12		<u> </u>			↓ /0//0 ↓	@ 12'; black conci		dor (18)				
		1			· · · · · · · · · · · · · · · · · · ·	@ 12.1'; rose-grey	f cand w	uur (T)				12': 0.4
13							i sanu w	nn Siit; i	ittle cmr grav	el; moist-we	et	12.5': 0.5
1	\uparrow		3		<u> </u>	1						13': 0.1
14	260					1						1
	\downarrow					@ 14.5'; grey silt'	some f sa	nd: trac	a mf arauch	moint		14': 0
15					i		50116130	nu, tidu	e mi glavel;	moist		1
						1						15': 0
16			16.0			1						
	185					1						16': 0
17	\downarrow					1						
			17.6			1						1
18						1						
						1						
19						1						
1]						
_20]						
		LEGEN				Auger refusal @ 17.8	1	·····				 L
			SPOON SOI									
			TURBED SO									
	GENERAL		CORE SAME	PLÉ								
1				e represent on	provimete have							
	2) PID re	adings wer	e taken directh	V OB exposed eo	dary bètween soil type: il in disposable sleeve,	s; transitio	ns may b	e gradual.			
1		bgs =	below grou	nd surface	, onposod su	m m disposable sieeve,	mmediate	IN TOHOM	ing retrieval fro	om boring.		
L			parts per r						1	BORING # P	A-17	
			-							DOMING # P	<u>^1/</u>	

						PROJECT			BORING PA1	10		
			Fn	gine	ore	Orchard Whitney			SHEET 1 OF			
	8			gine	013				JOB #: 4216-			
CON				19AMSPORTAT	ov • osylt				CHKD. BY:			
DRI	LER: Kevir	ii iNothi n	nagle Drillin	g		BORING LOCATION	SEE PLA	N				
JCL 1	PERSONN					GROUND SURFACE				UM: N/A		
						START DATE: 7/14/1	1	END D	ATE: 7/14/11			
TYPE	OF DRILL	L RIG: I	Bk81 (CME	85)			DATE	TIME	WATER	EVEL DATA CASING	REMARKS	
CAS	NG SIZE A	AND TY	'PE: 2"						WAILI	CASING	HEIVIARKS	
OVE	RBURDEN	SAMP	LING METH	IOD: Autoham	mer, 4' malvoco	ore band						
D	K DRILLIN	GMEI	HOD: NA									
E			SAMPLE									
P									DE00010-			
T	BLOW	NO.	DEPTH	N-VALUE	RECOVERY	-	SA	MPLE	DESCRIPT	ION		PID
н	/6"		(FT.)	/RQD(%)	(%)							(ppm)
						Auger to 4' (concre	te/sand/o	ravel)				 +
1					i	1	g annual g	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,				0-4': NA
						1						
2]						
	L]						
3]						
	L	ļ	L									
4		<u> </u>			50%	@ 4'; red-brown m	nf sand; se	ome silt	; some cmf g	ravel; moist		4-8': 0
		1			L	@ 4.75' (+/-); olive	e-brown cl	ay with	silt; moist			-0.0
5						_						
						4						
6						4						
7			<u> </u>			-						
1 '		<u>+</u>				4						
8	<u> </u>											
	250				90%	@ 8'; olive-light br	own silt w	ith f sar	nd and cmf g	ravel; satura	ated	8-12': 0
9					90 /6	@9'; f sand with si						
					¥		III					
10						@ 10'; rose-grey f	sand so	mo cilt	mf grouolu m	oint		
							34HU, 30	ne siit,	ini glavel, in	oist		
11						@ 11'; grey silt; lit	tle cmf ar	avel: m	viet			
							e enni gri		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			
12						1						10 10 0
					100%]						12-16': 0
13		L			\downarrow]						
	335	ļ]						
14	<u> </u>	_										
15												
		<u> </u>		<u> </u>	ļ	4						
16					1000	@ 16.5'; grey f sa	nd; some	silt; trac	e mf gravel			16-17.3': 0
17	250				100%	4						
''	250				<u>↓</u>	-						
18						-						
		1				4						
19		<u> </u>				4						
						-						
20						1						
	•	LEGEN	1 <u>0</u>			Spoon refusal @ 17.3	3': Auger re	fusal@	17 4" po mini-	Noll construct		 L
1		SPLIT	SPOON SOI				-, nager ie		ar er ann an ann ann an ann an ann an an ann an a	well construct	on	
			TURBED SO									
			CORE SAME	PLE								
	GENERAL											
	1)	PID	cation Line	s represent ap	proximate boun	dary between soil type	s; transitio	ns may b	e gradual.			
	(۲	bas =	below groui	e laken uirectij nd surface	on exposed so	il in disposable sleeve,	mmediate	ely follow	ing retrieval fro	om boring.		
			parts per n								4 10	
		-								BORING # P	A-18	

						PROJECT			BORING MW	1.23		
	52		En	gine	ors	Orchard Whitney RI/I			SHEET 1 OF			
	1.2		i lana E. E.	gric	010				JOB #: 4216-			
CONT	BACTOR		agle Drillin	TRANSPONTAN TRANSPONTAN	OF COMP				CHKD, BY:			
DRILL	ER: Kevir			g		BORING LOCATION GROUND SURFACE	SEE PLA	N				
	ERSONN					START DATE: 7/15/1			DATU ATE: 7/15/11	JM: N/A		
										VEL DATA		
TYPE	OF DRILL	RIG: E	3k81				DATE	TIME	WATER	CASING	REMARKS	
OVER			PE: 2" pvc/	4.25" HSA	mer/continuous							
ROCK		G METH		r to auge refu	mer/continuous	•		ļ				
D				to dogo roid			L					
E			SAMPLE	E DATA								
Р							SA	MPLE	DESCRIPT	ION		
T	BLOW	NO.	DEPTH	N-VALUE	RECOVERY	1						PID (ppm)
н	/6"		(FT.)	/RQD(%)	(%)					_		(ppm)
1	\uparrow				5%	Grey-brown silt; so	me cmf s	and; sor	me cmf grave	el; moist		0-4': 0
	24				<u> </u>	-						
2	<u> </u>					-						
						-						
3					· · · · · · · · · · · · · · · · · · ·	-						
						4						
4			4.0			1						
	35				50%	@ 4.5'; brown mf s	and: little	silt. littl	e mf gravel:	moist		4-8': 0
5						1	raina, intro	, one, nee	ie ini giavei,	moist		
						@ 5.5' (+/-); olive-	grey silt; s	some cr	nf sand: som	e cmf grave	al: moist	
6]				ie onn grave		
7												
8												
ľ	160		8.0		75%	@ 8'; saturated						8-12': 0
9	<u> </u>				/5%	4						
						@ 9.2'; grey silt; s	ometeor	d: trace	met menuals and			
10							onicitidai	ia, trace	ani yiavei, ii	noist		
						1						
11]						
12			12.0									12-15.1': 0
13	_				90%	4						
	330					-						
14	4											
						1						
15						1						
			15.1]						15.2-17': 0
16						1						No sample
17	315		17.0			-						a sample
''	315		17.0		95	@ 17'; grey f sand	with silt;	little cm	f gravel; moi	st		17-20': 0
18						4						
						1						
19						1						
[1						
20			20.0			1						
	-	LEGEN				TD with augers= 22'						_ <u></u>
			SPOON SOIL			Spoon refusal @ 15.1	'; auger to	17'; 2nd	spoon refusal	@ 20'; Auger	r to 22' (+/-); auger to 2' into bedro	ck and
			ORE SAMP			set interface well from	122-12 (10	' screen)	; sandpack 22	-11.5'; bentor	nite 11.5-8.8'	
	GENERAL	NOTES:	JOINE SAIVIE			L						
l	1)	Stratific	cation Line	s represent ap	proximate boun	dary between soil types	s; transitior	is mav h	e oradual			
[2)	PID rea	adings were	e taken directly	on exposed so	il in disposable sleeve,	immediate	ly followi	ng retrieval fro	om boring.		
		pgs = c	pelow grour parts per n	nd surface								
			Paris her U							BORING # N	1W-23	

						PROJECT			BORING MV	1.24			
	111		Fn	gine	ore	Orchard Whitney RI/I	RM		SHEET 1 OF				
	121		E Bounn I - E Sa analasi a S	13 AND PROVIDENCE	010				JOB #: 4216-				
CONT	BACTOP	Noth	agle Drillin	na novemperation	CALL CIVIL	POPINO LOGITIC	0000		CHKD. BY:		· · · · · · · · · · · · · · · · · · ·		
DRILL	ER: Kevir	1 I		А		BORING LOCATION GROUND SURFACE	SEE PLA	א אר	DAT	18.41 81/4			
	ERSONN					START DATE: 7/15/1			DATI ATE: 7/15/11	JM: N/A			
TVD	05 000								WATER LI	EVEL DATA			
CASI			3k81 PE: 2" ov-1	4.25" HSA			DATE	TIME	WATER	CASING	REMARKS		
VERE	URDEN S		FE: 2" pvc/ NG MFTH	9.25 HSA	ner (140 lb)/conti	inuous @ 22	L	<u> </u>					
ROCI		G METI	HOD: Rolle	rbit	ioi (i+0 ib)/cont		·	<u> </u>					
D								<u> </u>	L	<u> </u>	L		
E			SAMPLI	E DATA									
P T	BLOW	NO.	DEDTU	NI Y/AL LIT	DECO	4	SA	MPLE	DESCRIPT	ION			PID
H H	/6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)								(ppm)
	65	1		///02/////	50%	@ 0'; Brick, silt, co	norato fill	. aroust			· · · · · · · · · · · · · · · · · · ·		
1	\downarrow				↓		increte III	, gravei	, ary				0-4': 0
2						1							
]							
3		<u> </u>				1							
		i	10										
4			4.0			@ 4'; stop samplir	g; alread	y chara	cterized throu	ugh test pitti	ng		
5						-							
		 			<u> </u>	4							1
6						-							
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7						1							~
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10						4							1
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11						-]
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13				1								0	
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14						4							
15			<u> </u>			-							
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17						1							
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18]							
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19						_							
			 			4							
20		LEGEN		l					·				
	S-		IU SPOON SOI	L SAMPLE									
			TURBED SC										
	C-	ROCK	CORE SAME										
	GENERAL												
	1)	Stratifi PID ro	cation Line	s represent ap	proximate boun	dary between soil type	s; transition	ns may b	e gradual.				
	2)	bas =	adıngs wer below grou	e taken directly	y on exposed so	il in disposable sleeve,	immediate	ely follow	ing retrieval fro	om boring.			
			parts per r							BOBINO #*	ANI 04		
			<u></u>							BORING # N	100-24		

Build Engline Ordinary Writing Riffeld Select 2 or 2 UB 4: 41633 CHK0.8Y. CONTRACTOR: Nonage Dating CONTRACTOR: Nonage Dating CAP PROVINCE.ED BOIND CLOCATION SEE PLAN STATE DATE: 715/11 DATUM NA STATE DATE: 715/11 CAP PROVINCE.ED STATE DATE: 715/11 END DATE: 715/11 END DATE: 715/11 CAP PROVINCE.ED SAMPLE DATE: 715/11 END DATE: 715/11 END DATE: 715/11 CASH DATE: 715/11 END DATE: 715/11 END DATE: 715/11 END DATE: 715/11 CASH DATE: 715/11 END DATE: 715/11 END DATE: 715/11 END DATE: 715/11 CASH DATE: 715/11 END DATE: 715/11 END DATE: 715/11 END DATE: 715/11 CASH DATE: 715/11 END DATE: 715/11 END DATE: 715/11 END DATE: 715/11 CASH DATE: 715/11 END DATE: 715/11 END DATE: 715/11 END DATE: 715/11 CASH DATE: 715/11 END DATE: 715/11 END DATE: 715/11 END DATE: 715/11 CASH DATE: 715/11 END DATE: 715/11 END CASH DATE: 715/11 END CASH DATE: 715/11 SAMPLE DATA SAMPLE DATA END CASH DATE: 715/11 END CASH DATE: 715/11 SAMPLE DATA END CASH DATE: 715/11 END CASH DATE: 715/11	.			processo -			PROJECT			BORING MW	/24	······································	
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OWN INSTITUE: Montage Diffing BORING LOCATION SEE FLAM DATUM: NA USL PERSONNEL: ED START DATE: 7/5/1 END DATE: 7/15/1 DATE MARE USL PERSONNEL: ED START DATE: 7/5/1 END DATE: 7/15/1 DATE MARE CASING 322 AND TYPE: FIGURA MARE SAMPLE DATA DATE MARE DATE MARE <td< td=""><td></td><td></td><td>经济中的合</td><td>지갑도신에 주도 •</td><td>THANSPORTAN</td><td>1. • 121010</td><td></td><td></td><td></td><td></td><td>03</td><td></td><td></td></td<>			经济中的合	지갑도신에 주도 •	THANSPORTAN	1. • 121 0 10					03		
CLC_PERCONNEL: ED STATE DATE: 7/15/1 END DATE: 7/15/1 END DATE: 7/15/1 TYPE 0F DBILL R(G: Best CORRING SIZE AND YTEX: CP vOL 22* HSA MORES SIZE AND YTEX MORES SIZE AND YTEX		RACTOR	: Nothi	nagle Drillin	g								
UPUE OF DIFLI REG. Bot: WATER LEVE, DATA OFFENDICED IS AMPLE: FM WATER LEVE, DATA OFFENDICED IS AMPLE: FM WATER LEVE, DATA OFFENDICED IS AMPLE: FM WATER LEVE, DATA P SAMPLE: CASING Mainter Leve, DATA P BLOW NO PO have, SAMPLE: PD P OTE OTE SAMPLE: CASING P P OTE PD PD P P P P P P											UM: N/A		
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OVERBURDEN SAMPLING METHOD: Audohammer (140 by)continuous 9 zz Image: Contract of the	CASI	NG SIZE A	ND TY	PE: 2" pvc/	4.25" HSA			DATE	TIME	WATER	CASING	REMARKS	
BLOW NO. DEPTH NVALUE RECOVERY SAMPLE DESCRIPTION PID 21 -	OVEF	BURDEN	SAMP	LING METH	HOD: Autoham	mer (140 lb)/co	ntinuous @ 22'						
P SAMPLE DESCRIPTION PID (pm) 21 0 </td <td></td> <td>CONILLIN</td> <td>GMET</td> <td>HOD: Holle</td> <td>rbit</td> <td></td> <td>T</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>		CONILLIN	GMET	HOD: Holle	rbit		T						
1 BCOW NO. DEPTH N-VALUE RECOVERY DAMPLE DESCRIPTION PID 1 0 0 (FT) ROD(%) <	1 1			SAMPLE	E DATA					D-5000107			
21 0 (1) ///dot(x) (x) 22 2 0	Т		NO.	DEPTH	N-VALUE	RECOVERY	-	SA	MPLE	DESCRIPT	ION		
2 2 0% 22.2.2.8 No recovery 21 22.2.2.8 No recovery 25.5 grey-light brown silt and f sand; little cmf gravel; saturated (or saturated above and moist 25-29) 25.5 grey-light brown silt and f sand; little cmf gravel; saturated (or saturated above and moist 25-29) 25.5 grey-light brown silt and f sand; little cmf gravel; saturated (or saturated above and moist 25-29) 25.5 grey-light brown silt and f sand; little cmf gravel; saturated (or saturated above and moist 25-29) 25.5 grey-light brown silt and f sand; little cmf gravel; saturated (or saturated above and moist 25-29) 25.5 grey-light brown silt and f sand; little cmf gravel; saturated (or saturated above in moist 25-29) 25.5 grey-light brown silt and f sand; little cmf gravel; saturated (or saturated above in moist 25-29) 25.5 grey-light brown silt and f sand; little cmf gravel; saturated (or saturated above in moist 25-29) 25.5 grey-light brown silt and f sand; little cmf gravel; saturated (or saturated above in moist 25-29) 25.5 grey-light brown silt and f sand; little cmf gravel; saturated (or saturated above in moist 25-29) 25.5 grey-light brown silt and f sand; little cmf gravel; saturated (or saturated above in moist 25-29) 25.5 grey-light brown silt and f sand; little cmf gravel; saturated (or saturated above in moist 25-29) 25.5 grey-light brown silt and f sand; little cmf gravel; saturated (or saturated above in moist 25-29) 25.5 grey-light brown silt and f sand; little cmf gravel; saturated (or saturated above in moist 25-29) 25.5 grey-light brown silt and f sand; little cmf gravel; saturated (or saturated above in moist 25-29) 33	н	/6"		(FT.)	/RQD(%)	(%)							(ppm)
22 2.9' 0% 23 22.9' 0% 24 2.9' 0% 25 3 70% 26 3 70% 27 0 0 28 0.0 0 29 29.0 0 30 0 0 31 0 0 32 0 0 33 0 0 34 0 0 35 0 0 36 0 0 37 0 0 38 0 0 39 0 0 30 0 0 31 0 0 32 0 0 33 0 0 34 0 0 35 0 0 36 0 0 37 0 0 38 0 0 39 0 0 10 <td>21</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>-</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	21						-						
23 22.9' 22.9' 25: grey-light brown silt and f sand; little cmf gravel; saturated (or saturated above 25-26: 0 26 3 70% and moist 25-29' NO PID hit with meter in augers 26 29.0 and moist 25-29' NO PiD hit with meter in augers 28 29.0 and moist 25-29' NO PiD hit with meter in augers 28 29.0 and moist 25-29' NO PiD hit with meter in augers 28 29.0 and moist 25-29' PiD hit meter in augers 29 29.0 and moist 25-29' PiD hit meter in augers 31 and							@ 22-22.9 No rec	overy					
24 3 70% 26 3 70% 405 405 405 405 27 405 28 29.0 31 405 32 405 33 405 34 405 35 405 36 405 37 405 38 405 39 405 30 405 31 405 405 405 405 405 405 405 405 405 405 405 405 405 405 405 405 405 405 405 405 405 405 405 405 405 405 405 405 405 405 405 405 405 405 405 405 405	22		2			0%	-						
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26 25.26: 0 405 and moist 25-29) and moist 25-29) NO PID hit with meter in graver, saturated (of saturated above in a did r s	24						-						
28 405 40	25		3			70%	@ 25'; grey-light b	orown silt a	and f sa	nd: little cmf	aravel: sati	irated (or saturated above	05 001 0
27 405 405 405 28 29 29.0 405 30 29.0 405 405 31 20.0 405 405 32 20.0 405 405 33 20.0 405 405 34 20.0 405 405 35 20.0 405 405 36 20.0 405 405 36 20.0 405 405 36 20.0 405 405 38 20.0 405 405 39 20.0 405 405 LEGEND 60.25.29° spoon and drill rod saturated (at least 5 of water); Encounter bedrock @ approximately 25°; auger to refusal @ 30.5°; Rolerbit to 34°; construct 32.4° screer; sard to 23.4° 40 40 405 405 405 40 405 405 405 405 40 405 405 405 405 40 405 405 405 405 40 405							and moist 25-29')			ind, intro onin	914101, 521	area (or saturated above	25-26": 0
27	20	405			<u> </u>		4						NO PID hits
28 29.0 29.0 30 29.0 29'; encounter bedrock 31 20.0 29'; encounter bedrock 32 20.0 29'; encounter bedrock 33 20.0 29'; encounter bedrock 34 20.0 29'; encounter bedrock 35 20.0 29'; encounter bedrock 36 20.0 29'; encounter bedrock 37 20.0 20'; encounter bedrock 38 20.0 20'; encounter bedrock 39 20.0 20'; encounter bedrock 38 20.0 20'; encounter bedrock 39 20.0 20'; encounter bedrock 40 20.0 20'; encounter bedrock 40 20.0 20'; encounter bedrock @ 33'; 40 20.0 25':29' spoon and dril rod saturated (at least 5' of water); 50; ENCL SPOON SOLLSAMPLE Encounter bedrock @ approximately 29; auger to refusal @ 30.5; 0 20; ENCL SAMPLE Folerbit to 34'; construct 33::24' screen; sand to 23.4' 0 20; PD readings were taken directly on exposed soil in disposable skeve, immediately following retrieval from boring. 0 20; P	27						-						
28 28.0 29.0 30 29.0 29.0 31 20.0 29.0 32 20.0 29.0 33 20.0 29.0 34 20.0 29.0 38 20.0 29.0 38 20.0 29.0 38 20.0 29.0 38 20.0 29.0 38 20.0 29.0 38 20.0 29.0 40 20.0 29.0 40 20.0 29.1 40 20.0 25.29' spoon and dril rod saturated (at least 5' of water); Encounter bedrock @ approximately 29; auger to refusal @ 30.5; Rolentir to 34; construct 33.24' screen; sand to 23.4' 6ENERAL NOTES 10.004/th to 45.004/th types; transitions may be gradual. 2 PiD readings were taken directly on exposed soil in absosable sizeve, immediately following retrieval from boring. bgs = being ground surface	28						-						in augers
30 25.2 should be benock 31 1 32 1 33 1 34 1 35 1 36 1 37 1 38 1 39 1 38 1 39 1 30 1 31 1 32 1 34 1 35 1 36 1 38 1 39 1 40 1 40 1 40 1 40 1 40 1 40 1 40 1 40 1 40 1 40 1 40 1 41 1 42 1 43 1 44 1 44 1 45 5 <							1						
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32 33 34 34 33 34 34 34 34 34 34 34 35 36 37 36 36 37 38 38 38 39 39 39 40 40 40 40 40 40 40 40 40 40 40 40 40 40 40 40 40 40 40 40 40 40 40 40 40 40 40 40 40 40 40 40 40 40 40 40 5 SPLT SPOON SOIL SAMPLE U- UNDSTURBED SOIL SAMPLE Encounter badrock @ approximately 28; auger to refusal @ 30.5; Rollerbit to 34; construct 33-24' soreer; sand to 23.4' GENERAL NOTES: 1) Strattfication Lines represent approximate boundary between soil types; transitions may be gradual. 2) PID readings were taken directly on exposed soil in disposable sleeve, immediately following retrieval from boring. by a below ground surface 40 40	30						-						
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39 Image: Sector of the se							1						
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LEGEND @ 25-29' spoon and drill rod saturated (at least 5' of water); S- SPLIT SPOON SOIL SAMPLE Encounter bedrock @ approximately 29'; auger to refusal @ 30.5'; U- UNDISTURBED SOIL SAMPLE Encounter bedrock @ approximately 29'; auger to refusal @ 30.5'; C- ROCK CORE SAMPLE Rollerbit to 34'; construct 33-24' screen; sand to 23.4' GENERAL NOTES: 1) Stratification Lines represent approximate boundary between soil types; transitions may be gradual. 2) PID readings were taken directly on exposed soil in disposable sleeve, immediately following retrieval from boring. bgs = below ground surface	39		<u> </u>				4						
LEGEND @ 25-29' spoon and drill rod saturated (at least 5' of water); S- SPLIT SPOON SOIL SAMPLE Encounter bedrock @ approximately 29'; auger to refusal @ 30.5'; U- UNDISTURBED SOIL SAMPLE Encounter bedrock @ approximately 29'; auger to refusal @ 30.5'; C- ROCK CORE SAMPLE Rollerbit to 34'; construct 33-24' screen; sand to 23.4' GENERAL NOTES: 1) Stratification Lines represent approximate boundary between soil types; transitions may be gradual. 2) PID readings were taken directly on exposed soil in disposable sleeve, immediately following retrieval from boring. bgs = below ground surface							1						
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Difference Orchard Whitney Sheet to 22 (Child and the sheet of th							PROJECT			BORING MW	25		
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DRILER Kwin GRCUND SURPACE ELEXTON: DATUE: NA CEREGOMELED START DATE: 7/18/11 END ACTA: 7/18/11 END ACTA: 7/18/11 TYPE 0: DBILL RICE BB1: CASING 372: ADV AVATER LEVEL DATA MATER LEVEL, DATA CASING 372: ADV DATE TME WATER LEVEL, DATA MATER LEVEL, DATA PLD 0 SAMPLE DATA SAMPLE DATA SAMPLE DESCRIPTION PLD 1 OTHER LEVEL, DATA SAMPLE DESCRIPTION PLD 2 OTHER LEVEL SAMPLE DATA SAMPLE DESCRIPTION PLD 3 OTHER LEVEL No recovery 4-6: 0 PLD 4 OTHER LEVEL No recovery 4-6: 0 PLD 0 OTHER LEVEL SAMPLE DESCRIPTION PLD 10 OTHER LEVEL No recovery 4-6: 0 11 OTHER LEVEL SAMPLE DATA PLD 2 OTHER LEVEL SAMPLE DESCRIPTION PLD 3 OTHER LEVEL No recovery 4-6: 0 PLD 12 OTHER LEVEL SAMPLE DATA	CONT	RACTOR	Nothe	visten belle	URANEPOR AD	07 • 016.1	1			CHKD. BY:			
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BORING # MW-25													
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						PROJECT			BORING MV	V 25			
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	OF DRILL						DATE	TIME	WATER	CASING	REMARKS		
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Р			0/ IIII E	2 871171			20		DESCRIPT				
T	BLOW	NO.	DEPTH	N-VALUE	RECOVERY	•	07		DESCRIPT				PID
н	/6"		(FT.)	/RQD(%)	(%)								(ppm)
	200	5			60%	@ 20'; red-brown	sand; litt	le silt, lo	oose (native;	saturated			20-24': 0
21						@ 21'; gravel and	c sand; lif	tle silt;	saturated				2024.0
						@ 22'; medium br	own f san	d with s	ilt; little mf gi	ravel; satura	ted		
22						4							
23						@ 23.1'; olive-bro	wn silt; litt	le mf gr	avel; saturat	ed			
24		6	24.0		·	@ 24.5'; light brov	n silt; sor	ne f sar	nd; little mf g	ravel; moist			
57	280		24.0		95%	4							24-26.7': 0
25					3370	4							
						-						1	
26			26.7										
27	-		-			-							
						1							
28]							
]							
29													
30						TD= 30' (rollerbit to	o 31' but c	ave in t	o 30')				
31						4							
					<u> </u>	4							
32					t	4							
		<u> </u>	}			1							
33						1							
						1							
34					[1							
						1							
35		ļ]							
						4							
36		 				4							
					<u> </u>	4							
37					 	-							
38		┢──-			+	4							
30		 	<u> </u>		+	4							
39		<u> </u>		·	<u> </u>	4							
~		+			<u>+</u>	4							
40		<u> </u>	<u> </u>		<u> </u>	1							
		LEGEN	4D	.		Spoon refusal= 26.7	auger refu	sal= 26	8: rollerbit from	1 26 7 to 31"	set well @ 30' with 15'	of para== (00	160
		SPLIT	SPOON SOI			Sandpack 31 to 13.8	; bentonite		-, renorant indi	. 20.7 (0 01,1	octroll es do mini 10.	or screen (30-	10)
				DIL SAMPLE									
			CORE SAM	PLÉ									1
	GENERAL				novimete	dan (hating "							
	2) PID re	adinas wer	e taken direct	V on exposed so	dary between soil type il in disposable sleeve	is; transitio	ns may t	pe gradual.	en had			
	_	bgs =	below grou	ind surface	,		, mmeulati	SIY TUIION	mig retrieval fr	om boring.			
L			parts per i							BORING # M	/W-25		
										1			

	PROJECT Orchard Whitney			HEET 1 OF	6A (Detween 1	MW-24, MW-25)	
	BORING LOCATION:	SEE PLAN		HKD. BY:	JM: N/A		
TRACTOR: Nothnagle Drilling	GROUND SURFACE	ELEVATIO	N:	TE· 7/19/11			
LER: Kevin PERSONNEL: ED	START DATE: 7/19/1	<u>'</u>		WATER L	VEL DATA		
PERSONNEL. 20		DATE	TIME	WATER	CASING	REMARKS	
E OF DRILL RIG: Bk81						+	
	6				+		
BRUBDEN SAMPLING METHOD. Autonuminer							
CK DRILLING METHOD: Rollerbit							PID
SAMPLE DATA		SA	MPLE	DESCRIP	TION		(ppm)
	7						(PP-17)
BLOW NO. DEPTH N-VALUE RECOVER							
(FT.) /RQD(%) (%)							
	1						
1	7						
	7						
2							
3							
4							
	_						
5	_						
6							
7							
8							
9							10-14
8%	@ 10'; stone,	concrete,	brick (b	ldg. demo fi	il); moist		
10 10							
30							
12							
13							14-17
14.0	@ 14'; as ab	ove					
14	%						
100	/						
16							1
17							
17.5							
18							
							1
19							
					0.45		
20	Spoon refus	al @ 17.5' (initially);	auger refusal	@ 17.5		
LEGEND	Cpcci						
S- SPLIT SPOON SOIL SAMPLE U- UNDISTURBED SOIL SAMPLE							
U- UNDISTURBED SOLE SAME LE							
		a coil tupes'	transitio	ns may be gr	adual.		
GENERAL NOTES: 1) Stratification Lines represent approxim	nate boundary between	n son types, hie sleeve. i	mmediat	ely following r	etrieval from	boring.	
on pin readings were taken directly on a	xposed soil in disposal			•		ORING # SB26A	
					18	UNING # SDLUA	
bgs = below ground surface ppm = parts per million							

	u	Enc	ginee	ers o	PROJECT chard Whitney			BORING SB2 SHEET 1 OF JOB #: 4216- CHKD. BY:	1			
ENV	<u>वहरू भ</u> ह	ENTRY . TE	ANEPORIANO	g • Civic	DRING LOCATION:	SEE PLAN		CHKU. BT.				
ACTOR: N	lothnag	gle Drilling		G	ROUND SURFACE	FI FVATIO	N:		UM: N/A			
R: Kevin				S	TART DATE: 7/19/1	1	END DA	TE: 7/19/11	EVEL DATA			
RSONNEL	: ED					DATE	TIME	WATER	CASING	REMARKS		
OF DRILL F	aG· Bk	81				DATE		WATER				
A ALTER AND	D = T V D I	=, 2" pvc/4	.25" HSA	1 1								
BURDEN S	AMPLI	NGMEIH	OD: Autonam	ner/continuous								
DRILLING	METH	OD: Roller	זומ									
	;	SAMPLE	DATA			SA	MPLE	DESCRIP	TION			PID (ppm)
BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)								
												
				+								
				+	1							
			+	1]							
			+]							
		1		-	4							
					4							
				+	4							
					-							
3		+			-							
	+			+		the entropy of the second second second		A			a demonstrate a reprint and a second second second	
7	+	+										
8	+	+						-				
°	+				-			Concr	ete			
9	+				-							10-14
				20%				CONTRACTORY AND CARD, MARINE	ana a d 191 ya ama 1940a i a faborhapita i		and they done over the set over the	
10 1	1			20%	medium brown	silt with n	nf grave	el; trace mf s	sand; moist	t		
11					-							
11 1		-+										
12	-+-	-+			_							
12												
13												14-17.
												14-17.
14		14	.0	25%								
85												
15	-+-							al wat long	e			
16	-+-				@ 16'; as ab	ove with o	cmt grav	vel, wet lens				
"												
17												
		17	7.4									
18												
<u> </u>												
19		+										
								7.5' (woro mo	king headw	ay but C of R war	nted to stop; likely a	2nd layer of
20		LEGEND			Spoon refusa	1 @ 17.4 au	iger to 1	1.5 (Wele ins		-		
1	5	SPLIT SPO	ON SOIL SAMP	LE	concrete							
	U-	UNDISTUR	BED SOIL SAM	PLE								
L	C-	ROCK COP	RE SAMPLE						adual			
GEN	IERAL I	NOTES: Stratificati	ion Lines repre	sent approximate	e boundary between sed soil in disposabl	soil types;	transitio	ns may be gra	etrieval from	boring.		
1	2)	PID readu	nas were takel	I directly on expo	e boundary between sed soil in disposabl	e sieeve, ir	nneulate	ory ronoming r				
	_/	bas = bel	ow ground sur	ace					В	ORING # SB26B		
1		ppm = pa	rts per million									

ONTR	ACTOR:	ironmenta I	PENFIELD	NFIELD ROAD), NEW YORK	14526	PROJECT Orchard-Whitney ERP 415 Orchard Street an 354 Whitney Street, R BORING LOCATION: GROUND SURFACE	d ochester, I SEE PLAN	8 1Y	BORING MW-11 SHEET 1 OF JOB #: CHKD. BY: N/A	1 4216 M: N/A		7
RILLE	R: OLOGIS		Robert LMS			START DATE: 9/26/0		END DA	TE: 9/26/	08		
								7045	WATER LEVE		REMARKS	
	OF DRILL G SIZE AI			Nobile Drill B- 1.25" HAS	59		DATE	TIME	WATER	CASING	REWARNS	
				OD: Split Spo	on							
OCK	DRILLING	S METH	IOD:	Tri-cone bit (ro	otary)							
D E P			SAMPLE	DATA			SA	MPLE	DESCRIPTIO	N		PID
тГ	BLOW	NO.	DEPTH	N-VALUE	RECOVERY]						
버	/6"		(FT.)	/RQD(%)	(%)	Concrete slab						
1			1-2		50%	Medium brown SIL	T. little cr	nf sand.	little c-f gravel.	trace clay, no	odor, moist at 2'	0
' -	2		1-2						0			
2	3		2-4			Medium brown SIL	T, some	cmf san	d, trace gravel,	moist, no odo	r	0
	1		11			4						
3	9	<u> </u>				4						
	10 30	<u> </u>	4-6		80%	Same as above-m	nist no o	dor				0
4	<u> </u>		4-0		00/0		olat, no u					
5	27		1		1	Medium brown to	grey SILT	, some	f gravel, firm, di	y, no odor		
Ē	47											
6	50		6-8		80%							
	50/3					-						
7	_					-						
8			8-10		80%	Same as above-w	vith more	c-f oraci	el, moist			
°	15	+	0-10					- <u>-</u>				
9	27	1				1						
	38											
10	49		10-10.5	<u> </u>	10%							
	14	+				Auger refusal at 1	10.5					
11	50/2	-										
12		+	-			-						
					-]						
13												
												
14				+								
15		+		+		-1						
[] ``		1	-									
16												
17	'		-+									
18	. 					-						
1 "	ʻ 			-		-1						
19	ə	1	-									
20	0								40.41		t andiment water bearing: 14 P	very fracultured we
			END IT SPOON S	OIL SAMPLE		Notes: 12'-very fract water bearing; no sig	ured, wet, w Inificant verti	ater bearı cal fractur	ng; 13.1'-water bean 'es	ing; 14.1°-fracture	i, sediment, water bearing; 14.8'-	very nacutiled, we
				SOIL SAMPLE								
			CK CORE SA									
	GENER	AL NOT	ES:							BE GRADUAL		
		1) STR		N LINES REPR	ESENT APPROXI	MATE BOUNDARY BET T TIMES AND UNDER C	ONDITIONS	STATED	, FLUCTUATIONS (OF GROUNDWAT	TER	
		MA'	Y OCCUR DU	JE TO OTHER	FACTORS THAN	THOSE PRESENT AT TH	E TIME ME	ASUREM	ENTS WERE MADE			
1										BORING	# MW-11	

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DRILI	Civil and E	wronment	S 2230 PE al PENFIEL Paragon Robert LMS	ENFIELD ROAD	14526	PROJECT Orchard-Whitney ERF 415 Orchard Street at 354 Whitney Street, F BORING LOCATION: GROUND SURFACE START DATE: 9/26/0	nd SEE PLAN ELEVATIO	<u>NY</u>				
TYPE	OF DRILL	RIG		Mobile Drill B	E0		DATE		WATER LEVEL	DATA		
CASI	NG SIZE A	ND TY	PE:	4.25" HAS			DATE	TIME	WATER	CASING	REMARKS	
OVEF	BURDEN	SAMPL		IOD: Split Spo	pon							
DE			SAMPLE	Tri-cone bit (r E DATA					L	L		1
P T	BLOW	NO.	DEPTH	N-VALUE	RECOVERY	-	SA	MPLE	DESCRIPTION			PID
н	/6"		(FT.)	/RQD(%)	(%)	Concrete slab						
1			1-2		50%	Medium brown SIL	T, little cm	nf sand.	little c-f gravel, tr	ace clay no	odor moist at 2'	
2	2											0.0
- ²			2-4			Medium brown SIL	T, some c	mfsan	d, trace gravel, m	oist, no odor		0.0
3	9											
4	10 30		4-6		0.000							
	6		4-0		80%	Same as above-mo	oist, no od	lor				0.0
5	27					Medium brown to g	rey SILT,	some f	gravel, firm, dry,	no odor		0.0
6	47 50		6-8		80%	4						0.0
	50/3				0078	-						
7												
8			8-10		80%	Samo as above wit		6	1			
	15				0070	Same as above-wi	in more c	or grace	i, moist			0.0
9	27 38											
10			10-10.5		10%	-						
	14				1070	Auger refusal at 10	.5'					-
11	50/2											
12						-						
]						
13						-						
14						-						
15						-						
16						-						
4-												
17					<u> </u>	4						
18						1						
]						
19					<u> </u>	-						
20						1						
	s.	LEGEN SPLIT	I <u>D</u> SPOON SOI			Notes: 12'-very fracture	d, wet, water	bearing;	13.1'-water bearing; 1	4.1'-fractured, se	ediment, water bearing; 14.8'- very fract	utured, wet,
			TURBED SO			water bearing; no signifi	cant vertical	Tractures				
	C- GENERAL		CORE SAM	PLE								
				INES REPRES	ENT APPROXIMA	TE BOUNDARY BETWEE	N SOIL TY	PES TRA		RADUA		
	2)	WATER	R LEVEL RE	ADINGS HAVE	BEEN MADE AT T	'IMES AND UNDER CON	DITIONS ST	ATED FI	LICTUATIONS OF GR	ROUNDWATER		
				TO OTHER FA(TORS THAN TH	OSE PRESENT AT THE T	IME MEASU	REMENT	S WERE MADE	BORING #	M/A/ 11	
										BORING #	IVIVV-11	

						PROJECT			BORING MW-12	_		
	LU ENG	INEER	S 2230 PI	ENFIELD ROAL)	Orchard-Whitney ER	P #E82812	3	SHEET 1 OF	1		
\mathbb{R}^{2}	Civil and E	nvironment	ai PENFIEL	LD, NEW YORK	14526	415 Orchard Street a	nd		JOB #:	4216		
						354 Whitney Street, F	Rochester,	NY	CHKD. BY: N/A	-7210		
	RACTOR	:	Paragon			BORING LOCATION	SEE PLA	4			Ē	
		· T .	Robert			GROUND SURFACE	ELEVATIO	DN: N/A	DATUM:	N/A		
LICE GE	OLOGIS	51:	RLF			START DATE: 9/26/	08	END D	ATE: 9/26/08	;		
TYPE	OF DRILI	PIC							WATER LEVEL	DATA		
CASIN	G SIZE A	ND TV		Mobile Drill B 4.25" HAS	-59		DATE	TIME	WATER	CASING	REMARKS	
OVER	BURDEN	SAMPI	LING METH	HOD: Split Spi	00		<u> </u>					
ROCK	DRILLIN	G MET	HOD:	Tri-cone bit (r	otarv)		<u> </u>			ļ		
D							L	L				
E			SAMPLE	E DATA								
PL							SA	MPLE	DESCRIPTION			
1 1	BLOW	NO.	DEPTH	N-VALUE	RECOVERY	1						PID
н	/6"		(FT.)	/RQD(%)	(%)							
1						Concrete						
1	3			L		Fill material						
1 -	20				50%	Medium brown SIL	T, some c	mf san	d, little c gravel, m	oist, no odo	r	
² -	27					Medium brown cm	f SAND ar	nd SILT	, little cmf gravel.	moist, no od	or	0.0
$ $	26											0.0
3	34				75%							
	45											
4	18					Same as above-we	et, no odoi	r				
	4					1						0.0
5	14					1						
	11	<u> </u>										
6	12					Same as above-we	et, no odoi	r				0.0
╎₋⊢	21				100%							0.0
7	2 37					4						
_H						_						
8	48				0%	No recovery						0.0
₉	50/3					1						0.0
°⊢	50/3											
10						Auger refusal at 9.3	3'					
"⊢						4						
11						4						
``F						4						
12						-						
						-						
13						-						
					<u> </u>	-						
14						-						
						-						
15			I			1						ļ
					<u> </u>	1						
16		<u> </u>	I			1						
						1						
17						1						
						1						
18						1						
						1						
19					l	1						
E						1						
20						1						
		LEGEN	D			Notes: Cored rock to 13	.8'		· · · · · · · · · · · · · · · · · · ·			
	S-	SPLIT	SPOON SOIL	L SAMPLE			201					
	U-	UNDIST	TURBED SO	IL SAMPLE								
			CORE SAMP	PLE								
G	ENERAL											
	1)	STRAT		INES REPRES		TE BOUNDARY BETWEE	EN SOIL TYP	PES, TRA	NSITIONS MAY BE GR	RADUAL.		
	2)	WATER	CLEVEL REA	ADINGS HAVE I	BEEN MADE AT T	IMES AND UNDER CONI	DITIONS ST.	ATED FL	LICTUATIONS OF CR	OUNDWATER		
			SOUR OUE	I U U I I ER FAL	TURS THAN THE	SE PRESENT AT THE T	IME MEASU	REMENT				
										BORING #	MW-12	

						PROJECT			BORING MW-13				
	LU ENG	INEER	S 2230 PE	ENFIELD ROAL)	Orchard-Whitney ER		3	SHEET 1 OF	1			
R)				.D, NEW YORK		415 Orchard Street a		•	JOB #:	4216			
001						354 Whitney Street, F	Rochester,	NY	CHKD. BY: N/A	-2			
DRILI	RACTOR		Robert			BORING LOCATION	SEE PLAN	4					- 0
	EOLOGIS	зт·	Robert LMS			GROUND SURFACE	ELEVATIO						
						START DATE: 9/29/		END D	ATE: 9/29/08 WATER LEVEL				
TYPE	OF DRIL	RIG:		Mobile Drill B	-59		DATE	TIME	WATER		REMARKS		
	NG SIZE A			4.25" HAS					TWATER.	CASING	REWARKS	·	<u> </u>
OVEF	BURDEN	SAMP	LING METH	IOD: Split Spi	oon								
D	DRILLIN	GMEI	HOD:	Tri-cone bit (r	otary)		L						
E			SAMPLE										
P			O/ WIT EL				64		DESCRIPTION				
т	BLOW	NO.	DEPTH	N-VALUE	RECOVERY	-	34		DESCRIPTION			PI	D
н	/6"		(FT.)	/RQD(%)	(%)								
	6					Fill- Brick, coal slag	, sand an	d grave	el	· · · · · ·			
1	13					Medium brown red	SILT, sor	nec-fg	ravel, little clay, tr	ace cmf san	d. moist		0,0 0.0
	15			_									0.1
2	23		0-2		60%	Same as above- w	ith more s	and an	d gravel, moist				0.0
3	<u>19</u> 18					4							0.1
3	17					4							
4	32		0-4		40%	Madium harris Of	T 1:40						
۲ 	13		0-4		40%	Medium brown SIL	I, little gra	avel, tra	ice clay, moist				0.0
5	50		4-5.5		50%	Modium brown Sil	T: +						
-		1			5070	Medium brown SIL Auger refusal at 5.	.i, uace g 5 fbore	ravel, ti	ynt, wet			ļ	0.0
6	14	<u> </u>				Same as above	Jings						
	28	10.00		2 I I I I I									
7	50		5.5-7.5	2012/01/01	50%	1							
						Medium brown SIL	T and cm	f SAND	trace gravel trac	re clav wot			
8	45								, nabe gravel, nat	o olay, wet			0.0
	50/2	ļ	7.5-8.7		20%	Top of rock							
9													0.0
						_							
10													
11			-			-							
						-							
12						4							
13						-							
						1							
- 14						1							
-						1							
15												l	
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16			 		ļ	4							
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18		+			<u> </u>	-							
10			<u> </u>		·	-							
19		†	+		+	-							
		<u> </u>	<u> </u>		<u> </u>	4							
20		<u> </u>	1			4						1	
		LEGE	VD			Notes:							
	S	SPLIT	SPOON SOI	L SAMPLE									
	U	UNDIS	TURBED SC	IL SAMPLE									
			CORE SAME	PLE									
	GENERAL												_
	1	WATE	R LEVEL RE	ADINGS HAVE		TE BOUNDARY BETWE	EN SOIL TY	PES, TRA	NSITIONS MAY BE G	RADUAL			
	-	MAY C	CCUR DUE	TO OTHER FAI	CTORS THAN TH	OSE PRESENT AT THE 1	INF MEAS	AIED, FL		OUNDWATER			
									O WEINE MAUE.	BORING #	MW/-13		
						·····				1901010#			

						PROJECT						
	LU ENG		2230 P	ENFIELD ROAL	0	PROJECT Orchard-Whitney ER		2	BORING MW-14			
P				LD, NEW YORK		415 Orchard Street a		3	SHEET 1 OF JOB #:	1		
						354 Whitney Street, F		NY	CHKD. BY: N/A	4216		
	TRACTOR	:	Paragon			BORING LOCATION			OTIND. DT. NA			
DRIL			Robert			GROUND SURFACE			DATUM	N/A		
JCL (SEOLOGIS	ST:	GLA			START DATE: 9/29/		END D				
TVD									WATER LEVEL			
				Mobile Drill B	-59		DATE	TIME	WATER	CASING	REMARKS	
OVER	NG SIZE A		E:	4.25" HAS HOD: Split Spo								
ROC	K DRILLIN	G METH		Tri-cone bit (r								
D			100.	TH-COME DR (I	otary)	T		L				
E			SAMPLI	Ε ΠΑΤΑ								
Р							CV		DESCRIPTION			
Т	BLOW	NO.	DEPTH	N-VALUE	RECOVERY	-	34		DESCRIPTION			PID
н	/6"		(FT.)	/RQD(%)	(%)							
						0-0.8'-Concrete sla	b					
1						Medium brown SIL		mfsan	and cmf gravol	moist no ed		1
	1						1, 00110 0	ann sann	and chirgraver,	moist, no ou	01	0.0
2	1					Medium brown SIL	T some c	mfara	al some conficen	d trans alou	maint we adam	
	2							inin grav	en some um san	u, liace clay	, moist, no odor	0.0
3	4					1						
	6											
4	14				75%	1						
	8					Medium brown SIL	T and cm	f SAND	some cmf aravol	trace day	maint no oden	
5	13							. 0/	, some cim graver	, liace clay,	moist, no odor	0.0
	6					1						
6	8				50%							
	7					Medium brown cm	f SAND ar	T IIS be	some cmf gravel	moist no e	des	
7	7			1.					, some cam graver	, moist, no c	dor	0.0
	5			L	40%							
8	7					1						
	4					Dark brown SILT. s	some c-m	sand li	ttle cmf.gravel litt	lofsand tra	ce clay, moist, no odor	
9	5							Sana, n	tue onn graver, nu	ie i sanu, lia	ce clay, moist, no odor	0.0
	6					1						
10	4				10%	Red/orange/brown	cmf GRA	VEL an	d SILT some cmf	sand moiet	, wet at 11.5' with petroleum	
	4					sheen and odor		VLC an	d OILT, Some Cim	sanu, muisi	, wet at 11.5 with petroleum	0.0
11	14		_									
	26					1						
12			C			Firm red SILT and	f SAND, I	ittle m-f	gravel little c-m s	and wet wit	h petroleum adar	
	36				Contract I				g	and, wet wit	n petroleum 000	0.0
13						Loose cmf GRAVE	L and SIL	T. come	e cmf sand satura	ated netrolou	im odor, slight sheen	
	50										in odor, signt sneen	
14						1						0.0
	50/.4]						
15						Same as above-sa	turated					
]						
16												
]						
17												
]						
18												
		<u> </u>]						
19		\vdash]						
]						
20							_					
		LEGEN				Notes: screen (14-4'?);	sand 14-3'; t	entonite 2	2-3'; grount/cement 0-2	1		
			POON SOI									
	U-	UNDIST	URBED SO	IL SAMPLE								
<u> </u>			ORE SAMP	PLE								
	GENERAL I		FIGATION									
I	1) 2\	WATEP					IN SOIL TYP	ES, TRA	NSITIONS MAY BE GR	RADUAL.		
	2)	MAY O		TO OTHER FAC	TORS THAN THE	IMES AND UNDER CON	JITIONS ST	ATED, FL	UCTUATIONS OF GR	OUNDWATER		
						ALTRESENTAL INE	INE NEASU	REMENT	S WERE MADE			
										BORING #	MVV-14	

DRILI	Civil and E	wironmen		ENFIELD ROAI		PROJECT Orchard-Whitney ER 415 Orchard Street a 354 Whitney Street, f BORING LOCATION GROUND SURFACE	P #E82812 nd Rochester, : SEE PLAN	NY N DN: N/A		1 4216 N/A		
TYPE	OF DRILL	. RIG:		Mobile Drill B	-59	START DATE:	DATE	END D	ATE: WATER LEVEL WATER			
OVEF	NG SIZE A BURDEN	SAMP	LING METH	4.25" HAS HOD: Split Sp	oon					CASING	REMARKS	
D E	CBRIECH		SAMPLE	Tri-cone bit (r	otary)		I					
Р Т Н	BLOW /6"	NO.	DEPTH	N-VALUE	RECOVERY	-	SA	MPLE	DESCRIPTION			PID
1	4		(FT.)	/RQD(%)	(%)	6" Asphalt and con	rete					0.0
	4					Brown reworked S	AND and S	SILT, lit	tle gravel (fill), mo	ist		0.0
2	6 4		0-2'	8	40%	-						0.0
3	4 5											
4	6		2-4'	9	50%							0.0
5	8 8											
6	10		4-6'	16	30%							0.0
7	15											0.0
8	18 14		6-8	33	20%	Brown CLAY and S	SILT, little	gravel (fill)			
9	<u>3</u> 9											0.0
10	8		8-10	17	30%	-						
11	2					Brown c-m SAND,	wet					0.0
12	1		10-12		4000							
	4		10-12	2	40%							0.0
13	30 50/4		12-13.4		60%	Same as above- f S	SAND, trad	ce silt ir	ock fragments			
14	17							<i>oo</i> on, 1	ook nagmenta			0.0
15	30 50/3		14-15.3			Samo os shave. C						
16						Same as above- G Augar refusal at 15	.5'	<u>, intie</u>	silt, trace rounded	i gravel (gla	cial till)	0.0
17												
18						-						
19						-						
20												
_		LEGENI SPLIT S		SAMPLE	·	Notes						
	U-	UNDIST	URBED SOI	L SAMPLE								
(GENERAL N	IOTES:				TE BOUNDARY BETWEE						
	_,					IMES AND UNDER COND SE PRESENT AT THE TI	NTIONIC CTA	TED DU	ICTUATIONS OF OR	ADUAL. DUNDWATER		
										BORING #	MW-15	

J	Civil and Er	vironment	al PENFIEL	ENFIELD ROAD D, NEW YORK		PROJECT Orchard-Whitney ERI 415 Orchard Street a 354 Whitney Street, F	P#E828123 nd Rochester, I	NY	BORING MW-16 SHEET 1 OF JOB #: CHKD. BY: N/A	2 4216		
DRILL	RACTOR: ER: EOLOGIS		Paragon Ribert	2 14.4		BORING LOCATION GROUND SURFACE	SEE PLAN	N: N/A	DATUM:			
1000			D. PECK ((uty)		START DATE: 9/30/	08	END D/	ATE: 9/30/08 WATER LEVEL I			
TYPE	OF DRILL	RIG:		Mobile Drill B-	59		DATE	TIME	WATER		REMARKS	
CASI	NG SIZE A	ND TY	PE: ·	4.25" HAS				-		U OAOINO	INC. MICHING	
OVER	BURDEN	SAMP	LING METH	OD: Split Spo	on							
D	DRILLIN	JMEI	HOD: Tri-co	one bit (rotary)		· · · · · · · · · · · · · · · · · · ·						
E			SAMPLE	DATA			54		DESCRIPTION			
Т Н	BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)		34		DESCRIPTION			PID
	_									·		
1												
	1			1								
2			0-2		5%							
3	3					Brown silty CLAY a	and GRAV	'EL, dai	mp (fill)			0.0
	6					-						
4	9		2-4	7	209/	-						
	10		2-4		20%	-						0.0
5	12					-						
	9					4						
6	7		4-6	21	10%	4						
	3					1						0.0
7	4					1						
	3			mine in r		1						
8	2		6-8	7	30%]						
	4					c-m SAND, trace g	ravel, little	e clay, v	vet			0.0
9	10 50					4						0.0
10			0.10		100/							
10	36	<u> </u>	8-10	60	40%	Same as above- g	rades to f	SAND				0.0
11	50		I			-						
	50/3		10-11.3		40%	Grey f SAND, little	rounded (aravel (alacial till)			
12				C			iounaca (graver (gracial (iii)			0.0
	36					1						
13		11]						
	50/4	<u> </u>	12-13.4		50%	Same as above- G	irey SILT,	damp				0.0
14	32					4						
15	50.10		14 14 9		409/	-						
	00/0	<u> </u>	14-14.8		40%	4						0.0
16					<u> </u>	1						l
	36					1						
17	50/3		16-16.8		40%	Same as above- tr	ace grave	l, damo				
								· · · F				0.0
18		<u> </u>				4						
	36	<u> </u>	18-19.4			4						0.0
19	50 50/4				<u> </u>	4						
20		 	┼───┤		<u> </u>	4						
		LÉGEN	L		I	Notes:						
1	S-		SPOON SOIL	. SAMPLE								
			TURBED SO									
	C-	ROCK	CORE SAMP	LE								
	GENERAL											
ł	1)	STRAT		INES REPRES		TE BOUNDARY BETWE	EN SOIL TYP	PES, TRA	NSITIONS MAY BE G	RADUAL.		
	۷)	MAYO	CCUR DUF	TO OTHER FAI	TORS THAN THE	TIMES AND UNDER CON	UITIONS ST	ATED, FL	UCTUATIONS OF GR	OUNDWATER		
							WEASU		S WERE MADE.	BORING #	MW-16	
										DOMING#	WWW-10	

		Mronmen		ENFIELD ROAD .D, NEW YORK		PROJECT Orchard-Whitney ER 415 Orchard Street a 354 Whitney Street, F BORING LOCATION	P #E82812 nd Rochester,	NY	BORING MW-16 SHEET 2 OF JOB #: CHKD. BY: N/A	2 4216		
DRILI			Robert D. PECK (City)		GROUND SURFACE	ELEVATIO	N DN: N/A END D/				
TVDE	OF DRILL								WATER LEVEL		<u></u>	
	NG SIZE A		PE:	Mobile Drill B- 4.25" HAS	-59		DATE	TIME	WATER	CASING	REMARKS	
OVEF	BURDEN	SAMP	LING METH	HOD: Split Spo	oon							
D	DRILLIN	<u>G MET</u>	HOD:	Tri-cone bit (r	otary)							
E			SAMPLE	E DATA			54		DESCRIPTION			
T H	BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)		04		DESCRIPTION			PID
	50/4		20-20.4		40%							
21												0.0
22						-						
	18					SAND and GRAVE	EL. little cla	av. wet				
23	50/4		22-22.9		30%			.,,				0.0
24												
25	50/4		24-24.4		30%	Augar Refusal at 2	4.9'					
26												9
27						-						
28						-						
29						-						
30						-						
31						-						
32												
33												
34						-						
						-						
35						4						
36			 			1						
37			<u> </u>			-						
38						-						
39		<u> </u>				-						
40						1						
		LEGEN		I	<u>I. </u>	Notes:						
			SPOON SOI									
 		ROCK	CORE SAM									
				LINES REPRES	ENT APPROXIMA	TE BOUNDARY BETWE		PES TOA				
	2)	WATE	R LEVEL RE	ADINGS HAVE	BEEN MADE AT 1	TIMES AND UNDER CON	DITIONS ST	ATED FI	UCTUATIONS OF GR	OUNDWATER		
L										BORING #	MW-16	

	Civil and En	wronment		ENFIELD ROAD .D, NEW YORK		PROJECT Orchard-Whitney ERI 415 Orchard Street at 354 Whitney Street, F BORING LOCATION	P #E82812: nd Rochester, I	NY	BORING MW-17 SHEET 1 OF JOB #: CHKD. BY: N/A	1 4216		
DRILL JCL G	LER: GEOLOGIS		Robert D. PECK (City)		GROUND SURFACE START DATE:	ELEVATIO	DN: N/A	ATE:			
TYPE	OF DRILL	PIG		Mahila Drill B	50				WATER LEVEL			
CASI	NG SIZE A	ND TY	PE:	Mobile Drill B- 4.25" HAS			DATE	TIME	WATER	CASING	REMARKS	
OVEF	RBURDEN	SAMP	LING METH	HOD: Split Spo	oon					<u> </u>		
ROCI D		<u>3 METI</u>	HOD:	Tri-cone bit (r	otary)	· · · · · · · · · · · · · · · · · · ·						
E P			SAMPLE	E DATA			SA		DESCRIPTION			
Т Н	BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)		_					PID
			l			Excavated to allow	well insta	llation t	hrough slab, simil	ar soil to MV	V-16	
'	4	 	├─── ┦		<u> </u>	4					;	
2		<u> </u>				4						
					1	1						
3						1						
]						
4					150/							
5	4		┠────┦	 	15%	Red-brown cmf GF	RAVEL and	d SILT,	little cmf sand, litt	le clay, mois	it, no odor	
	6	l	!			4						
6	7	i	├ ───┦			4						
	8				t	similar soil to 7'						
7	12											
	14					Brown-grey cmf GI	RAVEL (a	obble) u	underlain by lense	of m sand, (orange-brown, moist, no odor	
8												
9	9 4		┢────┤			Brown loose SILT	and cmf G	RAVEL	., little cmf sand, li	ttle clay, wef	t/saturated, no odor	
3	4		{	 		4						
10			┣		<u> </u>	-						
	50		<u>├</u>			Same as above						
11	50/4											
12			ļ									
13	14 37		 									
13	50		Į			Grey f SAND, little	silt, trace	rounde	d gravel, no odor,	damp		
14			╂∤	87	 							
	13	 	<u>†</u> −−−−†		+	-						
15	00				1	-						
	50				1	1						
16	50/2			78		Same as above						
47		<u> </u>	 			Augar refusal at 16	3'					1
17			╉────┥		<u> </u>	4						
18			┢────┤		+	-						
			╂┥		╋━━━━	-						
19			†		+	-						
					<u>+</u>	1						
20												
		LEGEN				Notes: screen 6-16'; san	1d 4-16-'; ber	itonite 2-4	i'; grout/cement 0-2';			L
			SPOON SOI									
			TURBED SO CORE SAMP									
	GENERAL			1 <u>E</u>								
	1)	STRAT	FIFICATION L	LINES REPRES	ENT APPROXIMA	TE BOUNDARY BETWEE	EN SOIL TYI	PES. TRA	NSITIONS MAY BE GI			
	2)	WATER	R LEVEL RE/	ADINGS HAVE	BEEN MADE AT T	TIMES AND UNDER CON	DITIONS ST	ATED EL	UCTUATIONS OF GR	OUNDWATER		
		MAYO	CCUR DUE	TO OTHER FAC	CTORS THAN THE	OSE PRESENT AT THE T	IME MEASU	REMENT	S WERE MADE.			
										BORING #	MW-17	

Л	LU ENG	INEERS	2230 PE	NFIELD ROAD) 14526	PROJECT Orchard-Whitney ER 415 Orchard Street a	P #E82812	3	BORING MW-18 SHEET 1 OF JOB #:	1		· · · · · · · · · · · · · · · · · · ·	
						354 Whitney Street, F	Rochester,	NY	CHKD. BY: N/A	4216			
DRILL	RACTOR		Paragon Robert			BORING LOCATION GROUND SURFACE	SEE PLAI	N					
	EOLOGIS		D. PECK (C	City)		START DATE: 10/1/	08	END D/					
TYPE	OF DRILL	PIC:		Mahila Daili D					WATER LEVEL	DATA			
CASII	NG SIZE A	ND TYP	PE: 4	Mobile Drill B- 4.25" HAS			DATE	TIME	WATER	CASING	REMARKS		
OVER	BURDEN	SAMPL	ING METH	IOD: Split Spo									
D	DRILLIN	GWETF	100:	Tri-cone bit (r	otary)	1		L					
E P			SAMPLE				SA	MPLE	DESCRIPTION				PID
Т Н	BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY]							FIU
				71(20(76)	(%)	No recovery							
1	1]							
2	13		0.5.0	0		4							
	4		0.5-2	2	0%	-							
3	8					Brown re-worked s	ilty SAND	and G	RAVEL little clav	(fill)			
	10								o to LE, note day	(111)			0.0
4	<u>10</u> 8	├ ──┤	2-4'	18	30%	G							0.0
5	13	┝╌╌┤				-							
	12					-							
6	6		4-6'	25	50%	1							0.0
7	13 2					-							0.0
	1					-							
8	1		6-8	3	40%	Yellow-brown CLA	Y, little sa	nd (fill)	wet				
	1	-]		. ,					0.0
9	1	-			<u> </u>	4							
10	14		8-10	2	30%	Red-brown SAND,	little grav	el and c	lav				
	18]		or and c	i a y				0.0
11	40 17					-							
12	50/2		10-11.7	57	30%	Grey SAND, trace	silt and or	aval					
			1			Augar Refusal at 1	1.2'	avei					0.0
13			_										
14						4							
						4							
15						1							
16		┝──┥				4							
					<u> </u>	-							
17						1							
		$\left - \right $]							
18		╞──┤				4							
19						-							
]							
20		LEGEN				Notors oper 44 0 40 m							
	S-		D SPOON SOIL	. SAMPLE		Notes: core 11.2-16.2'; s	screen 6-16';	sand 4-1	5-'; bentonite 2-4'; grou	t/cement 0-2';lo	st 400 gallon water		
			URBED SO										
	C- GENERAL		CORE SAMP	'LE		<u> </u>							
	1)	STRATI	IFICATION L	INES REPRES	ENT APPROXIMA	TE BOUNDARY BETWE	EN SOIL TYP	ES. TRA					
	2)	WATER	LEVEL REA	ADINGS HAVE	BEEN MADE AT T	TIMES AND UNDER CON	DITIONS ST	ATED FL	UCTUATIONS OF GR	OUNDWATER			
					JIOKS THAN TH	OSE PRESENT AT THE T	IME MEASU	IREMENT	S WERE MADE.	BORING #	M/0/-19		
	-									LOCINIO #	14144-10		

						PROJECT			BORING MW-19			
	LU ENG	INEER	S 2230 PE	ENFIELD ROAD	•	Orchard-Whitney ERF	P #E82812	3	SHEET 1 OF	1		
	Civil and Er	wironment	al PENFIEL	D, NEW YORK	14526	415 Orchard Street a	nd		JOB #:	4216		
CONT	RACTOR		Paragon			354 Whitney Street, F BORING LOCATION:	Rochester,	NY	CHKD. BY: N/A			
DRILL	.ER:		Robert			GROUND SURFACE	ELEVATIO	N: N/A	DATUM	N/A		
JCL G	EOLOGIS	T:	D. PECK (City)		START DATE: 10/1/0	08	END D				
TYPE	OF DRILL	RIG [.]		Mobile Drill B-	50		DATE		WATER LEVEL			
CASI	NG SIZE A	ND TY	PE:	4.25" HAS			DATE	TIME	WATER	CASING	REMARKS	
OVER	BURDEN	SAMP	LING METH	OD: Split Spo	oon							
D		<u>G MET</u>	HOD:	Tri-cone bit (r	otary)							
E			SAMPLE	E DATA								
Р							SA	MPLE	DESCRIPTION			
Т Н	BLOW	NO.	DEPTH	N-VALUE	RECOVERY							PID
<u> -"-</u>	/6"		(FT.)	/RQD(%)	(%)							
1						-						
	8				<u> </u>	SAND, SILT, and C	GRAVEL (fill)				
2	8		1-2		5%]		,				0.0
	7]						
3	2					4						
4	1	<u> </u>	2-4	3	40%	Provin CILT 1941a -						
	3		~~~		4070	Brown SILT, little s	ano, trace	e gravei	and clay (fill)			0.0
5	4					Same as above- lit	tle clav					
	4]	,					0.0
6	43		4-6	8								
7	2											
'	2					Light brown m SAN	ND, damp					0.0
8	2		6-8	4		-						
	12					1						
9	37]						
	50/4		8-9.4		10%	Brown f SAND, littl	e silt, trac	e grave	l, damp			0.0
10	24					-						
11	50/2		10-10.7			-						
					1	-						
12		-			10%	Grey-brown f SAN	D and SIL	T, trace	gravel (till)			
		——				Augar Refusal at 9	.5'					- 0.0
13						-						
14						4						
						4						
15]						
			L									
16			<u>├</u>			-						
17						4						
						1						
18]						
		<u> </u>										
19			<u> </u>			4						
20				<u> </u>	<u> </u>	4						
<u> </u>	· · · · · · · · · · · · · · · · · · ·	LEGEN	ID	L	1	Notes: Rollerbout to 15';	screen 5-15	' sand 4-	15" bentopite 2-4" area	ut/compet 0. 21-1		1
	S-	SPLIT	SPOON SOIL	L SAMPLE				, sand 4-	, somerine 2-4, gro	avcement 0-2"; (Juo galions water used	
			TURBED SO									
	C- GENERAL		CORE SAME	2LE								
				INES REPRES	ENT APPROXIMA	TE BOUNDARY BETWEE	EN SOIL TY	PES TRA		PADUA		
	2)	WATE	REVEL RE/	ADINGS HAVE I	BEEN MADE AT T	IMES AND UNDER CON	DITIONS ST	ATED FI	LICTUATIONS OF GR	OUNDWATER		
		MAY O	CCUR DUE	TO OTHER FAC	CTORS THAN THE	DSE PRESENT AT THE T	IME MEASL	REMENT	IS WERE MADE.			
										BORING #	MW-19	

Ŋ	Civil and E	wronment	al PENFIEL	ENFIELD ROAD D, NEW YORK		PROJECT Orchard-Whitney ERI 415 Orchard Street at 354 Whitney Street, F	P#E82812 nd Rochester,	NY	BORING MW-20 SHEET 1 OF JOB #: CHKD. BY: N/A	1 4216		
CON1 DRILL	RACTOR		Paragon Robert			BORING LOCATION	SEE PLAN	V				
	EOLOGIS		D. PECK (City)		GROUND SURFACE START DATE: 10/2/		DN: N/A END D/				
TYPE	OF DRILL	RIG		Mobile Drill R	En				WATER LEVEL	DATA		
CASII	NG SIZE A	ND TY	PE:	Mobile Drill B- 4.25" HAS			DATE	TIME	WATER	CASING	REMARKS	
OVER	BURDEN	SAMPI	LING METH	IOD: Split Spo	non							
D	C DRILLIN	GMEII	HOD:	Tri-cone bit (re	otary)	T						
E P			SAMPLE	DATA			SA	MPLE	DESCRIPTION			DID
Т Н	BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY	1	-		Bessie i.e.			PID
	20				(%)	SAND, SILT, and C	RAVEL (fill\				
1	21		-]		,				
2	18 2			20	500/]						
- ⁻	3		0-2	39	50%	4						0.0
3	2					Brown f SAND, dai	mp					
	18]						1
4	<u>6</u> 4		2-4	18	40%							0.0
5	4											210
	4					Brown CLAY and (SRAVEL,	damp/w	et, slight petroleu	m odor		
6	4		4-6	16		1						4.7
7	2 52											· · · · ·
1	2					4						
8	17		6-8	7	60%	Same as above- w	et, petrole	eum odo	or			101.0
	23	ļ]						101.0
9	<u>34</u> 37	┣┈╼╸				4						
10	27		8-10			Grey vf SAND, we	F					
	34					1	•					0.4
11	<u> </u>	<u> </u>				4						
12	50/.2		12-Oct			-						
		-				Augar Refusal			2			
13												
14						4						
			<u>├</u> ───┤		<u> </u> -	4						
15						-						
16		 	F4]						
16			┼───┥			-						
17						4						
						1						
18		_]						
19					<u> </u>	4						
						4						1
20												
1	S.	SPLIT	<u>ID</u> SPOON SOIL	CAMPLE		Notes: 275-gallon water	used; well	17-5'				
			TURBED SO									
L	C-	ROCK	CORE SAMP									
	GENERAL											
	2)	WATE	R LEVEL REA	ADINGS HAVE	BEEN MADE AT 1	TE BOUNDARY BETWE	DITIONS ST	ATED F	LICTUATIONS OF GR			
		MAY O	CCUR DUE	TO OTHER FAC	TORS THAN THE	OSE PRESENT AT THE T	IME MEASL	REMENT	S WERE MADE.			
L										BORING #	MW-20	

		nvironment		ENFIELD ROAD .D, NEW YORK		PROJECT Orchard-Whitney ERI 415 Orchard Street at 354 Whitney Street, F BORING LOCATION	9 #E828123 nd Rochester, I	NY	BORING MW-21 SHEET 1 OF JOB #: CHKD. BY: N/A	1 4216		
DRILL	ER:		Robert			GROUND SURFACE	ELEVATIO	N N: N/A	DATUM	N/A		
JCL G	EOLOGIS	ST:	D. PECK (City)		START DATE: 10/3/	08	END D	ATE: 10/3/08	\$		
TYPE	OF DRIL	RIG:		Mobile Drill B-	-59		DATE	TIME	WATER LEVEL	DATA CASING	REMARKS	
OVEF	NG SIZE A	ND TY	PE:	4.25" HAS IOD: Split Spo								
ROCI		G MET	HOD:	Tri-cone bit (ro						 		
D E P			SAMPLE	E DATA			CA			L	L	
] т [BLOW	NO.	DEPTH	N-VALUE	RECOVERY	4	24	MPLE	DESCRIPTION			PID
н	/6"		(FT.)	/RQD(%)	(%)							
1						No Samples 0-4'						
						1						
2]						
3						4						
						4						
4						Brown SILT, little c	lay and gr	avel, da	amp			0.0
5	1											
Ĭ	1					-						
6	1		4-6	2								
	2											
7	3					Como os abava u	-1					
8	2		6-8	8		Same as above- w	et, saturai	led				0.0
	4					Same as above- pe	etroleum c	odor				
9	2				Į	4						
10	10		8-10	5		Same as above						
	43					Game as asses						
11	50/4											
12			10-10.9			Grey f SAND and S	SILT, trace	e round	ed GRAVEL, dam	р		0.0
	30					-						
13	35											
14	50/3	┼──	12-13.3				11 T A grou					
						Same as above- S	LI, t grav	/ei				
15												
16					 	4						
					<u> </u>	-						
17												
18		ļ]						
		+			<u> </u>	-						
19					<u> </u>	-						
20		LEGEN		<u>.</u>								
	S		SPOON SOIL	L SAMPLE								
			TURBED SO									
	GENERAL		CORE SAME	<u>1E</u>								
	1)) STRAT	IFICATION L	INES REPRES	ENT APPROXIMA	TE BOUNDARY BETWEE	EN SOIL TYP	PES, TRA	NSITIONS MAY BE G	RADUAL.		
	2) watei	R LEVEL RE/	ADINGS HAVE E	BEEN MADE AT 1	TIMES AND UNDER CON OSE PRESENT AT THE T	DITIONS ST	ATED. FI	UCTUATIONS OF GR	OUNDWATER		
							IME MEASU	IREMENT	S WERE MADE.	BORING #	MW-21	

					·	PROJECT						
	LU ENG	INEERS	2230 PE	ENFIELD ROAD		Orchard-Whitney ERI	P #E82812	3	BORING MW-22 SHEET 1 OF	1		
1 Y Y	Civil and E	nvironmenta	PENFIEL	D, NEW YORK	14526	415 Orchard Street a	nd	0	JOB #:	4216		
CONT	RACTOR					354 Whitney Street, F	Rochester,	NY	CHKD. BY: N/A			
DRILL			Paragon Robert			BORING LOCATION	SEE PLA	1				
	EOLOGIS		D. PECK (Citv)		GROUND SURFACE START DATE: 10/60						
					<u> </u>	STARTDATE. 10/60		END D	ATE: 10/6/08 WATER LEVEL			
TYPE	OF DRILL	L RIG:		Mobile Drill B-	59		DATE	TIME	WATER	CASING	REMARKS	
CASIN			PE:	4.25" HAS								
ROCK		G METH		IOD: Split Spo Tri-cone bit (ro	ion							
D		O MET	100.	THEONE DR (10	Jary	T	L					
E			SAMPLE	E DATA								
P							SA	MPLE	DESCRIPTION			
T	BLOW	NO.	DEPTH	N-VALUE	RECOVERY							PID
н	/6"	-	(FT.)	/RQD(%)	(%)							
	7	-				Asphalt and stone						
1 1	2					No recovery						
2	3		0-2	9	0%	Brown m f SAND	danan					
	3				070	Brown m-f SAND, (uamp					0.0
3	3					4						
[2					1						
4	2		2-4	5	70%	Same as above-f S	SAND. little	e silt. da	amp. wet			
	7]						0.0
5	10											
	10											
6	15		4-6	20	60%	Same as above- 3	" gravel se	am at 7	7'			0.0
7	<u>15</u> 12											0.0
1 1	10					4						
8	14	<u>├</u> ─-	6-8	24	50%							
	11			27	0	Brown f SAND and	ISILI, litti	e round	led gravel, damp			0.0
9	50/4					4						
						4						
10			8-8.4		30%	Grey SILT, trace s	and and re	ounded	gravel, damp			
	15								Second entrifs			0.0
11	15					Auger refusal at 11	l'					-
12	50/4		10 11 1		0.001	4						
1 12	_		10-11.4		60%	4						
13						4						
						4						
14						4						
						1						
15						1						
]						
16		\vdash										
		┟──┤				4						
17						4						
18		┢╴╾┥				4						
		┢╾─┥			<u> </u>	4						
19	···	†			<u> </u>	-						
						1						
20						1						
		LEGEN				Notes: core 11-16'; scre	en 4-16'; sa	nd 3-16'. I	pentonite 2-3': arout/ce	ment 0-2" used	200-gallons water	
			POON SOIL								Foo Banono Marci	
1				IL SAMPLE								
 	C- GENERAL		CORE SAME	PLE	· · · · · · · · · · · ·	<u> </u>						
				INES REPRES		TE BOUNDARY BETWEE						
	2)	VVAIER	LEVEL RE/	ADINGS HAVE [BEEN MADE AT T	TIMES AND UNDER CON	DITIONS ST	ATED FI	UCTUATIONS OF GR			i
1		MAY O	COUR DUE	TO OTHER FAC	TORS THAN THE	OSE PRESENT AT THE T	IME MEASL	REMENT	S WERE MADE	CONDWATER		
L									%	BORING #	MW-22	

Orchard Whitney Soil Boring Depths

Analytical Information

Boring MW-11 MW-12 MW-13 MW-14 MW-15 MW-15 MW-16 MW-17 MW-18 MW-17 MW-18 MW-19 MW-20 MW-21 MW-20 MW-21 MW-22 TB-01 TB-01 TB-02 TB-03 TB-04 TB-05 TB-06 TB-06	Depth to Bedrock 10.5 ft 9.3 ft 8.7 ft 15 ft 15.5 ft 24.9 ft 16 ft 11.2 ft 9.5 ft 12 ft 13.3 ft 11 ft 7 ft 10.6 ft 19.2 ft 10.7 ft 13.4 ft 11 ft	Highest P.I.D. 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 7.7 0.2 0 0 0 0 0 0 0	Total SVOCs detected	Total Metals Detected
ТВ-07	13.4 ft 11 ft	0 0	2,400 ppb	
TB-19 TB-20	18 ft 14.5 ft	1.3 0		584 ppm- Chromium

						PROJECT			BORING TB-01					
				ENFIELD ROAL		Orchard-Whitney ER	P #E82812	3	SHEET 1 OF	1				
	Civil and Er	vironment	at PENFIEL	.D, NEW YORK	(14526	415 Orchard Street a	nd	ND7	JOB #:	4216				
CON	TRACTOR		Paragon		· · · · · · · · · · · · · · · · · · ·	354 Whitney Street, F BORING LOCATION	SEE PLAT	NY	CHKD. BY: N/A			9 M		
DRIL			Robert			GROUND SURFACE	ELEVATIO	DN: N/A	DATUM	: N/A				
JCL (GEOLOGIS	II:	D. PECK (City)		START DATE: 9/23/	08	END D	ATE: 9/23/08	3				
TYPE	OF DRILL	RIG:		Mobil Dill B-5	9		DATE	TIME	WATER LEVEL WATER					
CASI	NG SIZE A	ND TY	PE:	4.25" HAS			DAIL		WATER	CASING	REMARKS			
OVE	RBURDEN	SAMPL	ING METH	IOD: Split Sp	oon									
D	DIVICENT	J WETT	100.	Tri-cone bit (r	rotary)	T	I	L						
E			SAMPLE	E DATA			64		DESCRIPTION					
Т	BLOW	NO.	DEPTH	N-VALUE	RECOVERY	1	SAMPLE DESCRIPTION							
н	/6"		(FT.)	/RQD(%)	(%)									
1						-								
						4								
2						-								
						1								
3]								
	<u> </u>													
4	<u>3</u> 6				20%	Light brown SILT a	and f SAN	D, some	e m-f gravel, little	c-m sand, tra	ace clay, moist, no odor	ND		
5						4								
ľ	8				+	4								
6						-								
	15				75%	Grey SILT and roc	k fragmen	its, andi	ular, satruated no	odor				
7	12					Auger refusal at 7'		in an an an		0001		7.7		
]								
8						4								
9						-								
						-								
10						1								
]								
11														
12						4								
1 12						-								
13						-								
						1								
14														
4.0						4								
15						4								
16					+	4								
					<u> </u>	1								
17]								
	L													
18		<u> </u>		<u> </u>		4								
19					+	4								
				<u> </u>		-								
20					<u> </u>	1								
		LEGEN				Notes: 1)Refusal at 4.4	- moved bac	k slightiy	and re-drilled; 2)Refus	al at 3.5'- steel r	plate. Move south 3' and re-drilled.			
			SPOON SOI											
			FURBED SO											
	GENERAL		CORE SAME	-LC		L								
	1)	STRAT	FICATION L	INES REPRES	ENT APPROXIMA	TE BOUNDARY BETWE	EN SOIL TY	PES, TRA	NSITIONS MAY BE G	RADUAL				
	2)	WAIEF	LEVEL RE	ADINGS HAVE	BEEN MADE AT T	IMES AND UNDER CON	DITIONS ST	ATED FI	UCTUATIONS OF GR	OUNDWATER				
		WAYU	COUR DUE	10 UTHER FAI	CTORS THAN THE	OSE PRESENT AT THE T	IME MEASL	REMENT	S WERE MADE	DODUUS				
										BORING #	TB-01			

	TRACTOR	tvironment		ENFIELD ROAL .D, NEW YORK		Orchard-Whitney ER 415 Orchard Street a 354 Whitney Street, F	PROJECT BORING TB-02/MW-08 Orchard-Whitney ERP #E828123 SHEET 1 OF 1 415 Orchard Street and JOB #: 4216 354 Whitney Street, Rochester, NY CHKD. BY: N/A BORING LOCATION: SEE PLAN CHKD. BY: N/A							
	LER: GEOLOGIS	т.				GROUND SURFACE	ROUND SURFACE ELEVATION: N/A DATUM: N/A							
						START DATE: 9/23/	08	END D/	VATE: 9/23/08					
TYP	E OF DRILL	RIG:		Mobil Dill B-5	9		DATE	TIME	WATER		REMARKS			
OVE	ING SIZE A	ND TY SAMDI	PE:	4.25" HAS HOD: Split Sp										
ROC	K DRILLIN	G METI		Tri-cone bit (r	otarv)									
D E	Ť.		SAMPLE				4	L		1				
P T	BLOW	NO.	DEPTH	N-VALUE	RECOVERY	-	SA	MPLE	DESCRIPTION			PID		
н	/6" 		(FT.)	/RQD(%)	(%)									
1	7				100%	Dark brown SILT a	nd f SANE	D, some	c-m sand, little m	n-f gravel, m	pist, no odor	ND		
'	9					-								
2	4				<u> </u>	-								
	4					Medium brown SIL	T and f S/	AND, so	me c-m sand lift	e cmf aravel	, trace clay, moist, no odor			
3]				e onn graver	, trace clay, moist, no boot	0.2		
Ι.	4													
"	4													
5						Same as above						0.1		
	8					1								
6						1					_			
	8													
7					01 1 M 1 N	Same as above- st	tiff, no odo	r				0.0		
8	8													
	1						for the							
9					<u> </u>	IDIOWN SILT and m	-T SAND, I	little cm	t gravel, little c sa	nd, little clay	, moist/wet, no odor	0.1		
	3					1								
10						1								
	2					Red brown m-f SAND and SILT, some c sand, trace cmf gravel, saturated, compact, no odor								
11	1					-						0.0		
12	· · · · · · · · · · · · · · · · · · ·			_										
	1					Red brown cmf SA	ND and S	II T sou	me cmf gravel sa	turated loss	o no odor			
13									ne cini graver, sa	iurateu, 1005	e, no odor	0.0		
	5]								
14	4				<u> </u>									
15						IMedium brown cm	f SAND ar	nd SILT	, some cmf grave	l, trace clay,	stiff, drier with saturated zones,	0.1		
	11					no odor								
16						1								
	13				50%]								
17	50					Same as above-loo	ose, wet/s	aturated	l, no odor					
18				<u> </u>		-								
"						-						ĺ		
19						1								
						1								
20	L													
	5-	LEGEN SPLIT	<u>D</u> SPOON SOII	SAMPLE		Notes: Setting well in ov	verurden with	12' scree	en; btwn 18-6'; sand 6-	4.5'; grout/ceme	nt			
			FURBED SO											
	C- ROCK CORE SAMPLE													
	GENERAL NOTES:													
	1) 21	WATER		INES REPRES	ENT APPROXIMA	TE BOUNDARY BETWEE IMES AND UNDER CON	EN SOIL TYP	ES, TRA	NSITIONS MAY BE GI	RADUAL.				
		MAY O	CCUR DUE	TO OTHER FAC	CTORS THAN THE	DSE PRESENT AT THE T	IME MEASU	REMENT	UCTUATIONS OF GR	OUNDWATER				
L										BORING #	TB-02/MW-08			

						PROJECT			DODING TO SS					
	LU ENG	INEERS	S 2230 PE	ENFIELD ROAD)	Orchard-Whitney ER		3	BORING TB-03 SHEET 1 OF	4				
IV Y				D, NEW YORK		415 Orchard Street a		5	JOB #:	1 4216				
	-					354 Whitney Street, F		NY	CHKD. BY: N/A	4210				
	RACTOR	:	Paragon			BORING LOCATION	SEE PLAN	N				1 - 1 - 1 - 3		
DRILI			Rpbert			GROUND SURFACE	ROUND SURFACE ELEVATION: N/A DATUM: N/A							
JCL 0	SEOLOGIS	ST:	D. PECK (City)		START DATE: 9/24/		END D						
TVDE		DIO.							WATER LEVEL	DATA	·····			
	OF DRILI			Mobile Dill B-	59		DATE TIME WATER CASING REMARKS							
				4.25" HAS IOD: Split Spo										
ROCI		GMETH		Tri-cone bit (n	otanı)									
D			100.	THEORE DR (I	otary)									
E			SAMPLE	DATA										
P							SAMPLE DESCRIPTION							
. T	BLOW	NO.	DEPTH	N-VALUE	RECOVERY	1								
Н	/6"		(FT.)	/RQD(%)	(%)									
	6				1	Brown SILT, trace	own SILT, trace gravel and roots (fill)							
1	8					Light brown f SAN) (fill), drv		()					
	8						- (), ur j					0.0		
2	10		0-2	16	50%	1								
	5					1								
3	5					4								
	6					1								
4	5		2-4	11	0%	No recovery								
	2													
5	3					4								
	3					1								
6	2		4-6	6	0%	No recovery								
	5													
7	5					-								
	9					-								
8	14		6-8	14	30%	Brown f SAND, littl	o cilt troo							
	6						e siit, ifac	e clay, v	wei			0.0		
9	32					-								
	21				<u> </u>	4								
10			8-10	53	40%	Brown f SAND, littl			wet					
	46		10-10.6		50%	Auger refusal at 10	e Gay and	graver	, wei			0.0		
11	50/1													
						-								
12	- n -					-								
						-								
13						-								
						-								
14						-								
						-								
15					1	1						1		
					1	4								
16						1								
					1	-								
17						1								
					İ	1								
18						1						1		
					<u> </u>	1								
19					<u> </u>	1								
					t	4								
20				<u> </u>	<u> </u>	1						ļ		
		LEGEN	D		·	Notes:								
	S-	SPLIT S	- SPOON SOIL	SAMPLE										
	U	UNDIST	TURBED SO	IL SAMPLE								I		
			CORE SAMP											
	GENERAL					-								
	1]	STRAT	IFICATION L	INES REPRES	ENT APPROXIMA	TE BOUNDARY BETWEE	EN SOIL TYP	PES, TRA	NSITIONS MAY BE GR	RADUAL.				
	2)	WATER	R LEVEL REA	ADINGS HAVE I	BEEN MADE AT T	IMES AND UNDER CON	DITIONS ST	ATED FI	UCTUATIONS OF GR	OUNDWATER				
		WAYO	COOK DUE	TO OTHER FAC	TORS THAN THO	OSE PRESENT AT THE T	IME MEASU	REMENT	S WERE MADE.					
<u> </u>			_		· · · · · · · · · · · · · · · · · · ·					BORING #	TB-03			

	LU ENGINEERS 2230 PENFIELD ROAD				·	PROJECT			BORING TB-04/N	W-09	·			
יקו	Civil and Fr	MEEK	S 2230 PE Ini PENFIEL	ENFIELD ROAL D, NEW YORK) (14526	Orchard-Whitney ERI 415 Orchard Street a		3	SHEET 1 OF JOB #:	1				
							54 Whitney Street, Rochester, NY CHKD. BY: N/A							
DRIL	RACTOR		Paragon			BORING LOCATION	SEE PLAN	1						
	EOLOGIS	τ·	Robert D. PECK ((Citty)			ROUND SURFACE ELEVATION: N/A DATUM: N/A TART DATE: 9/24/08 END DATE: 9/24/08							
			D. FECK (5ity)		START DATE: 9/24/	08	END D						
TYPE	OF DRILL	RIG:		Mobile Drill B	-59		WATER LEVEL DATA DATE TIME WATER CASING REMARKS							
CASI	NG SIZE A	ND TY	PE:	4.25" HAS										
ROCI		SAMP		IOD: Split Spi Tri-cone bit (r										
D				TI-cone bit (r	otary)									
E			SAMPLE	DATA										
P T	DLOW						SA	MPLE	DESCRIPTION			PID		
н Н	BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)									
			(1.1)	71(020(78)	(%)	Concrete sidewalk	Concrete sidewalk							
1	9					Light brown f SAND (fill), dry								
	15						- (iii), ary					0.0		
2	17		0-2	24	40%	Brown f SAND and	SILT, tra	ce grav	el			0.0		
	22					4						0.0		
3	24 21					-								
4	26		2-4	45	60%	-								
	11				00 %	-								
5	10					-								
	16					1								
6	19		4-6	26	60%	Same as above								
	42													
7	21 14					4								
8	14	<u> </u>	6-8	35	50%									
	23		- 0-0		50%	Same as above- w	et at 9'					0.0		
9	14					4								
	4					1								
10	2		8-10	18	50%]								
	2													
11	13 16					4								
12	20		10-12	29	60%									
	22		10-12	29	00%	Grey brown f SAN	D, little silt	, wet (g	lacial till)			0.0		
13	34					Same as above								
	50/4		12-13.4											
14						Light grey SILT, tra	ace f grave	el, dry, f	îrm (till)					
	17]	•					0.0		
15	50		44 45 4		500/	4								
16	50.4		14-15.4		50%	-								
	12		├		<u> </u>	4								
17	44					1								
	50/3		16-17.3		1	1								
18						Same as above-we	et at 18.5'							
			18-18.6		70%]						0.0		
19														
20			┝		<u> </u>	Auger refusal at 19).2'							
						Notes: water at 8.25'; B	TC at 4500							
	S- SPLIT SPOON SOIL SAMPLE					Water at 0.25", B	i Cat 1530							
	U- UNDISTURBED SOIL SAMPLE													
			CORE SAMP	LE										
	GENERAL 1)													
	2)	WATER	R LEVEL REA	DINGS HAVE	BEEN MADE AT T	TE BOUNDARY BETWEE	EN SOIL TYP DITIONS ST	YES, TRA	NSITIONS MAY BE GI	RADUAL.				
	2) WATER LEVEL READINGS HAVE BEEN MADE AT TIN MAY OCCUR DUE TO OTHER FACTORS THAN THOS					OSE PRESENT AT THE T	IME MEASU	REMENT	S WERE MADE.	CONDWATER				
L										BORING #	TB-04/MW-09			

DRILL	RACTOR	nvironment :		ENFIELD ROAL D, NEW YORK		Orchard-Whitney ER 415 Orchard Street a 354 Whitney Street, F BORING LOCATION GROUND SURFACE	PROJECT BORING TB-05 Drchard-Whitney ERP #E828123 SHEET 1 OF 1 15 Orchard Street and JOB #: 4216 54 Whitney Street, Rochester, NY CHKD. BY: N/A ORING LOCATION: SEE PLAN DATUM: N/A DROUND SURFACE ELEVATION: N/A DATUM: N/A TART DATE: 9/25/08							
						STARTDATE. 9/23/		END D	ATE: 9/25/08 WATER LEVEL					
CASH	OF DRILI	RIG:		Mobile Drill B 4.25" HAS	-59		DATE TIME WATER CASING REMARKS							
OVER	BURDEN	SAMPI	ING METH	OD: Split Sp	oon									
ROCH D	C DRILLIN	G METI	HOD:	Tri-cone bit (r	rotary)									
E P			SAMPLE	E DATA			20		DESCRIPTION					
Т	BLOW	NO.	DEPTH	N-VALUE	RECOVERY	-	SAMPLE DESCRIPTION							
н			(FT.)	/RQD(%)	(%)									
1	2					Top soil Medium brown Sil								
	10					Intediditi Drown SiL	Medium brown SILT and cmf SAND with c-f GRAVEL, dry, loose, trace coal fragments at 1.0' (fill)							
2	5		0-2		70%	Medium brown SIL	Aedium brown SILT, some cmf sand, little gravel, moist							
3	4													
Ů	3													
4	9		2-4		50%	Medium brown £ S.								
	24				0070	Medium brown f S	AND and a	511, 11	tie c-r gravel, mois	st (till)		0.0		
5	30					-								
	48													
6	34 22		4-6		60%	Same as above-compacted						0.0		
7	34		_			1.7.1.1.1.7.7.1.1.1.1								
	40													
8			6-8		75%	Same as above-wet at 9'								
	11									25		0.0		
9	27 26													
10			8-10		60%									
	50/2				00%	Same as above-sa Auger refusal at 10	turated at	10', no	odor			0.0		
11					1									
]								
12			10-12		80%							0.0		
13						4								
14						1								
15						4								
16														
		1			-	-								
17						1								
]								
18						4								
19						4								
				<u> </u>		-								
20					1	1								
		LEGEN				Notes:								
			SPOON SOI											
			TURBED SO											
	C- ROCK CORE SAMPLE GENERAL NOTES:													
	1) STRATIFICATION LINES REPRESENT APPROXIM					TE BOUNDARY BETWEE	EN SOIL TYF	ES, TRA	NSITIONS MAY BE G	RADUAL.				
	2)	WATER	R LEVEL RE/	ADINGS HAVE	BEEN MADE AT T	IMES AND UNDER CON	DITIONS ST.	ATED FL	UCTUATIONS OF GR	OUNDWATER				
			SOUR DUE		UND IMAN IN	OSE PRESENT AT THE T	IME MEASU	REMENT	S WERE MADE	BOBING #	TR OF			
										BORING #	18-05			

			· · · · · · · · · · · · · · · · · · ·										
		NEED	2 2220 0	ENFIELD ROAL		PROJECT			BORING TB-06/M				
2				LD, NEW YORK		Orchard-Whitney ERF 415 Orchard Street ar		3	SHEET 1 OF	1			
		MICHNER		LD, NEW YORK	14520	354 Whitney Street, R			JOB #:	4216			
CONT	RACTOR		Paragon			BORING LOCATION:			CHKD. BY: N/A				
DRILL	.ER:		Robert			GROUND SURFACE			DATUM:	NI/A			
JCL G	EOLOGIS	T:	RLF			START DATE: 9/25/0	08	END D					
								2110 0/	WATER LEVEL				
	OF DRILL			Mobile Drill B	-59		DATE TIME WATER CASING REMARKS						
CASI	NG SIZE A	ND TY	PE:	4.25" HAS									
OVER		SAMPI		HOD: Split Spo									
D	DRILLIN	3 ME II	HOD:	Tri-cone bit (r	otary)								
ε			SAMPLI									1	
P			SAWPL	EDATA									
+	BLOW	NO.	DEPTH	N-VALUE	RECOVERY	4	SAMPLE DESCRIPTION						
Ĥ	/6"	140.	(FT.)	/RQD(%)	(%)								
		_	<u> </u>	//(02/////	(70)	Asphalt							
1	1				30%		T						
	2					Medium brown SIL	r, some i	sand, t	race i gravel, mois	st, no odor		0.0	
2	3		———		1	Madium brown Cll	Τ		a 1844 a + +				
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Appendix 6 City of Rochester Developers Guide



City of Rochester New York Developers Guide

INTRODUCTION: The Development Process

Clean air, pure water, unpolluted land, accessible streets, and safe, sound and attractive buildings are among the expectations of the people of Rochester. Residents recognize that development and rehabilitation projects are both necessary and desirable. To meet these goals, the City encourages and assists prospective developers and enforces environmental, zoning and construction standards. This document describes permits required and review processes most frequently involved with major construction and rehabilitation projects in the City of Rochester. The document is organized by department and agency, with the permits and reviews each administers, listed and explained. The City has simplified its development review and approval process by creating a Centralized Permit Office located in Room 121B of City Hall. In this one location, a developer may apply for a variety of permits, thus reducing the number of offices to be visited.

Included in this document is a flowchart which graphically represents the overall review process from beginning to end. To expedite this process, all steps on the same horizontal level should be completed simultaneously. Referring to the chart, all areas (except STATE & COUNTY ENVIRONMENTAL REVIEWS) make use of the Central Permit Office and applications for each step of the process may be obtained there. A department directory appears at the end of this document. You can use either the chart or the table of contents below to follow the development process with the City of Rochester.

For information on development possibilities, contact the Department of Economic Development (industrial) at (585) 428-6965 or the Bureau of Buildings and Zoning at (585) 428-6526.

DEVELOPMENT PROCESS IN THE CITY OF ROCHESTER, NEW YORK

OPTIONAL DEVELOPMENT CONFERENCE WITH BUREAU AND AGENCY REPRESENTATIVES									
APPLICATION FOR CERTIFICATE OF ZONING COMPLIANCE									
STATE & ENVIRONMEN Monroe Count Monroe County De NYS Department of Env	CITY ZONING AND ENVIRONMENTAL REVIEWS Division of Zoning								
ISSUANCE OF CERTIFICATE	E OF ZONING COMPLIANCE								
BUILDI	NG AND CONSTRUCTION R	EVIEWS							
DEPARTMENT OF COMMUNITY DEVELOPMENT Building Code Review Plumbing Code Review Electrical Permits Elevator Permits DEPARTMENT OF ENVIRONMENTAL SERVICES FIRE DEPARTMENT Fire Safety Division									
	SUANCE OF BUILDING PERI								
INSPECTION OF CONSTRUCTION & ISSUANCE OF CERTIFICATE OFOCCUPANCY BY THE BUILDING INSPECTION DIVISION									

DEVELOPER'S GUIDE TABLE OF CONTENTS

Introduction: The Development Process Flowchart

ZONING AND ENVIRONMENTAL REVIEWS

Bureau of Buildings and Zoning/Division of Zoning Certificate of Zoning Compliance Site Plan Review Zoning Variance Rezoning (Zoning Map Amendment) Special Permits Certificate of Appropriateness Subdivisions Official Map Amendments Environmental Assessment Monroe County Pure Waters Monroe County Department of Health NYS Department of Environmental Conservation (DEC) NYS Department of Health

BUILDING CONSTRUCTION

Department of Environmental Services (DES) New Streets Street Opening Permits Stake Outs Excavation Permits Other Permits Department of Community Development, Plan Review and Inspection Division Building Permits Plumbing Permits Electrical Permits Fire Safety Permits Elevator Permits Demolition Permits Certificate of Occupancy

Department of Community Development Bureau of Buildings and Zoning/Division of Zoning Room 125B, City Hall (585) 428-7043

Certificate of Zoning Compliance (Zoning Code: Section 120-189)

Prior to applying for building permits, the developer submits plans and completes an application for a Certificate of Zoning Compliance (CZC). If the project complies with all zoning standards, the application is approved and the developer may then proceed with application for building and construction permits. If the application is denied, the developer may choose to revise the plans or pursue one or more of the following special processes: site plan review, variance, special permit, certificate of appropriateness, etc. Most of these processes would require the filing of an Environmental Assessment Form (EAF).

Site Plan Review (Zoning Code: Section 120-191D)

Site Plan Review is the examination of the design elements of development proposals to ensure that a project does not adversely affect the site or adjacent properties. It is also a vehicle to assist applicants by alerting them to any deficiencies which should be corrected prior to development. Most major projects are subject to this review. Typically, the process requires submission of detailed site plans, landscape plans, building elevations, an Environmental Assessment Form and possible other information about the project, as required by the Director of Zoning.

If a proposal requires site plan review as well as another zoning special process such as a variance, special permit or Certificate of Appropriateness, the site plan review process precedes the public process. The Director of Zoning must issue Preliminary Site Plan Findings and Notice of Environmental Determination prior to the application for the special process.

The preliminary findings identify zoning requirements, project deficiencies and recommended modifications. These findings will accompany the required special process application for the Boards/Commission's review. The Final Site Plan Decision will incorporate any Board/Commission conditions.

Zoning Variance (Zoning Code, Section 120-195B)

A variance is a procedure by which waivers of certain requirements of the Zoning Code are considered by the Zoning Board of Appeals. There are two types of variances: use variance and area variance.

The application should include floor plans, site plan, elevations and a copy of the preliminary site plan findings as issued by the Director of Zoning when site plan review is required. After plans and applications are submitted, the Zoning Board conducts a public hearing at which the applicant's attendance is required. The Board then votes to grant or deny the variance. A decision letter will be issued within ten (10) days of the Board's determination. Due to public notification requirements, the applicant should allow 6 - 8 weeks from the date the application is filed for the Board's decision. If the project requires site plan review, the applicant must wait for the Final Site Plan Approval letter issued by the Director of Zoning. The applicant must post a sign provided by the City, at least twenty (20) days prior to the meeting date.

Rezoning (Zoning Map Amendment) (Zoning Code: Section 120-190C)

This process involves a revision of an area's zoning classification and requires City Council approval.

After the application is submitted, the City Planning Commission holds a public informational meeting, at which the applicant's presence is required. The Commission then makes a recommendation to City Council. City Council conducts a public hearing and votes on the proposal to amend the Zoning Map. The applicant should allow 10-12 weeks for the entire process. The applicant must post a sign provided by the City, at least twenty (20) days prior to the meeting date.

Special Permits (Zoning Code: Section 120-192B)

For certain permissible uses which may have a special impact, the developer must obtain a special permit. A site plan review is required for every special permit application. The application typically includes site plans, floor plans, landscape plans, building elevations, an Environmental Assessment Form and a copy of the Preliminary Site Plan Findings issued by the Director of Zoning. After the plans and a completed application are submitted, the City Planning Commission conducts a public hearing which the applicant or designated representative must attend. Subsequent to the public hearing the Planning Commission makes a decision. A decision letter will be issued within one (1) week of the Planning Commission's determination. Due to the public notification requirements, the applicant should allow 6 - 8 weeks for the entire process. If the project requires site plan review, the applicant must wait for the Final Site Plan Approval letter issued by the Director of Zoning. The applicant must post a sign provided by the City, at least twenty (20) days prior to the meeting date.

Certificate of Appropriateness (Zoning Code: Section 120-194A)

If the project will involve exterior work on a Landmark or on property within a Preservation District, a Certificate of Appropriateness must be approved by the Rochester Preservation Board.

A typical application includes site plans, floor plans, landscape plans, building elevations, material samples, color charts, photographs and possibly a completed Environment Assessment Form. After submission of the plans and application, the Board holds a public hearing which the applicant or designated representative must attend. The Board usually makes its decisions within 4 - 5 weeks of the date the application is submitted unless the Board requests additional information pertaining to the application. If the project requires site plan review, the applicant must wait for the Final Site Plan Approval letter issued by the Director of Zoning. The applicant must post a sign provided by the City, at least twenty (20) days prior to the meeting date.

Subdivisions (Land Subdivision Regulations - Chapter 128 of the Municipal Code)

Some projects which involve the conveyance of land or the use of more than one (1) lot, must be reviewed as a subdivision or resubdivision and be approved by either the City Planning Commission or the Director of Zoning. Site plan review is required for every subdivision application.

There are three types of subdivisions: exempt subdivision, subdivision and resubdivision.

Exempt Subdivision - A subdivision of fewer than five (5) lots with the Director of Zoning having approval authority. Lots must have street frontage and access to qualify.

Resubdivision - Revision of an existing filed plat (map) including subdivisions and minor transfer of land. A minor transfer of land is the procedure by which two (2) or more lots are combined or lot lines are altered such that it does not result in an increase in the number of lots.

Subdivision - Procedure by which one (1) or more lots is divided, thereby increasing the total number of lots. The City Planning Commission has approval authority of subdivisions of five (5) or more lots and other non-exempt subdivisions.

If the project creates one (1) or more new tax accounts or lots, the applicant must submit a subdivision or re-subdivision map (scaled to not less than two (2) inches equaling one (1) mile) prepared by a licensed surveyor. If five (5) or more lots are created, an Environmental Assessment Form must be submitted.

Certification of approval by the Monroe County Department of Health must also be submitted in the case of realty subdivisions created as defined pursuant to Article III of the Monroe County Sanitary Code. In order to receive approval by Monroe County Department of Health, an applicant must show methods of obtaining and furnishing adequate and satisfactory water supply and sewage facilities to the subdivision. The applicant must also supply information regarding the nature and condition of the soil to absorb sewage, the depth to ground water and bedrock, the topography of the land, and the arrangements for proper drainage and disposal of surface water. Applicants should contact the Monroe County Department of Health directly for a complete set of requirements for approval. Prepaid tax certificates from the County and City are required as part of the submission.

The applicant should allow 6 - 8 weeks following submittal of a complete subdivision application for the processing of a case requiring a hearing. If no hearing is necessary, a decision should be available in 1 - 3 weeks.

Official Map Amendment (Zoning Code: Section 115-37)

The Official Map is a subsidiary part of the Comprehensive Plan and indicates the location and width of >streets and the location of parks as laid out and adopted. An amendment to the Official Map may be initiated by filing a completed application with the Division of Zoning, which coordinates a review process involving several agencies, and schedules a City Planning Commission informational meeting. Typical examples of Official Map Amendments include street dedications and abandonments, right-of-way changes, street naming and dedication of city parks.

Amendments to the Official Map can be made only by City Council by the adoption of an ordinance after a Public Hearing. The City Planning Commission makes a recommendation to the City Council on all Official Map Amendment applications. The applicant should allow 10 -12 weeks for the entire process.

Environmental Assessment (New York State Environmental Quality Review (SEQR) Act and Chapter 48 of the Municipal Code)

The decision making body (i.e. Director of Zoning, Zoning Board, Planning Commission, Preservation Board, etc.) has the responsibility for making determinations and administering the local environmental Code as well as SEQR Act of New York. Most projects require Environmental Review.

The first step is completion of an Environmental Assessment Form (EAF) by the applicant. On the basis of the EAF, an environmental assessment is prepared: this is reviewed by the decision making body. If the decision making body determines that the project will not have a significant environmental impact, a Determination of Environmental non-significance is issued and the remaining project reviews continue (i.e. variance, special permit, Certificate of Appropriateness, etc.)

If the decision making body determines that the project may significantly and adversely affect the environment, an Environmental Impact Statement (EIS) is required. The developer prepares and submits a "Draft EIS" following a Public Hearing, the "Final EIS" is prepared. This is used by the decision making body in making is final decision. The EIS process, if applicable, takes a minimum of 12 - 16 weeks.

Monroe County Pure Waters 350 E. Henrietta Road (585) 274-7838

Rochester Pure Waters District Permit

If the proposed project will result in additional storm or sanitary discharge, new connections to sewers and all sanitary combination storm sewer extensions must be approved and a permit obtained from Pure Waters. Initially, one set of complete plans and forms are required, and shall include:

A site plan showing existing and proposed utilities and street sewers (minimum plan size 17" x 22");

Interior plumbing plans, including sizes of pipes for industrial and commercial projects;

Other drawings as required to describe the project.

All required forms as per requirement and any special pre-treatment (if applicable) for all privately constructed sewer in the Rochester Pure Waters District.

The applicant should allow 15 days for initial review of plans. Prior to final approval, four additional sets of plans shall be submitted. These will be stamped and two (2) sets will be returned to the applicant for distribution as the project is reviewed by the Bureau of Buildings and Zoning. The other two (2) sets will remain in Pure Waters files. (Rochester Pure Waters District will administer the sewer construction of the proposed extension.)

Permits will be issued to licensed plumbers when the following conditions have been met:

Applications for new connections have been approved by the Rochester Pure Waters District and a stamped copy of the drawing has been submitted to the Permit Office.

Submission of an acceptable certificate of insurance meeting the District's requirements.

Submittal of an acceptable \$5,000.00 plumbers permit bond meeting the District's requirements.

Payment of all applicable permit fees.

Permits shall be signed by the licensed plumber or his/her authorized designee. Sewer connection permits shall be in effect for a one year period commencing on the date of issuance.

Monroe County Department of Health 111 Westfall Road (585) 274-6811

Health Department Permits

If the proposed project will include:

Food service establishments; Temporary residences (children's camps and mass gatherings); Sanitary or combined sewer extensions; Water main extensions; Realty subdivision; On-site sewage disposal; Public swimming pools; Water supply-cross-connection protection; Development on a former waste/fill site,

The developer should contact the Division of Environmental Health of the Monroe County Department of Health. The Health Department reviews construction plans to ensure that minimum health standards are met.

In the case of subdivisions, water main extensions and sewer extensions, the Department acts on behalf of the State Departments of Health and Environmental Conservation as required by Part 5 of the State Sanitary Code and Health and Environmental Conservation Laws.

New York State Departments of Environmental Conservation (NYSDEC) and Health (NYSDOH)

The Bureau of Planning can usually inform the developer of NYSDEC or NYSDOH permits which may apply to the project. It is the developer's responsibility, however, to contact those agencies and apply for and receive the necessary permits. Application forms are available from any NYSDEC or NYSDOH office.

NYSDEC Permits6274 East Avon-Lima Road (585) 226-2466

Permits are required if the proposed project includes:

Sources of air contamination within the City boundary; Disposal, storage and treatment of solid and hazardous waste; Any work in a protected freshwater wetland; Dredging and filling in protected rivers, creeks and lakes; Transport of hazardous and non-hazardous wastes; Pesticide application.

New York State Department of Health Permits (NYSDOH) 42 S. Washington Street (585) 423-8070

Permits are required if the project includes:

Laboratory facilities; Health or medical facilities

As noted under the Monroe County Department of Health "Health Department Permits" section, certain NYSDEC permits and NYSDOH permits -- Realty Subdivision Approval, Water Supply Approval -- are obtained through the Monroe County Department of Health, which has been delegated authority to issue these permits by these agencies.

Department of Environmental Services (DES)Permits OfficeRoom 121B, City Hall(585) 428-6848

New subdivision and re-subdivision applications require the review and approval of the City Engineer prior to any permits being issued.

New Streets - Any new subdivisions, including the construction of a new street, will require the following:

Submission of three (3) sets of professional licensed engineer stamped plans; New street permit;

Certificate of Liability and Worker's Compensation Insurance;

Letter of Credit (amount to be determined by the City Engineer).

Upon final acceptance by the City Engineer, the applicant must submit a separate two (2) year Guarantee Bond or Letter of Credit in the amount of twenty-five (25) percent of the estimated cost of the public work; as determined by the City Engineer.

Street Opening Permit - If the project involves a sanitary/combination sewer, sewer or water service connection, an approved contractor must obtain all necessary street opening permits in conjunction with the utility service connection permits.

Connection permits may be obtained from:

Monroe County Pure Waters - Sewers - 274-8100 City of Rochester Water Bureau - Water Dispatch - 428-7500 D.E.S. Permit Office - Excavations - 428-6848

Stake Outs - New York State Industrial Code Rule 53 The DES Permit Office maintains the Central Registry for the City of Rochester. The Central Registry is a master list of all operators or owners of underground facilities within the City. The City maintains this list in accordance with New York State Industrial Code Rule 53. All excavators are responsible for notifying all utility operators with facilities n the area to be excavated at least two (2) full working days before digging.

The Central Registry can be inspected at the DES Permit Office or a copy may be obtained for a nominal charge. The DES Permit Office is located at:

Department of Environmental Services Permit Office, Room 121B City Hall 30 Church Street Rochester, New York 14614 All operators of underground facilities in the area should be notified to request stake outs. Contractors should refer to the Central Registry listing. Their names and the areas where their facilities are located are listed in the Central Registry. Contractors can telephone UFPO at 1-800-962-7962 to request a stake out from these major agencies:

City of Rochester Water Bureau City of Rochester Street Lighting System Rochester Gas and Electric Corporation Rochester Telephone Corporation Greater Rochester Cablevision Monroe County Water Authority Rochester District Heating Monroe County Department of Transportation - Signal Division Eastman Kodak Company The University of Rochester

Excavation Permits The DES Permit Office will issue separate excavation permits in conjunction with Monroe County Pure Waters for any work within the City of Rochester right-of-way. The following conditions must be met to obtain a permit:

Submission of three (3) sets of stamped plans;

A minimum security deposit of \$1,000 in the form of a letter of credit, certified check or cash. The security deposit requirement may increase when determined to be appropriate by the City Engineer.

Certificate of Liability Insurance, Worker's Compensation and Disability Coverage naming the City of Rochester as additional insured.

The excavation permit fee.

Other Permits Permit applicants are responsible for obtaining all other required permits such as Monroe County Pure Waters, NYSDOT, U.S. Army Corps of Engineers, Railroads.

The Rochester Water Bureau requires Hydrant Use Permits be obtained by the permit holder prior to using any hydrant as a source of water supply. The permit requires the use of a water meter and backflow preventer. The Water Bureau will supply a hydrant wrench, water meter, meter setting and backflow preventer. These permits are available at the City of Rochester Water Bureau, Customer Service Office, 10 Felix Street, Rochester, New York. The telephone number is (585) 428-7506

Department of Community Development Bureau of Buildings and Zoning Plan Review and Inspection Division 125B, City Hall (585) 428-6526

Building Permits A building permit must be obtained before any plans to construct, reconstruct, add to, alter, remodel, demolish or change use of a structure may be carried out.

Prior to applying for a building permit, the developer shall have all necessary approvals from the Division of Zoning as well as Monroe County Department of Health, the New York State Department of Environmental Conservation and Rochester Pure Waters District. In addition, the permit will not be issued until required permits and approvals have been obtained from the City Plumbing Division, Department of Environmental Services and Fire Safety Division of the Fire Department.

The building permit application must be accompanied by:

Three sets of detailed construction plans if project cost is \$100,000 or more, (two (2) sets if under \$100,000), certified by a licensed engineer, architect or owner-designed;

One copy of a site plan approved by the Division of Zoning;

A current certificate of insurance detailing worker's compensation and disability coverage (naming the City as Certificate Holder).

Processing of completed applications usually occurs within fifteen (15) working days, but may be longer for major projects.

If the building permit application is denied, the developer may choose to revise the plans or pursue the process of appeal by submitting a petition to the New York State Board of Review. The applicant should allow a minimum of 12 weeks for a Board of Review Decision.

Plumbing Permits After obtaining all approvals from the Water Bureau, Engineering Bureau, and Pure Waters, a licensed plumber must obtain a permit from the City of Rochester Permit Office in order to perform interior and exterior plumbing work or site work. If the interior structure will be affected by the new plumbing the applicant shall submit one set of mechanical plumbing plans with the application. Connection permits must also be obtained from the Rochester Pure Waters District, City of Rochester Water Bureau and the City's Department of Environmental Services Engineering Permit Office prior to making any connections. Work performed will be inspected and approved by a City of Rochester Plumbing Inspector. **Electrical Permits** If electrical work is required for the project, the developer must hire an electrician licensed by the City of Rochester.

Prior to the commencement of work, the licensed electrician is required to apply for an electrical permit from the City. Upon completion of the job and all necessary inspections from the City of Rochester Electrical Inspector, the electrician obtains a certificate of compliance. Work performed will be inspected and approved by a City of Rochester Electrical Inspector.

- Fire Safety Permits The Fire Safety Division of the Fire Department reviews plans for construction of all new commercial and multiple dwelling structures, installation of fire alarm systems and fire suppression systems. To expedite the review process, joint plan reviews are conducted by the Fire Safety Division and the Division of Buildings. Where potentially harmful conditions exist, the Fire Safety Division also reviews permits to maintain, change use of, or remodel a structure.
- **Elevator Permits** Prior to the installation or modification of any conveyance, an elevator permit must be obtained from the City. Applications must be applied for by a licensed installer or maintenance company. Inspections are performed by a licensed inspection agency. Plans and specifications must accompany the application.
- **Demolition Permits** Prior to the razing, disassembly or removal of any structure, essential element of any structure or the removal of any debris, a permit shall be obtained from the Permit Office.

The permit application must be accompanied by:

Site plan or tape location map. Building material disposal plan. Photographs of all exterior elevations. Environmental Assessment Form. Certificate of Worker's Compensation specifically stating that demolition work is covered Certificate of rodent control. Performance Guarantee. Proposal for site development. Approved safe school route and pedestrian access plan. Construction photos of any pre-existing damage to the public right-of-way. Maintenance and Protection of Traffic plan when work will obstruct the rightof-way.

Certificate of Occupancy (Zoning Code: Section 120 and Building Code:

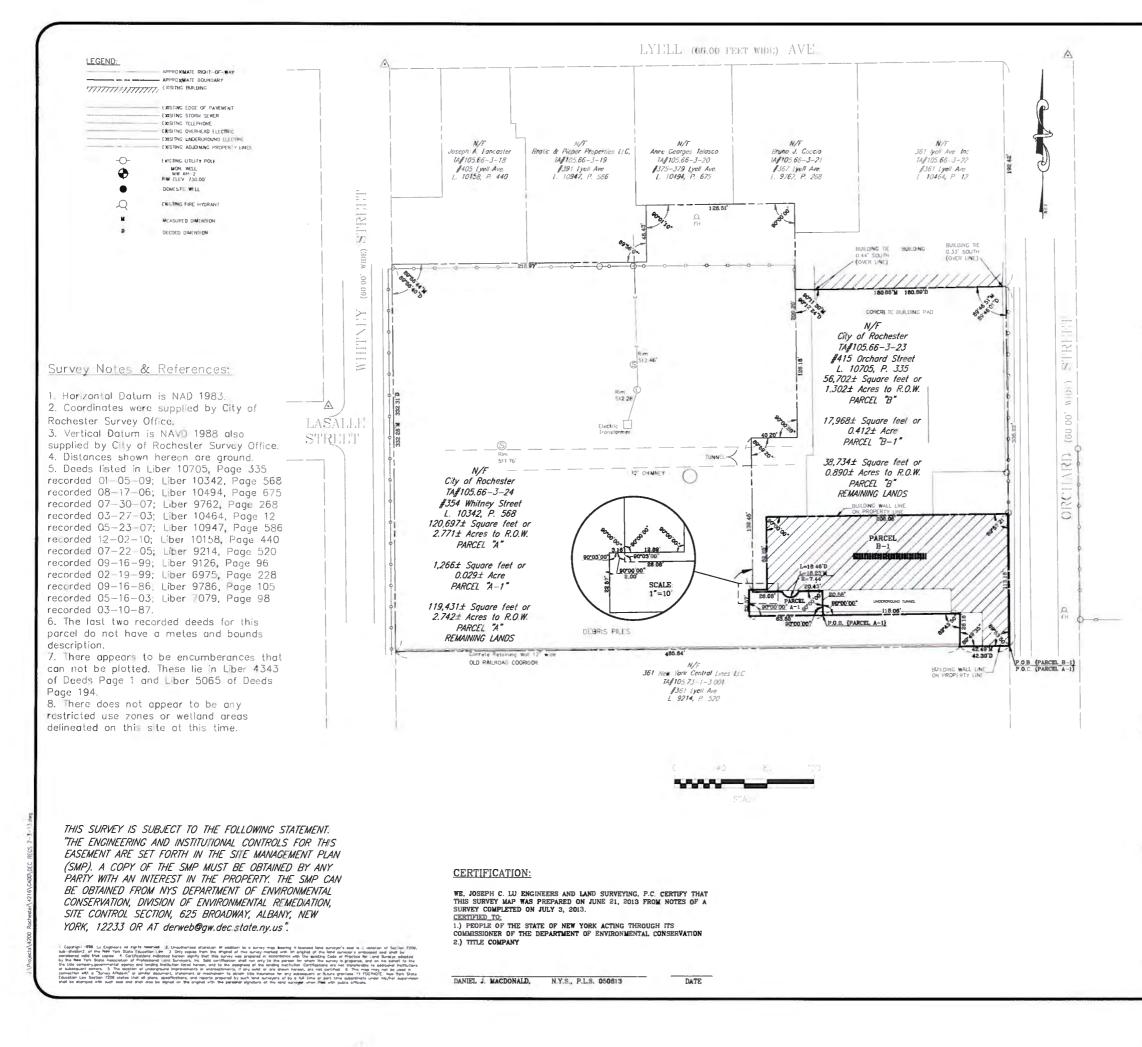
Chapter 39, Section 214-219) Once construction has been completed, the developer must obtain a Certificate of Occupancy. This procedure involves: A written application, filed at the time of permit application; An inspection of the property by the Building Construction Inspector; Final electrical, plumbing and/or elevator inspection approvals;

Fire safety approval.

Following the inspection, the applicant should allow 10 days to receive the Certificate

- City Hall 30 Church Street Rochester, New York 14614
- Bureau of Buildings and Zoning Permit Office, Department of Community Development Room 121-B, City Hall (585) 428-6526
- Bureau of Buildings and Zoning Division of Zoning, Department of Community Development Room 125-B, City Hall (585) 428-7043
- Bureau of Buildings and Zoning Plan Review and Inspection Division, Department of Community Development Room 125-B, City Hall (585) 428-6561
- Bureau of City Planning Department of Community Development Room 010-A, City Hall (585) 428-6924
- Department of Environmental Services Permit Office Room 121-B, City Hall (585) 428-6848
- Department of Environmental Services Water Bureau10 Felix Street Rochester, New York 14613 (585) 428-7567
- Department of Economic Development Room 005-A, City Hall (585) 428-6808
- New York State Department of Environmental Conservation (NYSDEC) 6274 East Avon-Lima Road Avon, New York 14414 (585) 226-2466
- New York State Department of Health (NYSDOH) 42 S. Washington Street Rochester, New York 14608 (585) 423-8070
- Monroe County Department of Health Division of Environmental Health111 Westfall Road Rochester, New York 14692 (585) 274-6811
- Monroe County Pure Waters Permit Office 350 E. Henrietta Road Building 15 Rochester, New York 14620 (585) 753-7600
- Rochester Pure Waters District Office of Development Review 350 E. Henrietta Road Rochester, New York 14620 (585) 753-7600

Appendix 7 Site Survey



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PARCEL DESCRIPTION:

PARCEL A-1

ALSO "ENVIRONMENTAL EASEMENT DESCRIPTION" FOR DEC ALL THAT TRACT OR PARCEL OF LAND SITUATE IN THE CITY

OF ROCHESTER, COUNTY OF MOINDE, STATE OF NEW YORK, BEING PART OF TOWN LOT 62, 20,000 ACRE TRACT, TOWNSHIP, SHORT RANGE, AND MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE INTERSECTION OF THE WESTERLY BOUNDS OF ORCHARD STREET (60.00 FEET WIDE) AND THE NORTHERLY BOUNDS OF LANDS NOW OR FORMERLY BELONGING TO NEW YORK CENTRAL LINES, LLC. AS RECORDED IN LIBER 9214 OF DEEDS AT PAGE 520; THENCE WESTERLY ALONG SAID NORTHERLY BOUNDS AND HAVING AN ANGLE TO THE LEFT OF $89\,53\,50^\circ$ with the said westerly bounds a distance of 42.49 feet to a point, thence northerly and having an angle to the left of 89'49'35' A DISTANCE OF 28.18 FEET TO A POINT; THENCE WESTERLY AND HAVING AN ANGLE TO THE RIGHT OF 89'43'50" A DISTANCE OF 118.06 FEET TO THE POINT OF REGINNING: THENCE

- CONTINUING ALONG SAID WESTERLY DIRECTION A DISTANCE OF 63.65 FEET TO A POINT; THENCE 2) NORTHERLY AND HAVING AN ANGLE TO THE LEFT OF 90'00'00" A DISTANCE OF 22.57 FEET TO A POINT
- THENCE 3) EASTERLY AND HAVING AN ANGLE TO THE LEFT OF 90'03'00" A DISTANCE OF 3.16 FEET TO A POINT. THENCE
- 4) SOUTHERLY AND HAVING AN ANGLE TO THE LEFT OF 90'00'00" A DISTANCE OF 2.00 FEET TO A POINT;
- THENCE 5) EASTERLY AND HAVING AN ANGLE TO THE RIGHT OF 90'03'00" A DISTANCE OF 26.08 FEET TO A POINT
- THENCE 6) EASTERLY ALONG A CURVE TO THE RIGHT, SAD CURVE HAVING A RADIUS OF 7.44 FEET AND A ARC LENGTH OF 18.23 FEET TO A POINT, SAID POINT BEING 14.00 FELT FROM THE EXTENSION OF COURSE 5; THENCE
- 7) THENCE EASTERLY AND CONTINUING ALONG THE EXTENSION OF COURSE 5 A DISTANCE OF 20.43 FLET TO TO A POINT; THENCE
- 8) SOUTHERLY AND HAVING AN ANGLE TO THE LEFT OF 90'00'00" A DISTANCE OF 20.58 FEET TO THE POINT DI BEGINNING, THE LAST COURSE MAKING AN ANGLE TO THE LEFT WITH COURSE FIRST COURSE OF 90'00'00"

PARCEL B-1

ALSO "ENVIRONMENTAL EASEMENT DESCRIPTION" FOR DEC SITE #E828123

ALL THAT TRACT OR PARCEL OF LAND SITUATE IN THE CITY ALL THAT TAKET ON PARCEL OF DAMP STORTE IN THE GIT OF ROCHESTER, COUNTY OF MONROE, STATE OF NEW YORK, BEING PART OF TOWN LOT 62, 20,000 ACRE TRACT, TOWNSHIP 1, SHORT PANGE, AND MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT ALONG THE WESTERLY BOUNDS OF ORCHARD STREET (60.00 FELT WIDE) SAID POINT BEING 500.64 FROM THE INTERSECTION OF SAID WESTERLY HOUND AND THE SOUTHERLY BOUNDS OF LYELL AVENUE (66.00 FLET WDE), SAID POINT ALSO BEING THE INTERSECTION OF THE SAID WESTERLY BOUNDS AND THE NORTHERLY BOUNDS OF LANDS NOW OR FORMERLY BELONGING TO NEW YORK CENTRAL LINES, LLC. AS RECORDED IN LIBER 9214 OF DEEDS AT PAGE 520 THENCE

- 1) WESTERLY ALONG SAID NORTHERLY BOUNDS AND HAVING AN ANGLE TO THE LEFT OF 89'53'50" A DISTANCE OF 42 49 FEET TO A POINT: THENCE
- 2) NORTHERLY AND HAVING AN ANGLE TO THE LEFT OF 89"49'35" A DISTANCE OF 28.18 FEET TO A POINT;
- THENCE 3) WESTERLY AND HAVING AN ANGLE TO THE RIGHT OF 89'43'50" A DISTANCE OF 118.06 FEET TO A POINT, THENCE
- 4) NORTHERLY AND HAVING AN ANGLE TO THE LEFT OF 90'00'00" A DISTANCE OF 20.58 FEET TO A POINT; THENCE
- 5) WESTERLY AND HAVING AN ANGLE TO THE RIGHT OF 90'00'00" A DISTANCE OF 20.43 FEET TO A POINT; THENCE
- DENCE WESTERLY ALONG A CURVE TO THE LEFT, SAID CURVE HANNG A RADUS OF 7.44 FEET AND A ARC LENGTH OF 18.23 FEET TO A POINT, SAID POINT BEING 14.00 FEET FROM THE LXTENSION OF COURSE 5, THENCE
- 7) THENCE WESTERLY AND CONTINUING ALONG THE EXTENSION OF COURSE 5 A DISTANCE OF 26.08 FEET 10 TO A POINT: THENCE
- 8) NORTHERLY AND HAVING AN ANGLE TO THE LEFT OF 90'03'00" A DISTANCE OF 2.00 FEET TO A POINT, THENCE
- 9) EASTERLY AND HAVING AN ANGLE TO THE LEFT OF 90'00'00" A DISTANCE OF 12.89 FEET TO A POINT. THENCE
- 10) NORTHERLY AND HAVING AN ANGLE TO THE RIGHT OF 90'00'00" A DISTANCE OF 62.28 FEET TO A POINT THENCE
- 11) FASTERLY AND HAVING AN ANGLE TO THE LEFT OF 90'00'00" A DISTANCE OF 208.06 FEET TO A POINT ALONG THE WESTERLY BOUNDS OF AFORESAID ORCHARD STREET; THENCE
- 12) SOUTHERLY AND HAVING AN ANGLE TO THE LEFT OF 89'57'21" A DISTANCE OF 113.18 FEET TO THE POINT OF BEGINNING



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DRAWING ALTERATION

Note. It is a violation of low for any persi-they are acting under the direction of a li iand surveyor to otter on stem in any g the stamp of a licensed profess diering engineer, architect, lands and sufference shall stamp the do d include the notation "altered by" follo or signature, the date of such atteration



& 354 WHITNEY STREET FRP SITE # **CITY OF ROCHESTER.** COUNTY OF MONROE STATE OF NEW YORK

GTY OF ROCHESTER ROCHESTER, NEW YORK

WING TITLE

RE-SUBDIVISION MAP LOTS A&B

1 OF 1		SU-1	
SHEE	7	DRAWING No.	
CHECKED BY	GA	PROJECT No. 4216	
DRAWN BY	DJM	DATE 6-26-2013	
DESIGNED BY	GA	SCALE 1" 40	