Remedial Action Plan
Former Manufactured Gas Plant
Champaign, Illinois
State ID 0190100008

December 2008

Prepared for:

AMEREN SERVICES

St. Louis, Missouri

Columbia, Illinois

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ST. LOUIS, MISSOURI

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Executive Summary

AmerenIP is submitting this Remedial Action Plan (RAP) to address the soil and groundwater impact from the historic operation of a manufactured gas plant (MGP) facility at the Champaign, Illinois MGP site. The RAP has been prepared in accordance with the Illinois Environmental Protection Agency's (IEPA) Site Remediation Program (SRP). The remediation site is located at 308 North Fifth Street (formerly 502 East Hill Street) in Champaign, Illinois (Figure ES-1).

The remedial actions proposed in this plan are designed to mitigate exposure by human receptors to the impacted media on the remediation site. The purpose of the remedial action is to obtain a Comprehensive No Further Remediation (NFR) letter from the IEPA.

Site Description

The remediation site (Site), owned by AmerenIP, is located at 308 North Fifth Street (formerly 502 East Hill Street), Champaign, Illinois. The site consists of a flat area secured by a chain-link fence along its perimeter. As presented in Figure ES-2, it is vacant except for the former booster house which still is intact but is currently being prepared for demolition.

The Site is located in a mixed residential and commercial neighborhood. The property is used for commercial purposes by AmerenIP as a temporary equipment storage area and the anticipated future use will most likely continue to be a commercial property. At this time, the future uses of the surrounding properties are anticipated to remain as mixed residential and commercial.

Site Investigation and Remediation History

Impacts to soil and groundwater from former MGP operations have been documented in the Supplemental SIR dated March 1997 and the Comprehensive Site Investigation Report (CSIR) dated June 2007. These reports summarize the previous activities completed at the remediation site. The following list provides a chronological summary of the major investigation activities and interim remedial measures that have been previously conducted on the remediation site:

- November 1986 – Phase IA/IB Investigations were performed to determine the presence or absence of MGP residual products and to identify buried structures associated with the MGP operation;
- May 1990 – A Phase IC/ID RECON™ investigation were performed to obtain subsurface data to utilize in a preliminary assessment of the nature and extent of impact to soil and groundwater at the site, and to assess possible off-site movement of MGP residuals;
- March 1997 – Supplemental Site Investigation (SSI) activities were performed to further assess extent and impacts of off-site residuals east

of the site and to characterize materials within the below grade gas holder (GH-1) with respect to planned source removal. The SSI was also undertaken in response to the observation of increasing impacts from monitoring well UMW-103 located in the Sixth Street right-of-way immediately east of the site;

- October 1997 thru May 1998 – Interim remedial measures were performed to remove potential source materials from a former below ground gas holder, four tar structures, and a valve box all on the Main Facility;
- 2004 – Comprehensive Site Investigation activities were completed that included excavation and sampling of test pits, logging and sampling of probeholes, and groundwater sampling;
- March 2008 – Off-Site Investigation activities were completed that included the installation of twelve additional off-site monitoring wells and groundwater sampling. The activities also included the advancement of forty-three off-site and nine on-site soil probeholes to further assess the extent of impact.

Recognized Environmental Concerns

The analytical data set collected during the investigation activities were compared to the IEPA Tier 1 RO values, non-TACO ROs, and accepted background levels as an initial screening. Based on this evaluation, the potential exposure pathways of concern are:

- The soil ingestion pathway for residential, industrial/commercial and construction worker settings;
- The soil inhalation pathway for residential, industrial/commercial and construction worker settings;
- The soil component to groundwater ingestion pathway; and
- The groundwater ingestion pathway.

Twenty-six constituents of concern (COCs) in soils and twenty COCs have been identified in groundwater at levels exceeding Tier 1 ROs. The exposure pathways and constituents of concern that exceed Tier 1 ROs or a background level are summarized in Table ES-1.

Remedial Actions

AmerenIP has elected to use the most stringent Tier 1 ROs outlined in IAC Section 742 as the ROs for the remediation site. Table ES-2 summarizes the project ROs that have been established for the remedial actions.

To address the impact for each of the potential exposure pathways, AmerenIP has elected to perform soil removal and disposal, in-situ chemical oxidation, institutional controls, and an engineered barrier as the remedial alternative. The extent of the proposed excavations is depicted in Figure ES-3. Confirmation sampling will be performed during remedial actions to verify that project ROs have been achieved.

AmerenIP will incorporate the following measures in order to meet the requirements for No Further Remediation (NFR).

- Remediation through excavation and disposal of impacted soil exceeding ROs to a depth of 10 feet bgs;
- In-situ chemical oxidation of impacted soils exceeding ROs at depths deeper than 10 feet bgs;
- Calculation of Tier 2 ROs using site specific information and data to identify potential downgradient owners;
- Implementation of institutional controls for soil to groundwater exposure pathway and the groundwater ingestion pathway;
- Implementation of an engineered barrier for any impact deeper than 10 feet bgs for soil ingestion and inhalation exposure pathways.

Estimated Schedule

The actual start date for the on-site remedial activities of the project will be subject to receiving comments and approvals from the IEPA. AmerenIP has scheduled an anticipated start to the on-site remedial actions for the first quarter of 2009. Off-site RORs and RAPs will be presented separately. The following is a summary of the projected schedule:

December 2008	On-site ROR and RAP are submitted to IEPA and City of Champaign;
January 2008	Ameren Illinois Utilities Open House;
February 2009	Permitting and logistical preparations begin for remedial actions;
March 2009	Background air monitoring begins at remediation site;
March 2009	Excavation begins at the remediation site;
November 2009	Excavation and site remediation is completed;

December 2009	Begin post-remedial groundwater monitoring;
February 2010	RACR prepared and submitted to IEPA;
January 2011	Evaluation and submittal to IEPA of groundwater monitoring data;
April 2011	Comprehensive NFR letter received from IEPA.

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1 INTRODUCTION

On behalf of Ameren Services (AmerenIP), PSC Industrial Outsourcing, LP (PSC) has prepared this Remedial Action Plan (RAP) for the former Manufactured Gas Plant (MGP) located in Champaign, Illinois (Figure 1-1). This RAP is being submitted in accordance with Title 35 of Illinois Administrative Code (IAC) Section 740.450. The objective of this RAP is to present the planned remedial actions that will be implemented in order to meet the requirements for a Comprehensive No Further Remediation (NFR) Letter for the remediation site. Upon approval of this RAP by IEPA, AmerenIP will proceed with the appropriate remedial actions.

1.1 Site Description

The remediation site (Site) consists of a vacant lot on which the former Champaign MGP operated. The Site is located 308 North Fifth Street (formerly 502 East Hill Street) in Champaign, Illinois (Figure 1-2). The Site is located in the northeast quarter of the southwest quarter of Section 7, Township 19 North, Range 9 East of the Third Principal Meridian.

The site is approximately 2.4 acres and is secured by a chain link fence and three (3) locked gates. The topography is generally flat covered with grassy vegetation. The only surface structure on the site is the MGP era booster house building located near the middle of the site. This building is single story brick construction with no basement. Due to placement of fill at various times since 1990, there are no visible indications of past MGP activities other than the brick building. The building is planned to be demolished prior to implementation of the RAP.

A railroad right-of-way (previously Norfolk-Southern) borders the site to the north and several residential properties are located north of the single active track. Sixth Street right-of-way is adjacent to the east of the site; however, Sixth Street is abandoned between the railroad right-of-way and the alley south of the site. Other property east of the Sixth Street right-of-way is zoned commercial and consists of vacant land and parking lots. Residential properties to the south are separated from the site by the chain link fence and an alley. Fifth Street borders the site to the west and separates the site from residential properties. At one time, Hill Street approximately bisected the site in the east-west direction, but is now part of the site and lies within the fenced area of the site.

1.2 Previous Site Activities

Previous site activities have included site investigations and interim remedial measures (IRM). The following sections provide a brief discussion of these activities. More detailed information is presented in the Comprehensive SIR dated December, 2008.

1.2.1 Site Investigation Activities

Investigation activities were initiated in October 1986 and completed in April 2008.

Warzyn conducted two phases of investigation during 1986. Phase IA consisted of a detailed site inspection and interviews, and Phase IB included soil gas sampling and geophysical exploration. Evidence of buried structures and MGP residuals were observed on the site.

The Phase IC/ID RECON® Investigation was conducted in 1990 to evaluate the nature and extent of MGP impact in shallow soils and groundwater. Soil and groundwater samples were collected at 34 locations on-site and 37 locations off-site for headspace analysis using an on-site gas chromatograph (GC).

Phase II site investigation activities began in November 1990, continued throughout 1991, and were completed in January 1992. Phase II activities, both on-site and off-site included completion of soil borings, installation of piezometers and monitoring wells, excavation of test pits, chemical analysis of soil and groundwater samples, aquifer characteristic tests, and ambient air monitoring. Thirty-four soil samples were collected for analysis from 28 boring locations. A groundwater monitoring program began during the Phase II activities and has been continued to the present. Phase II SI activities also included collection and analysis of five (5) surface soil samples, excavation and sampling of test pits, sampling and analysis of storm sewers, and residential air sampling and analysis. The results of the Phase II SI confirmed the results of the Phase I assessments; however it did not fully define the degree and extent of MGP impacts. Impacts from MGP constituents were identified both on-site and off-site.

A Supplemental Site Investigation was completed in March 1997 to further assess extent and impacts of off-site residuals east of the site and to characterize materials within the below grade gas holder (GH-1) with respect to planned source removal. SSI activities included geoprobe soil sampling along the Sixth Street right-of-way, test pit excavations near GH-1 and immediately west of Sixth Street, and sampling of liquids within GH-1. Impacts from MGP residuals were observed at several locations within the vacated Sixth Street right-of-way; however, neither a source nor a pathway for these residuals was identified. No obvious migration pathways were discovered during the SSI activities.

AmerenIP conducted additional investigations at the site beginning in 2004 in order to complete the site investigation according to current IEPA regulations. The data from the Phase II SI as well as newly collected data were the basis for the December 2007 Comprehensive SIR.

An off-site investigation was competed in July 2008 that included the drilling of nine on-site soil probeholes. Information and analytical data from the nine on-site probeholes along with the previous site investigations was used to develop this on-site ROR and this RAP. More detailed information is presented in the Off-Site Investigation Report dated August 2008.

1.2.2 Interim Remedial Measures

Activities for removal of source materials were performed at the site as IRM between October 10, 1997 and May 14, 1998. Source materials were removed from the belowground gas holder (GH-1), tar wells, a tar separator, and an area of purifier waste (Figure 1-3). The primary objective of the IRM was the removal of potential source materials that were contained within previously identified subsurface structures.

Approximately 487.5 tons of soil containing purifier media was excavated from an area on the southwest corner of the site, west of the Booster House. Depth of the excavation was 3 feet bgs.

Approximately 526 tons of heavily impacted MGP material was excavated from gas holder GH-1 from the depth of 7 to 16.5 feet bgs. All impacted material from within the former holder structure was blended and removed for treatment to the Illinois Resource Recovery's Baldwin Thermal Treatment (BTT) Facility in Baldwin, Illinois.

An additional 482 tons of MGP-impacted material was also removed from the former tar wells, tar separator, valve pit and at test pit CHTP-103r. Test pit CHTP-203, northeast of gas holder GH-1, was in the area of a potential fourth tar well, which was determined to be a concrete foundation.

Other objectives accomplished as part of the IRM included capping the abandoned storm sewer traversing the site at the west and east terminal, and removal for off-site disposal of approximately 105 clean empty drums, two dozen wooden pallets, miscellaneous surface debris, hoses, fencing, trees, and brush.

Following the site clean-up, approximately 780 cubic yards of topsoil was spread over the site, graded, and seeded.

1.3 Recognized Environmental Concerns

Potential Recognized Environmental Concerns (RECs) were identified through the site investigation activities. The RECs for the remediation site are associated with the former MGP operations that were present on the Main Facility and the fenced area including and south of vacated Hill Street. The RECs consist of former site structures that held the potential for releases of material to the subsurface and MGP-related impact that has been identified in the subsurface.

These former structures were RECs remediated in 1997:

- The below ground gas holder (GH-1);
- The below ground tar wells/structures (TW1, TW2, and TW-3) and
- The above ground gas holder valve pit.

Removal of the contents of the subsurface structures (former tar separator, purifiers, gas holder GH-1, and oil and diesel storage tanks) has served to eliminate potential source material from further migration into the subsurface.

Constituents from MGP-related activities have been identified in the soils and groundwater on the site. The only continued migration of MGP-related constituents would be in dissolved phases in groundwater and by leaching of constituents through soil. The only remaining RECs would appear to be the existing subsurface impact that has been identified through the investigation activities.

2 REMEDIATION OBJECTIVES

Project remediation objectives (ROs) were developed and defined in the Remedial Objectives Report (ROR) dated December 2008. The remedial approach for the Site will consist of soil excavation and disposal of all impacted soil that exceeds a Tier 1 RO within 10 feet bgs and in-situ chemical oxidation of impacted soil that exceeds a Tier 1 RO deeper that 10 feet bgs. Impacted soil will be remediated as described above. The impacted soil will be removed and/or treated in-place to meet the project ROs that are outlined in Table 2-1.

Additionally, impacted groundwater that is present on Site will be addressed through the use of an institutional control. AmerenIP will use this institutional control to prevent the exposure to groundwater. Subsequent groundwater monitoring will be performed to evaluate the effectiveness of the remedial approach. Tier 2 evaluations will also be performed following remedial actions to estimate the potential for downgradient migration of groundwater impact. If off-site migration exists or may exist, the potentially affected property owners will be notified.

2.1 Soil Ingestion

Soil impact has been identified at levels that exceed Tier 1 ROs for the soil ingestion exposure pathway primarily across the northern portion of the site. Isolated impacts have also been identified on the southern portion of the site. The horizontal extent of impact exceeding this exposure pathway is identified in Figure 2-1. Soil impact above the Tier 1 ROs for soil ingestion has been identified from 0.5 foot bgs to 21 feet bgs. To address this potential exposure pathway for the Site, all soil in the impacted area within the top 10 feet of ground surface will be excavated and disposed. Soil deeper than 10 feet will be treated in-situ with chemical oxidation. Any soil impact greater than 10 feet bgs that remains in place and exceeds a project RO based on confirmation sampling results will be excluded through the use of an engineered barrier. That barrier will consist of at least 10 feet of clean soil from an off-site source.

2.2 Soil Inhalation

Soil impact has been identified at levels that exceed Tier 1 ROs for the soil inhalation exposure pathway primarily across the northern portion of the site for all property use scenarios. The horizontal extent of impact exceeding this exposure pathway is identified in Figure 2-2. Soil impact above the Tier 1 ROs for soil inhalation has been identified from 2 feet bgs to 24 feet bgs. To address this potential exposure pathway for the Site, all soil within the top 10 feet of ground surface will be excavated and disposed. Soil deeper than 10 feet will be treated in-situ with chemical oxidation. Any soil impact greater than 10 feet bgs that remains in place and exceeds a project RO will be excluded through the use of an engineered barrier. That barrier will consist of at least 10 feet of clean soil from an off-site source.

2.3 Indoor Inhalation Exposure

Soil impact has been identified at levels that exceed Tier 1 ROs for the indoor inhalation exposure pathway. The horizontal extent of impact exceeding this exposure pathway is identified in Figure 2-3. To address this potential exposure pathway for the remediation site, all soil in the impacted area will be addressed as outlined in IAC Section 742.935(A),(B), and (C).

2.4 Soil Component to Groundwater Ingestion

Soil impact has been identified at levels that exceed Tier 1 ROs for the soil component to groundwater ingestion exposure pathway on the site. The horizontal extent of this impact is identified in Figure 2-4. Soil impact above the Tier 1 ROs for the soil component to groundwater ingestion has been identified from 0.5 foot bgs to 28 feet bgs. To address this potential exposure pathway for the remediation site, all soil within the top 10 feet of ground surface will be excavated and disposed. Soil deeper than 10 feet will be treated in-situ with chemical oxidation. Any soil impact greater than 10 feet bgs that remains in place and exceeds a project RO will be excluded through the use of an institutional control and, if required, an engineered barrier.

2.5 Free Product (Source Material)

Source material has been identified on the Site. AmerenIP intends to remove the material to the maximum extent practicable. To address the potential source material, all source material within the top 10 feet will be excavated and disposed. If source material is present below ten feet, it will be excavated to the extent achievable. If source material remains after the maximum excavation depth is reached, in-situ chemical oxidation will be performed.

2.6 Groundwater Ingestion

Groundwater impact has been identified on the Site. Based on the location of monitoring wells with impact and the concentrations of constituents in groundwater samples, groundwater impact is present on the sites southern portion. Figure 2-5 identifies monitoring well locations with Site groundwater impact and the approximate extent of groundwater impact.

The shallow groundwater at the remediation site appears to be entrained in the surficial fill layer and into the unweathered till unit. The groundwater impact does not appear to extend beyond the area of soil impact. Through the soil removal and chemical oxidation actions to be performed in these areas, the source for the groundwater impact and the impacted groundwater will be reduced. All impacted groundwater above Tier 1 ROs will be addressed through an institutional control and Tier 2 evaluations to determine potential off-site migration and the subsequent notification of affected downgradient property owners.

3 REMEDIATION TECHNOLOGIES SELECTED

The remediation technology selected for addressing soil and groundwater impact is excavation and disposal within the top 10 feet and in-situ chemical oxidation in the deeper than 10 feet zone. The use these technologies are discussed in the following sections.

Excavated materials will be loaded directly into trucks for transport to off-site disposal facilities. The depths of excavation are estimated to range from approximately 0.5 feet below ground surface (bgs) to depths of approximate 10-ft that exceeds project ROs. If source material is encountered, the excavation will extend as deep as necessary or to the excavation equipments maximum achievable depth. The volume of material to be excavated is estimated to be approximately 32,000 cu yd. The actual extent of excavation will be determined by site conditions encountered during the remedial action and results of confirmation sampling.

In-situ chemical oxidation will be utilized in areas deeper than 10 feet bgs that exceed project ROs. AmerenIP is currently evaluating the chemical oxidant type, injection point locations, dosage rates, and number of applications.

3.1 Remediation Control Measures

During the remediation activities, control measures have been established and will be in-place to maintain a safe and controlled environment for the duration of the remediation. These control measures will be implemented throughout the remedial action and include health and safety measures, work zone control, ambient air monitoring, emissions control, control and management of stormwater, and decontamination procedures. Descriptions of how these control measures will be implemented and used at the Champaign MGP site are described in the following subsections:

3.1.1 Health and Safety

The remedial activities will be conducted under Health and Safety Plans (HASPs) that will specify procedures for protecting remediation workers during the remediation. The remediation contractor will prepare a site specific HASP to address construction related activities safety. The remediation contractor's HASP will include procedures for maintaining safe working conditions during remediation activities including worker protection, earthwork practices, procedures, and protection, confined space work, protection of nearby properties and structures, material handling, heavy equipment, and traffic safety. The HASP will also address contingency plans and procedures for events that deviate from normal safe remedial action activities. In addition, the site-specific HASP will be prepared to address other related site activities such as general observation of other remedial action subcontractors, air monitoring, and sampling of materials for confirmation analysis and waste disposal characterization. A copy of the HASP, which is a separate document from the RAP, will be submitted to the Illinois EPA, though the IEPA does not review or approve HASPs, the HASP will also be maintained at the site during remediation. Other site specific HASPs will

be prepared by the air monitoring contractor (described in Section 3.1.3).

3.1.2 Work Zone Control

During the remedial action, the work (the activities describes in this RAP) will be carried out within a controlled perimeter established through the use of a tent structure, fencing, and other barriers (if needed) to secure the exclusion zone. The tent structure, temporary fencing, and safety barriers will be relocated as necessary as the excavation and in-situ chemical oxidation work proceeds to secure the work area from unauthorized access.

The work will proceed with a contamination reduction zone established within the project site, marked by a chain link fence, temporary plastic barricade fence fabric, barrier tape or other methods and materials. Contaminant measures including stormwater controls, work zone access controls, and decontamination pads will be established within the contamination reduction zone. The air monitoring, project support facilities, and activities described in this RAP will be maintained in the support zone located outside the contamination reduction zone.

3.1.3 Air Monitoring (Ambient and Real-Time)

The air quality will be monitored at the work zone perimeter during the remedial action in accordance with the site specific Ambient Air Monitoring Plan (AAMP), which like the HASP, will be submitted to the IEPA as a separate document to this RAP. A network of ambient air-monitoring stations will be installed between the work zone perimeter and the site perimeter to monitor air quality. These stations will be operated continuously utilizing 72-hour (time-averaged) sampling events. Air quality will be monitored to measure levels of volatile organic compounds and semi-volatile organic compounds in the ambient air at predetermined locations approved by the IEPA. A meteorological station monitoring wind speed, direction, air temperature and barometric pressure will be included in the air-monitoring network. In addition to the continuous air-monitoring network, real-time air monitoring will be conducted to identify additional site controls or contingency measures that may need to be implemented. Real-time monitoring will include dust monitoring and perimeter monitoring for organics using a portable gas chromatograph.

In the event that air-quality action levels specified in the AAMP are triggered based on data collected at the air monitoring station network or by the real-time monitoring, abatement actions will be taken to reduce emissions to acceptable levels. If necessary, excavation or material handling work may be temporarily suspended while the abatement actions are taken. These actions, which are listed in the AAMP, may include, but not be limited to:

- temporarily relocating work to an area with lower emissions, applying water to on-site haul roads and activity areas to suppress dust; applying a VOC-suppressant material to surfaces of exposed materials; covering stockpiles with tarps or sheeting; slowing the pace of material excavation handling; or ceasing site work and re-assessing the remedial approach.

3.1.4 Emission Control

Potential emissions from the remedial activities include organics, dust or nuisance odors associated with excavation, material handling, loading, and transportation of impacted soil, fill, debris, and structures. Although time-averaged and real-time air monitoring will be performed during the remedial activities, control measures will be implemented or used as necessary during the remedial activities to mitigate the generation of these emissions.

MGP process residuals and impacted soils were identified during previous site investigations. To reduce emissions during the excavation of the impacted soils, a temporary structure will be erected onsite to enclose the immediate remedial work zone. A 40-meter by 65-meter temporary structure will be utilized throughout the duration of the remedial activities. This structure will be moved as subsections within the remedial zone as the soils are excavated and backfilled. The approximate location where the structure will originate and subsequent moves are shown in Figure 3-1. Excavation, loading, and chemical oxidation operations will be conducted inside the temporary structures. Activities within the temporary structure will be carried out to the extent possible with the doors closed. Trucks and/or roll-off boxes that have been loaded with excavated materials will be covered prior to exiting the structure to further control odors and emissions.

The temporary tent structure will be equipped with air treatment equipment to both maintain safe working conditions within the structure and control emissions to the surrounding atmosphere this will be accomplished through maintaining a negative pressure within the structure. The air treatment system will include ducting, particulate filters, and activated carbon to process the exhaust stream from the building prior to release to the atmosphere.

General site odor and organic vapor emissions control for any necessary open excavation and material staging activities will be accomplished using a combination of tarps, sheeting, or odor suppressing material, reducing the material loading rate, work sequencing, or work stoppage. Onsite haul roads will be maintained in a damp condition to control dust generation. Action levels and responses will be discussed in detail in the AAMP.

3.1.5 Wastewater and other Liquids Management

Liquids that may be encountered during remediation activities include dewatering liquids that are pumped from below-ground MGP structures, groundwater or precipitation that may accumulate in the excavations, tar, and other non-aqueous phase liquids (NAPL). Groundwater was encountered beneath the Site during the site investigation at depths ranging from approximately 4.5 feet to 10.5 feet bgs. Because the excavation is anticipated to range up to 10 ft bgs, some water may accumulate in the excavation. Sumps will be maintained in the excavation areas so that accumulated water can be removed. Liquids pumped from the excavation will be transferred to on-site storage tanks for treatment and disposal characterization. Liquid transfer lines and storage vessels will be water tight, maintained within the work zone, and inspected on a daily basis.

Liquid samples will be collected from the separate storage tanks and analyzed for waste disposal characterization. Liquid that does not meet acceptable discharge standards will be treated utilizing a portable on-site water treatment system. This system will include a settling vessel, oil/water separator, bag filtration and granular activated carbon absorbers. Liquid that does meet acceptable discharge standards will be transported to an off-site disposal facility or discharged to the local sanitary sewer under a discharge permit.

Source material, if encountered, will be mixed on-site with dry material to reduce the free liquid content. The mixed material will be disposed of based on disposal profiling. Mixing of the former MGP structures contents during removal will be conducted on site using excavated soil or hydroscopic additives as needed before excavation and loading.

3.1.6 Decontamination

The surfaces of equipment which come in contact with impacted materials will be decontaminated to remove soil and debris before they leave the work zone. Decontamination will be accomplished by pressure washing or brushing as needed at decontamination pads to remove materials.

Equipment decontamination pads will be constructed adjacent to the temporary excavation enclosure structures and will be used by trucks, equipment and personnel exiting the work zone. The decontamination pads will be lined with an impermeable material and bermed for containing decontamination liquids within the limits of the pad. The pad will be constructed with a sump in one corner for the collection and conveyance of decontamination fluids to a storage tank. Soil and waste material accumulated within the equipment decontamination pad will be contained within the pad and removed as required to maintain an orderly and functional facility. Soil material removed from the decontamination pad will be transported to the active excavation. The waste material will be mixed with similar materials prior to load out and disposal.

Personnel accessing the work zone will pass through a contaminant reduction zone and will perform personnel protective equipment (PPE) decontamination procedure as they exit the work zone. Personnel decontamination procedures will be outlined in the site specific Health and Safety Plan.

3.2 Impacted Soil Removal

The remedial approach to address impacted soil above Tier 1 ROs within the top 10 feet bgs for all potential exposure pathways for all property use scenarios will be soil excavation and disposal. The extent of soil excavation is estimated in Figure 3-2. This extent is based on removal of soil to locations that have been identified through the investigation activities as non-impacted or upon interpolation between sample locations. The actual extent of soil removal will be based upon meeting the project ROs outlined in Table 2-1. Soil will be monitored during removal actions to identify potential impacted areas. Monitoring will be performed using a photoionization detector (PID) to identify volatile organic compounds

(VOCs). An on-site engineer or geologist will also monitor for odors and for visible indications of MGP-impact.

Impacted soil will be characterized as a special waste for disposal at a permitted landfill in Illinois. Upon completion of the remedial actions, the excavation will be backfilled with non-impacted material obtained from an off-site location(s). The backfill will be placed in the excavation to restore the remediation site to the original grade.

Feasibility of Implementation [740.450(c)(1)]: Excavation and removal of source material is an accepted remedial approach and is easily implemented. Achieving the remediation objectives through excavation and removal is easily verifiable through confirmation sampling.

Satisfactory and Reliable Performance Until ROs are Achieved [740.450(c)(2)]: Achievement of the remediation objectives will be deemed to be complete when all impacted material has been removed to the project ROs outlined in Table 2-1. Verification that the remediation objectives have been met will be through the collection and analysis of confirmation samples as discussed in Section 4.1 of this RAP.

*Timely Achievement of ROs [740.*450(c)(3)]: Remedial objectives will have been achieved at completion of the soil removal to the project ROs identified in Table 2-1. It is anticipated that the remedial objectives will be achieved within approximately 6 months from the initiation of the remedial actions.

3.3 In-Situ Chemical Oxidation

The remedial approach to address impacted soil above Tier 1 ROs at depths deeper than 10 feet bgs for all potential exposure pathways for all property use scenarios will be in-situ chemical oxidation. The extent of soil treatment is estimated in Figure 3-3. This extent is based on soil treatment to locations that have been identified through the investigation activities as non-impacted or upon interpolation between sample locations. The actual extent of soil treatment will be based upon meeting the project ROs outlined in Table 2-1. Soil will be monitored during treatment actions to identify potential impacted areas.

Feasibility of Implementation [740.450(c)(1)]: In-situ chemical oxidation treatment of source material is an accepted remedial approach and is easily implemented. Achieving the remediation objectives through chemical oxidation treatment is easily verifiable through confirmation sampling.

Satisfactory and Reliable Performance Until ROs are Achieved [740.450(c)(2)]: Achievement of the remediation objectives will be deemed to be complete when all impacted material has been treated to the project ROs outlined in Table 2-1. Verification that the remediation objectives have been met will be through the collection and analysis of confirmation samples as discussed in Section 4.1 of this RAP.

*Timely Achievement of ROs [740.*450(c)(3)]: Remedial objectives will have been achieved at completion of the soil treatment to the project ROs identified in Table 2-1. It is anticipated that the remedial objectives will be achieved within approximately 6 months from the initiation of the remedial actions.

3.4 Addressing Impacted Groundwater Through Excavation

Groundwater impact has been identified on the southern portion of the site. The remedial approach to address the groundwater impact will be through the removal of source area by soil excavation and in-situ treatment of the soil matrix using chemical oxidation. Through this remedial action, the use of an institutional control, and Tier 2 evaluations to determine Tier 2 ROs that will identify potential downgradient affect of adjacent property owners the groundwater impact will be addressed.

Feasibility of Implementation [740.450(c)(1)]: Soil excavation, in-situ chemical oxidation of source material, the use of institutional controls, and Tier 2 evaluations is an accepted remedial approach and is easily implemented. Achieving the remediation objectives through chemical oxidation treatment is easily verifiable through confirmation sampling.

Satisfactory and Reliable Performance Until ROs are Achieved [740.450(c)(2)]: Achievement of the remediation objectives will be deemed to be complete when all impacted material has been removed and treated to the project ROs outlined in Table 2-1. Verification that the remediation objectives have been met will be through the collection and analysis of confirmation samples as discussed in Section 4.1 of this RAP.

*Timely Achievement of ROs [740.*450(c)(3)]: Remedial objectives will have been achieved at completion of the soil removal and treatment to the project ROs identified in Table 2-1. It is anticipated that the remedial objectives will be achieved within approximately 12 months from the initiation of the remedial actions.

3.5 Free Product (Source Material)

Any material that appears to be source material will be segregated and sampled for characterization. Should the material fail to meet the acceptance criteria for disposal at a permitted landfill, it will be stabilized to meet acceptance criteria or disposed of at an alternative facility. The actual landfills to be utilized have not yet been determined.

4 CONFIRMATION SAMPLING PLAN

Confirmation sampling will be performed to verify that the project ROs have been achieved for soil. Groundwater monitoring will be performed to verify that the groundwater impact has been addressed. The following sections discuss the confirmation sampling plan.

4.1 Confirmation Soil Sampling

4.1.1 Soil Excavation and Disposal

Once the impacted material has been removed to the extents outlined in Section 3 of the RAP or to a depth of excavation termination, confirmation soil samples will be retained and analyzed. Confirmation soil samples will be obtained from the floors and sidewalls of the excavation area. From the floor of the excavation, at least one confirmation soil sample will be retained from the center of an area represented by a 25-foot by 25-foot spacing. A minimum of one floor sample will be retained for any non-conforming area. In any area excavated deeper than the surrounding excavation (i.e. – stepped excavations), at least one floor sample will be retained on the stepped level(s).

From sidewalls, soil samples will be retained from spacings of approximately 25 feet. A minimum of one sample point will be present along any sidewall. At a minimum, two soil samples will be retained from a sidewall sample location. One soil sample will be retained from the 0- to 3-foot depth interval while a second soil sample will be retained from the 3- to 10-foot depth interval. In areas where the excavation extends beyond 10 feet an additional soil sample will be retained from a depth between 10 feet bgs and the excavations bottom. Sidewall samples will be retained from depths that correspond to the zones of highest impact based on the investigation activities. The sample locations will be marked in the field using wooden stakes, engineer flags, geographic positioning system (GPS) or some similar approach. This will allow the remediation crew to readily return to a location and continue with remedial actions should analytical results exceed project ROs.

For health and safety purposes, personnel may not be able to enter the excavation in some areas. In the event that samples cannot be collected directly from the floor or the sidewalls, soil will be recovered from the bucket of the excavator. The on-site engineer or geologist will inspect the recovered soil and collect the soil.

Soil samples will be submitted and analyzed for the constituents identified in Table 1-1. Benzene, toluene, ethylbenzene, and xylenes (BTEX) samples will be analyzed using USEPA Method 8260. Semivolatile organic compounds (SVOCs) and Polynuclear aromatic compounds (PAHs) will be analyzed using USEPA Method 8270 and 8270 SIM. Amenable cyanide will be analyzed using USEPA Method 9014 and the remaining metals will be analyzed using USEPA Methods 6010, 7420, and 7470, as appropriate.

Soil samples will be retained for BTEX analysis using USEPA Method 5035. A portion of the soil will be retained for laboratory analysis using an Easydraw™ Syringe. The soil will

be placed in 40-ml vials provided by the laboratory. The 40-ml vials will have sodium bisulfate or methanol preservative, as appropriate. Soil samples to be analyzed for PNAs, SVOCs, cyanide, and metals using SW 846. The soil will be placed in 8-ounce jars provided by the laboratory. Disposable sampling equipment will be used and discarded after sampling.

After placing the soil in the sample jars, labels will be affixed and the samples will be given unique sample identifications based upon the sample location and depth. Chain of custody records will be completed and the samples placed in a cooler with ice. The samples will remain on ice until delivered to the laboratory for analysis. Samples will either be delivered to the laboratory or shipped via overnight services.

Upon receipt of the laboratory analytical data, the results will be compared to the ROs outlined in Table 2-1. If a constituent exceeds a project RO, the excavation will proceed outward or downward as appropriate until samples with analytical results are less than the project ROs.

4.1.2 In-Situ Chemical Oxidation Treatment

Once the impacted material has been treated using in-situ chemical oxidation to the extents outlined in Section 3 of the RAP or to the maximum extent of impact as determined through previous investigation activities, confirmation soil samples will be retained and analyzed. Confirmation soil samples will be obtained from GeoProbe™ probeholes advanced adjacent to the treated areas. At a minimum, two soil samples will be retained from each probehole location. One soil sample will be retained from the 0- to 3-foot depth interval and a second soil sample will be retained from the 3- to 10-foot depth interval.

In areas where the chemical oxidation treatment extends beyond 10 feet an additional soil sample will be retained from a depth of greater than 10 feet bgs. Probehole samples will be retained from depths that correspond to the zones of highest impact based on the investigation activities. The sample locations will be marked in the field using wooden stakes, engineer flags, GPS, or some similar approach. This will allow the remediation crew to readily return to a location and continue with remedial actions should analytical results exceed project ROs.

In areas where in-situ chemical oxidation is used beneath the excavation area, two samples will be collected from each probehole at depths determined by treatment depths

Soil samples will be submitted and analyzed for the following constituents: Benzene, toluene, ethylbenzene, and xylenes (BTEX) samples will be analyzed using USEPA Method 8260. Semivolatile organic compounds (SVOCs) and Polynuclear aromatic compounds (PAHs) will be analyzed using USEPA Method 8270 and 8270 SIM. Amenable cyanide will be analyzed using USEPA Method 9014 and the remaining metals will be analyzed using USEPA Methods 6010, 7420, and 7470, as appropriate.

Soil samples will be retained for BTEX analysis using USEPA Method 5035. A portion of the soil will be retained for laboratory analysis using an Easydraw™ Syringe. The soil will be placed in 40-ml vials provided by the laboratory. The 40-ml vials will have sodium bisulfate or methanol preservative, as appropriate. Soil samples to be analyzed for PNAs, selected SVOCs, cyanide, and metals using SW 846. The soil will be placed in 8-ounce jars provided by the laboratory. Disposable sampling equipment will be used and discarded after sampling.

After placing the soil in the sample jars, labels will be affixed and the samples will be given unique sample identifications based upon the sample location and depth. Chain of custody records will be completed and the samples placed in a cooler with ice. The samples will remain on ice until delivered to the laboratory for analysis. Samples will either be delivered to the laboratory or shipped via overnight services.

Upon receipt of the laboratory analytical data, the results will be compared to the ROs outlined in Table 2-1. If a constituent exceeds a project RO outlined in Table 2-1, the excavation will proceed outward or downward as appropriate until samples with analytical results are less than the project ROs.

4.2 Groundwater and Groundwater Monitoring

In areas where soil excavation is performed and monitoring wells are removed, new monitoring wells may be installed in the approximate locations as the removed monitoring wells. This will permit evaluation of the effectiveness of the remedial actions. The groundwater monitoring wells will be constructed to the same approximate depths and monitoring intervals as the existing monitoring wells.

After completion of the remedial actions, post chemical oxidation groundwater sampling will be performed approximately 30 to 45 days after the initial injection period. Water level measurements will be obtained from all wells using an electronic water level indicator and recorded in a field log-book. Groundwater monitoring will be performed to verify if chemical oxidation has reduced impact levels or if additional chemical oxidation injections are necessary.

The groundwater samples will be collected using dedicated bladder pumps and low flow sampling procedures in accordance with USEPA Document 540/S-95/504. The groundwater samples will be placed in containers with appropriate preservatives provided by the laboratory. Samples will be labeled with a unique sample identification; chain of custody forms will be completed; the samples packed in ice; and delivered to the laboratory. Upon receipt of the analytical data, the results will be compared to Tier 1 ROs or the groundwater quality standards.

The groundwater sampling will be performed on a bi-annual basis for one year. Groundwater samples will be collected and analyzed for BTEX, PNAs, SVOCs, amenable cyanide, and metals.

4.3 Quality Assurance/Quality Control

Quality Assurance/Quality Control (QA/QC) procedures will be performed to assure data quality and compliance with field and laboratory methods and procedures. QA/QC procedures include checking and calibration of field equipment, review of laboratory analytical data by a qualified data validation expert, and review and checking of data presented in applicable reports. Duplicate soil samples will be collected on a 1 in 20 basis and will be obtained from he same material as the primary sample. Rinseate blanks and trip blanks will not be collected.

Field instruments such as the PID are calibrated outside of PSC on a periodic or as-required basis by a certified maintenance technician. The instrument is checked prior to deployment to the field. Field calibration checks are performed daily using a span gas (isobutylene).

A Illinois accredited laboratory will perform the requested analyses. This lab will also conduct standard QA/QC procedures upon receipt of soil samples. Standard QA/QC procedures include the use of laboratory control spikes, matrix spikes, and matrix spike duplicates. All QA/QC data will be provided with laboratory analytical packages.

5 CURRENT AND POST-REMEDIATION PROPERTY USE

The remediation site consists of one property. The remediation site is currently used for commercial purposes by AmerenIP as a temporary equipment storage area.

The future use of the property is anticipated to remain the same. The goal of the remedial actions is to address the impact to the most stringent ROs. This may require the use of an institutional control or an engineered barrier.

6 ENGINEERED BARRIERS AND INSTITUTIONAL CONTROLS

The goal of the remedial actions is to address the subsurface soil and groundwater impact to the most stringent Tier 1 ROs outlined in IAC Section 742. Once remedial actions are complete, an engineered barrier will be constructed within the excavated areas that consists of 10 feet of clean material from an off-site source. The implementation of the engineered barrier will exclude the soil ingestion and soil inhalation exposure pathways.

The utilization of an institutional control will exclude the soil to groundwater and groundwater ingestion pathways.

7 SUMMARY AND CONCLUSIONS

Subsurface soil and groundwater impact is present on the AmerenIP property located at 308 North Fifth Street in Champaign, Illinois. Subsurface investigation activities have been completed and the extent of impact has been delineated as depicted in Figure 3-2.

Subsurface soil and groundwater impact will be addressed to meet the requirements for no further remediation as outlined in IAC Section 742. Remedial actions will be performed through soil excavation and disposal and in-situ chemical oxidation. The anticipated extents of the soil removal and treatment are presented in Figure 3-3; however, impact exceeding the project ROs will be removed or treated and verified through confirmation sampling. Upon completion of the remediation actions, if impact should remain in place above the project ROs, the following measures will be implemented:

- An engineered barrier will be constructed to exclude the soil ingestion and soil inhalation pathways.
- An institutional control will be utilized to exclude the soil to groundwater and groundwater ingestion pathways.
- Tier 2 evaluations will also be performed to determine potential migration distances and the potentially affected property owners.

8 ILLINOIS LICENSED PROFESSIONAL ENGINEER REVIEW

For those portions of the work performed during my involvement:

I attest that all site investigation activities and proposed remedial activities, including review of laboratory data, that are the subject of this plan were performed under my direction and this document and all attachments were prepared under my direction or reviewed by me, and, to the best of my knowledge and belief, the work described in this plan has been designed in accordance with Act, 35 Illinois Administrative Code 740, and generally accepted engineering practices, and the information presented, including any qualified laboratory data, is accurate and complete.

Signature: _____

Derek Ingram, P.E. PG
Licensed Professional Engineer

Date: _____

License No.: _____

License Expiration Date: _____

References

John Mathes and Associates, 1990a. *Phase IC Preliminary On-Site Assessment, Champaign Former Manufactured Gas Plant Site, Champaign, Illinois.*

Philip Services Corporation, 2007. *Comprehensive Site Investigation Report for AmerenIP Champaign, Illinois, Former Manufactured Gas Plant, State ID 0190100008.*

PSC Industrial Outsourcing, LP, 2008. *Off-Site Investigation Report, Former Manufactured Gas Plant, Champaign Illinois, State ID 0190100008.*

List of Tables

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TABLE ES-1
MANUFACTURED GAS PLANT RELATED CONSTITUENTS OF CONCERN
REMEDIAL ACTION PLAN
CHAMPAIGN MGP SITE
CHAMPAIGN, ILLINOIS
AMERENIP

SOIL	***GROUNDWATER***
Inorganics	**Inorganics**
Cyanide	Cyanide
Metals	**Metals**
Chromium	Iron
Lead	Lead
Arsenic	Nickel
Mercury	Manganese
Volatile Aromatics	**Volatile Aromatics**
Benzene	Benzene
Ethylbenzene	Ethylbenzene
Toluene	Toluene
Total Xylenes	
Styrene	
Acetone	
Methylene Chloride	
Polycylic Aromatic Hydrocarbons	**Polycylic Aromatic Hydrocarbons**
Acenaphthene	Acenaphthene
Acenaphthylene	Acenaphthylene
Benzo(a)anthracene	Benzo(a)anthracene
Benzo(a)pyrene	Benzo(a)pyrene
Benzo(b)fluoranthene	Benzo(b)fluoranthene
Benzo(k)fluoranthene	Chrysene
Chrysene	Fluoranthene
Dibenzo (a,h,)anthracene	Fluorene
Dibenzofuran	Naphthalene
Fluorene	Phenanthrene
Indeno(1,2,3,cd)pyrene	Pyrene
Naphthalene	2-methylnaphthalene
Phenanthrene	
2-methylnaphthalene	

TABLE ES-2
PROJECT REMEDIATION OBJECTIVES
FOR CONSTITUENTS OF CONCERN
CHAMPAIGN MGP
AMERENIP

	Tier 1 Remediation Objective									
	Ingestion			***Inhalation***			***Indoor Inhalation***		**IEPA Accepted Background Levels**	**Project Remediation**
	Residential	Commercial	Construction	Residential	Commercial	Construction	Residential	Commercial	**MSA**	**Objective**
Volatile Organic Compounds (mg/kg)										
Benzene	12	100	2,300	0.80	1.6	2.2	0.069	0.51	---	0.069
Ethylbenzene	7,800	200,000	20,000	400	400	58.0	130	130	---	58
Toluene	16,000	410,000	410,000	650	650	42.0	240	240	---	42
Total Xylenes	16,000	410,000	41,000	410	320	5.6	63	100	---	5.6
Styrene	16,000	410,000	41,000	1,500	1,500	430	230	230	---	230
Acetone	7,800	200,000	200,000	100,000	100,000	10,000	100,000	100,000	---	7,800
Methylene Chloride	85	760	12,000	13	24	34	1.4	10		1.4
Semivolatile Organic Compounds (mg/kg)										
Acenaphthene	4,700	120,000	120,000	---	---	---	---	---	0.13	4,700
Acenaphthylene	2,300 (1)	61,000 (1)	61,000 (1)	---	---	---	---	---	0.07	2,300
Benzo(a)anthracene	0.9	8	170	---	---	---	---	---	1.8	1.8
Benzo(a)pyrene	0.09	0.8	17	---	---	---	---	---	2.1	2.1
Benzo(b)fluoranthene	0.9	8	170	---	---	---	---	---	2.1	2.1
Benzo(k)fluoranthene	9	78	1,700	---	---	---	---	---	1.7	9
Chrysene	88	780	17,000	---	---	---	---	---	2.7	88
Dibenzo(a,h)anthracene	0.09	0.8	17	---	---	---	---	---	0.42	0.42
Dibenzofuran	310 (1)	8,200 (1)	820 (1)	---	---	---	---	---	---	310
Fluorene	3,100	82,000	82,000	---	---	---	---	---	0.18	3,100
Indeno(1,2,3-cd)pyrene	0.9	8	170	---	---	---	---	---	1.6	1.6
Naphthalene	1,600	41,000	4,100	170	270	1.8	34	34	0.2	1.8
Phenanthrene	2,300 (1)	61000 (1)	61000 (1)	---	---	---	---	---	2.5	2,300
2-methylnaphthalene	2,300	61,000	61,000	---	---	---	83	83	0.14	83
Metals (mg/kg)										
Arsenic	13	13	61	750	1,200	25,000	---	---	13	13
Chromium	230	6,100	4,100	270	420	690	---	---	16.2	230
Lead	400	800	700	---	---	---	---	---	36	400
Mercury	23	610	61	10	16	0.1	0.45	0.45	0.06	0.1
Inorganics (mg/kg)										
Cyanide	1,600	41,000	4,100	---	---	---	---	---	0.51	1,600

Notes:
(1) Non-TACO or provisional RO provided by the IEPA
--- No remediation objective has been established by the IEPA for this constituent for exposure route
mg/kg Milligrams per kilogram

TABLE 1-1
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REMEDIAL ACTION PLAN
CHAMPAIGN MGP SITE
CHAMPAIGN, ILLINOIS
AMERENIP

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Benzo(k)fluoranthene	Chrysene
Chrysene	Fluoranthene
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Dibenzofuran	Naphthalene
Fluorene	Phenanthrene
Indeno(1,2,3,cd)pyrene	Pyrene
Naphthalene	2-methylnaphthalene
Phenanthrene	
2-methylnaphthalene	

TABLE 2-1
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FOR CONSTITUENTS OF CONCERN
CHAMPAIGN MGP
AMERENIP

	Tier 1 Remediation Objective									
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Toluene	16,000	410,000	410,000	650	650	42.0	240	240	---	42
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Acetone	7,800	200,000	200,000	100,000	100,000	10,000	100,000	100,000	---	7,800
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Acenaphthylene	2,300 (1)	61,000 (1)	61,000 (1)	---	---	---	---	---	0.07	2,300
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Benzo(a)pyrene	0.09	0.8	17	---	---	---	---	---	2.1	2.1
Benzo(b)fluoranthene	0.9	8	170	---	---	---	---	---	2.1	2.1
Benzo(k)fluoranthene	9	78	1,700	---	---	---	---	---	1.7	9
Chrysene	88	780	17,000	---	---	---	---	---	2.7	88
Dibenzo(a,h)anthracene	0.09	0.8	17	---	---	---	---	---	0.42	0.42
Dibenzofuran	310 (1)	8,200 (1)	820 (1)	---	---	---	---	---	---	310
Fluorene	3,100	82,000	82,000	---	---	---	---	---	0.18	3,100
Indeno(1,2,3-cd)pyrene	0.9	8	170	---	---	---	---	---	1.6	1.6
Naphthalene	1,600	41,000	4,100	170	270	1.8	34	34	0.2	1.8
Phenanthrene	2,300 (1)	61000 (1)	61000 (1)	---	---	---	---	---	2.5	2,300
2-methylnaphthalene	2,300	61,000	61,000	---	---	---	83	83	0.14	83
Metals (mg/kg)										
Arsenic	13	13	61	750	1,200	25,000	---	---	13	13
Chromium	230	6,100	4,100	270	420	690	---	---	16.2	230
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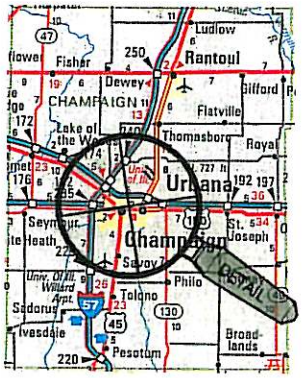
Mercury	23	610	61	10	16	0.1	0.45	0.45	0.06	0.1
Inorganics (mg/kg)										
Cyanide	1,600	41,000	4,100	---	---	---	---	---	0.51	1,600

Notes:
(1) Non-TACO or provisional RO provided by the IEPA
--- No remediation objective has been established by the IEPA for this constituent for exposure route
mg/kg Milligrams per kilogram

ILLINOIS

CHAMPAIGN COUNTY



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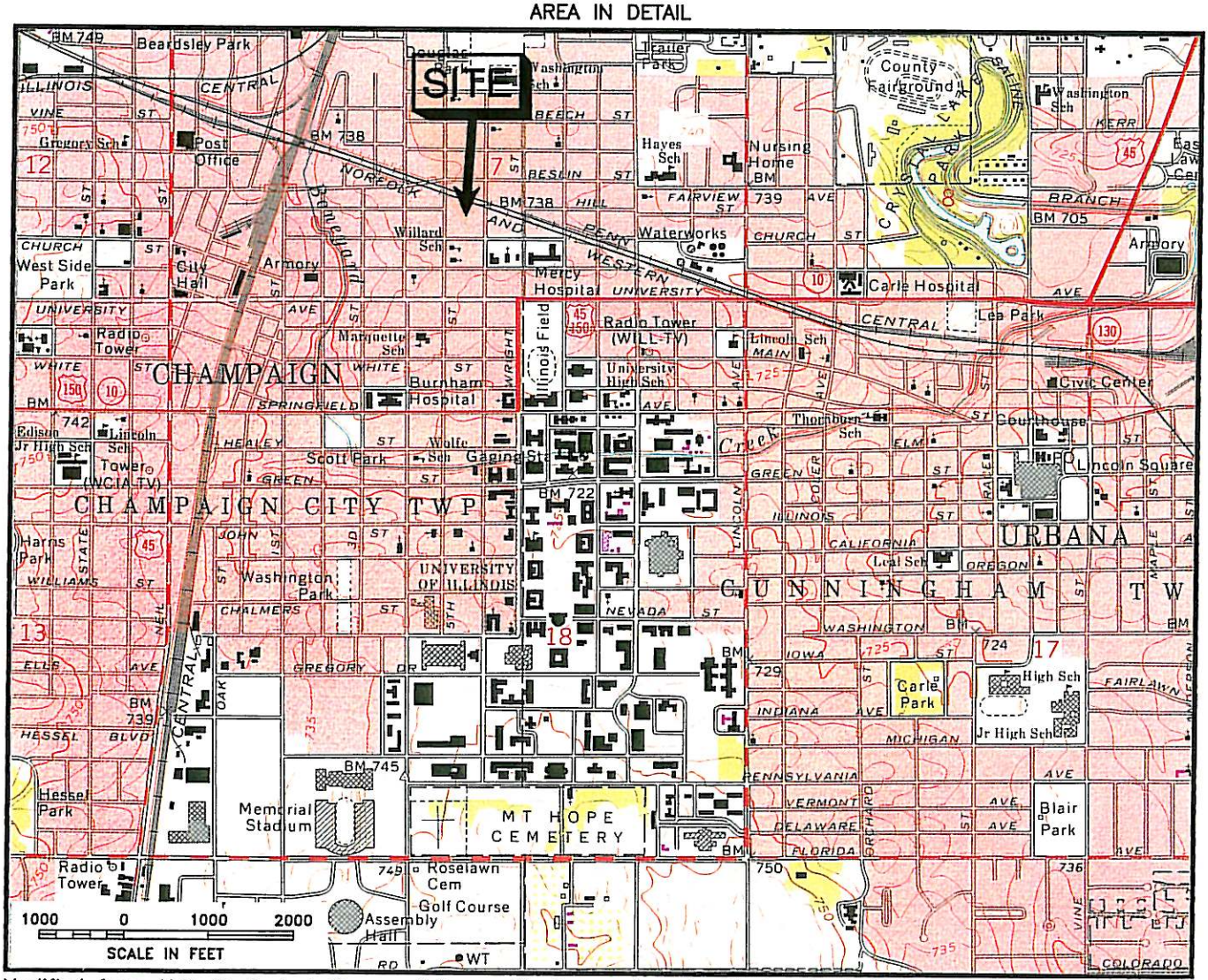

Modified from U.S. Geological Survey, Urbana, Illinois, quadrangle, Photorevised 1975.

SCALE IS VARIABLE

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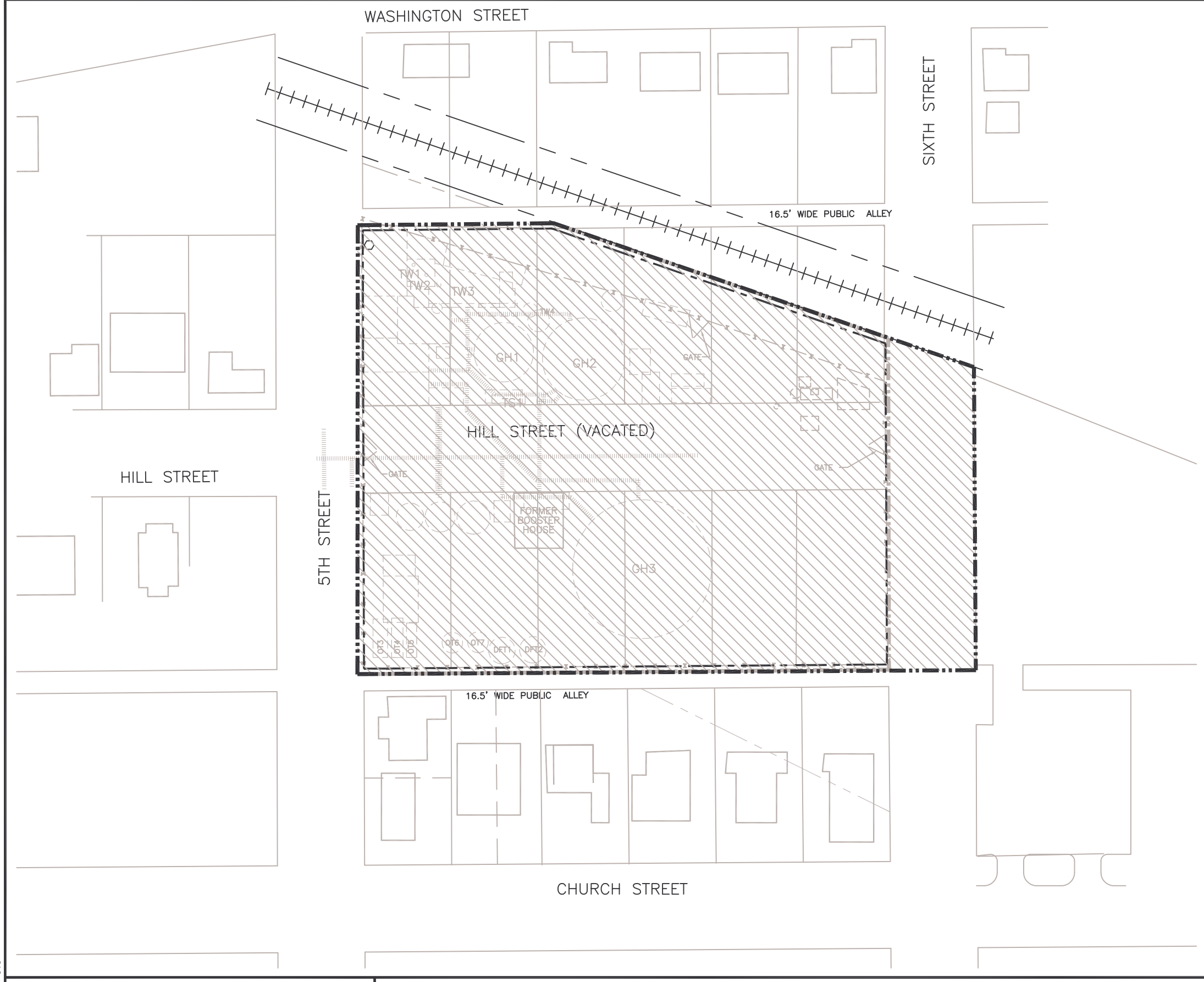
	CHKD:	APPD:	
	DATE: 2/24/00	REV.: 0	FIGURE ES-1

COL 624\00345E-001



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- HISTORICAL MANUFACTURED GAS PLANT STRUCTURES (APPROXIMATE)
- FORMER GAS PLANT PIPING (APPROXIMATE)
- EXISTING STRUCTURES (APPROXIMATE)
- CURRENT AMERENIP PROPERTY BOUNDARY
- REMEDIATION SITE BOUNDARY
- FENCE

NOTE: THE HISTORICAL MANUFACTURED GAS PLANT STRUCTURES ARE A COMPOSITE FROM SANBORN FIRE INSURANCE MAPS AND HISTORICAL AMERENIP SITE PLANS. THE EXACT LOCATIONS OF THE FEATURES ARE NOT KNOWN. STRUCTURES AND BUILDINGS MAY HAVE SERVED MULTIPLE PURPOSES DURING THE OPERATION OF THE PLANT.

SOURCE: THE SOURCE FOR THE PROPERTY BOUNDARY SURVEY IS VEGRZYN, SARVER AND ASSOCIATES.

0 80
FEET

N

PSC

TITLE:
REMEDIATION SITE BOUNDARY

DWN:	DES:	PROJECT NO: 62403053
TMM	PTS	AMERENIP CHAMPAIGN, ILLINOIS
CHKD:	APPD:	
DATE: 12/5/08	REV:	FIGURE ES–2

COL J:\624\026470-010

LEGEND

- HISTORICAL MANUFACTURED GAS PLANT STRUCTURES (APPROXIMATE)
- FORMER GAS PLANT PIPING (APPROXIMATE)
- EXISTING STRUCTURES (APPROXIMATE)
- CURRENT AMERENIP PROPERTY BOUNDARY
- REMEDIATION SITE BOUNDARY
- FENCE
- EXCAVATION EXTENTS – 0 TO 3 FOOT DEPTH
- EXCAVATION EXTENTS – 0 TO 10 FOOT DEPTH

NOTE: THE HISTORICAL MANUFACTURED GAS PLANT STRUCTURES ARE A COMPOSITE FROM SANBORN FIRE INSURANCE MAPS AND HISTORICAL AMERENIP SITE PLANS. THE EXACT LOCATIONS OF THE FEATURES ARE NOT KNOWN. STRUCTURES AND BUILDINGS MAY HAVE SERVED MULTIPLE PURPOSES DURING THE OPERATION OF THE PLANT.

SOURCE: THE SOURCE FOR THE PROPERTY BOUNDARY SURVEY IS VEGRZYN, SARVER AND ASSOCIATES.

0 80
FEET

N

PSC

TITLE:
EXTENT OF PROPOSED SOIL REMOVAL ACTIVITIES

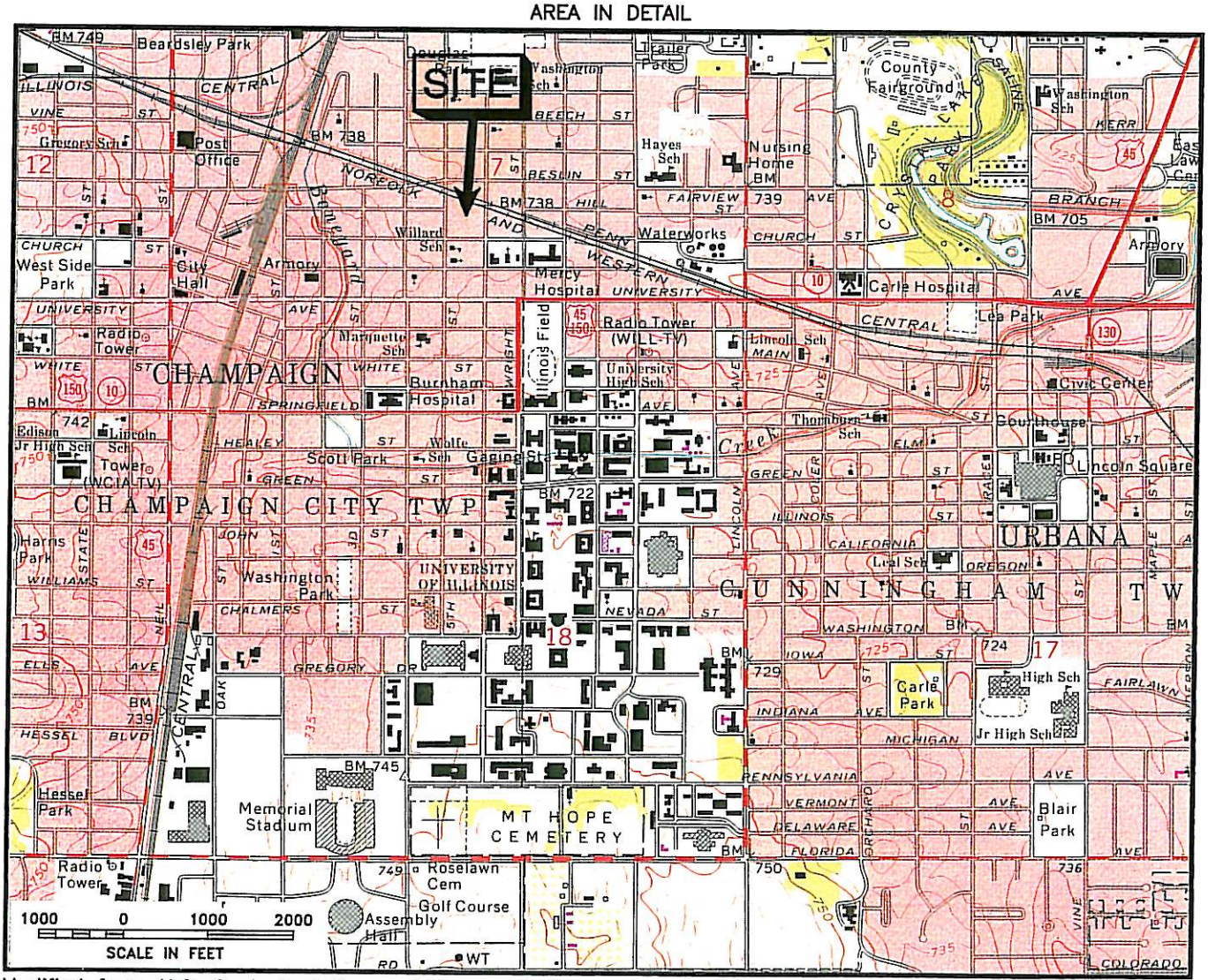
DWN: TMM	DES: PTS	PROJECT NO: 62403053	
CHKD:	APPD:	AMERENIP CHAMPAIGN, ILLINOIS	
DATE: 12/5/08	REV:	FIGURE ES–3	

COL J:\624\026470-009

ILLINOIS

CHAMPAIGN COUNTY

AREA IN DETAIL

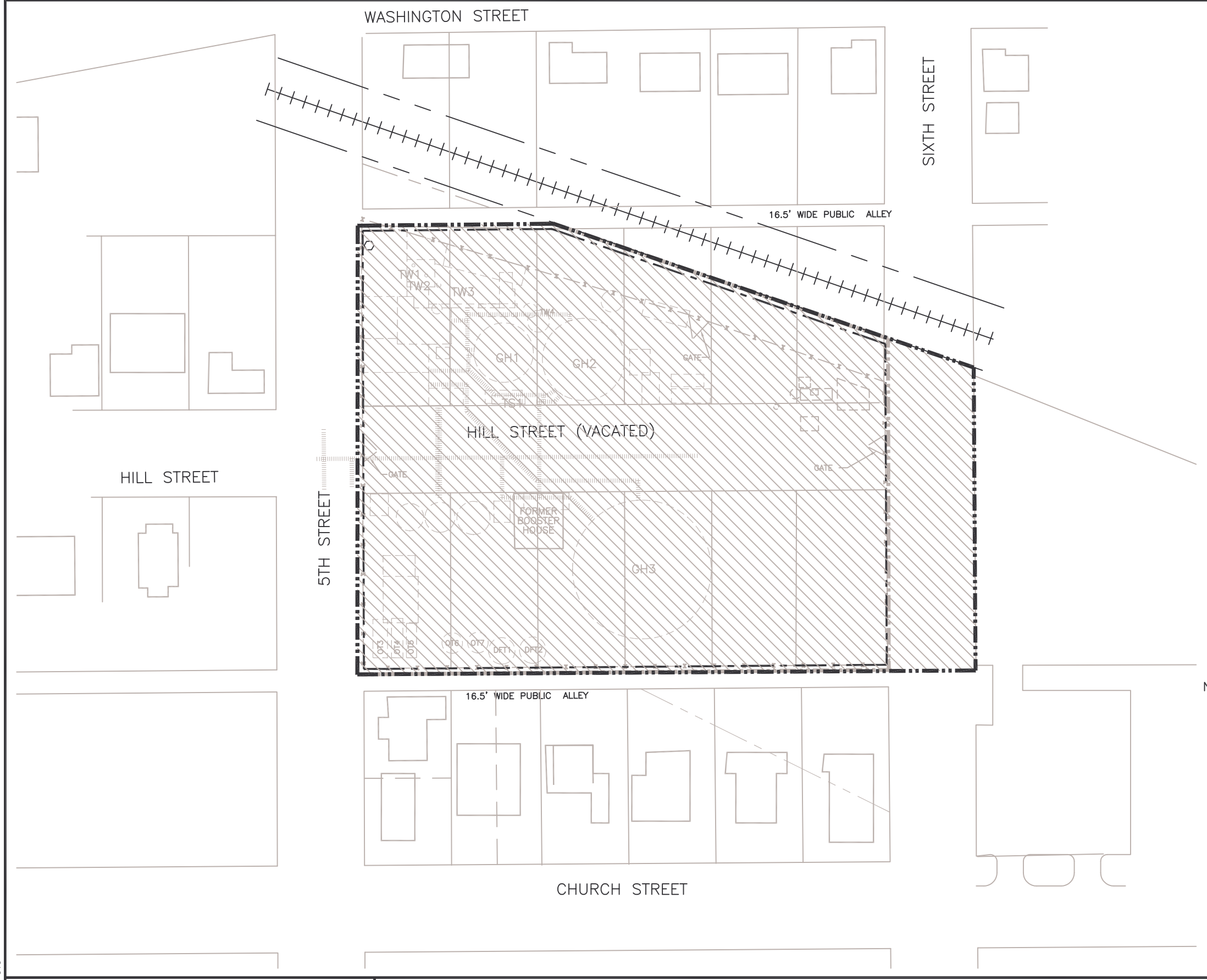


Modified from U.S. Geological Survey, Urbana, Illinois, quadrangle, Photorevised 1975.

SCALE IS VARIABLE

PSC	TITLE: SITE LOCATION MAP	DWN: TMM / DES.: SPB	PROJECT NO.: 62403053 AMEREN IP CHAMPAIGN, ILLINOIS
		CHKD: / APPD:	
		DATE: 2/24/00 / REV.: 0	FIGURE 1-1

COL 624\00345E-001



LEGEND

- HISTORICAL MANUFACTURED GAS PLANT STRUCTURES (APPROXIMATE)
- FORMER GAS PLANT PIPING (APPROXIMATE)
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- REMEDIATION SITE BOUNDARY
- FENCE

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0 80
FEET

PSC

TITLE:
REMEDIATION SITE BOUNDARY

DWN: TMM	DES: PTS	PROJECT NO: 62403053
CHKD:	APPD:	AMERENIP CHAMPAIGN, ILLINOIS
DATE: 12/5/08	REV:	FIGURE 1-2

COL J:\624\026470-010

LEGEND

- HISTORICAL MANUFACTURED GAS PLANT STRUCTURES (APPROXIMATE)
- FORMER GAS PLANT PIPING (APPROXIMATE)
- EXISTING STRUCTURES (APPROXIMATE)
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- REMEDIATION SITE BOUNDARY
- FENCE
- INTERIM REMEDIAL MEASURES EXCAVATION AREAS

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SOURCE: THE SOURCE FOR THE PROPERTY BOUNDARY SURVEY IS VEGRZYN, SARVER AND ASSOCIATES.

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FEET

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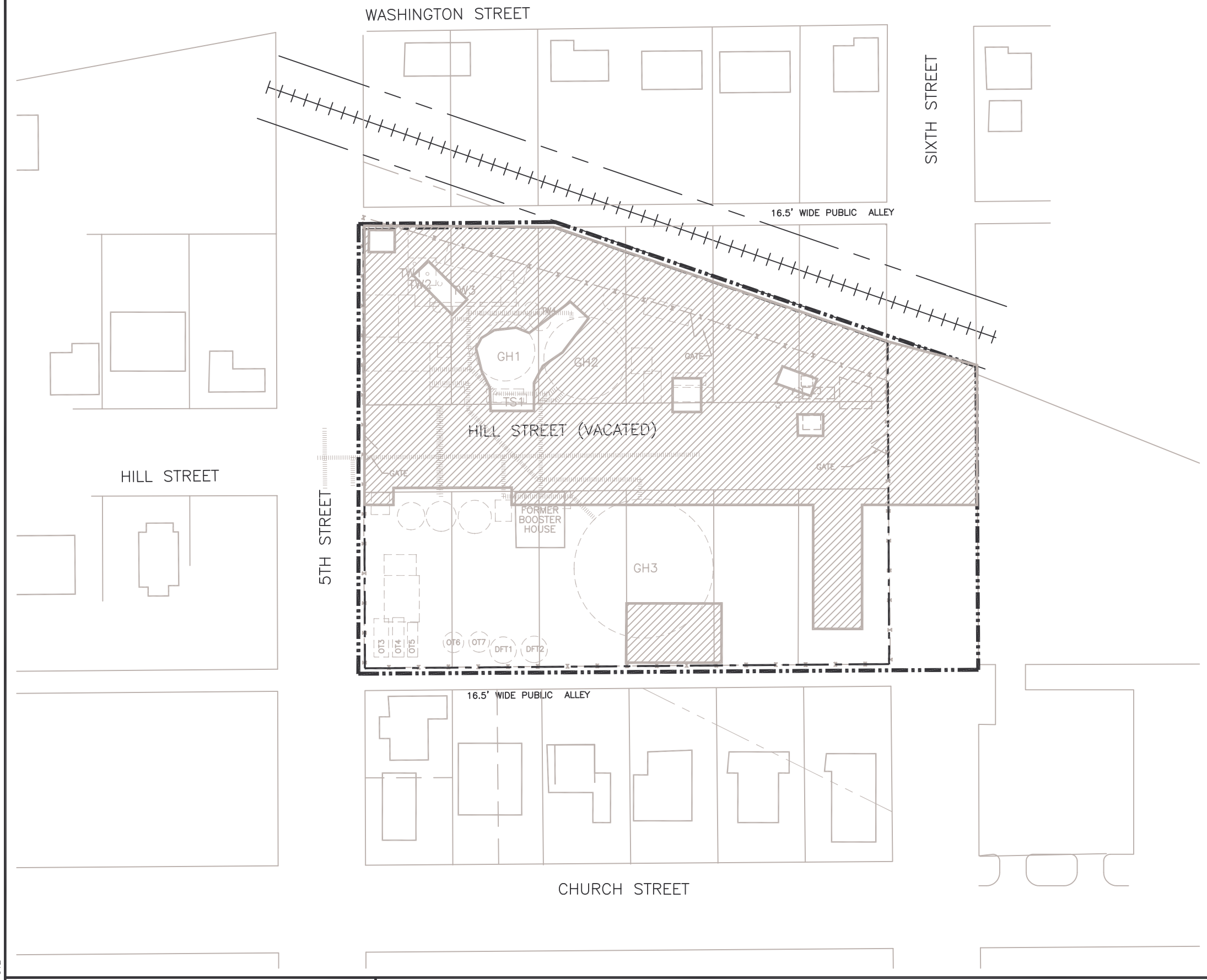
COL J:\624\026470-011

PSC

TITLE:
INTERIM REMEDIAL MEASURES EXCAVATION AREAS

DWN: TMM	DES: PTS	PROJECT NO: 62403053	
CHKD:	APPD:	AMERENIP CHAMPAIGN, ILLINOIS	
DATE: 12/5/08	REV:	FIGURE 1–3	



LEGEND

- HISTORICAL MANUFACTURED GAS PLANT STRUCTURES (APPROXIMATE)
- FORMER GAS PLANT PIPING (APPROXIMATE)
- EXISTING STRUCTURES (APPROXIMATE)
- CURRENT AMERENIP PROPERTY BOUNDARY
- REMEDIATION SITE BOUNDARY
- FENCE
- SOIL INGESTION PATHWAY HORIZONTAL EXTENT EXCEEDING TIER 1 ROs

NOTE: THE HISTORICAL MANUFACTURED GAS PLANT STRUCTURES ARE A COMPOSITE FROM SANBORN FIRE INSURANCE MAPS AND HISTORICAL AMERENIP SITE PLANS. THE EXACT LOCATIONS OF THE FEATURES ARE NOT KNOWN. STRUCTURES AND BUILDINGS MAY HAVE SERVED MULTIPLE PURPOSES DURING THE OPERATION OF THE PLANT.

SOURCE: THE SOURCE FOR THE PROPERTY BOUNDARY SURVEY IS VEGRZYN, SARVER AND ASSOCIATES.

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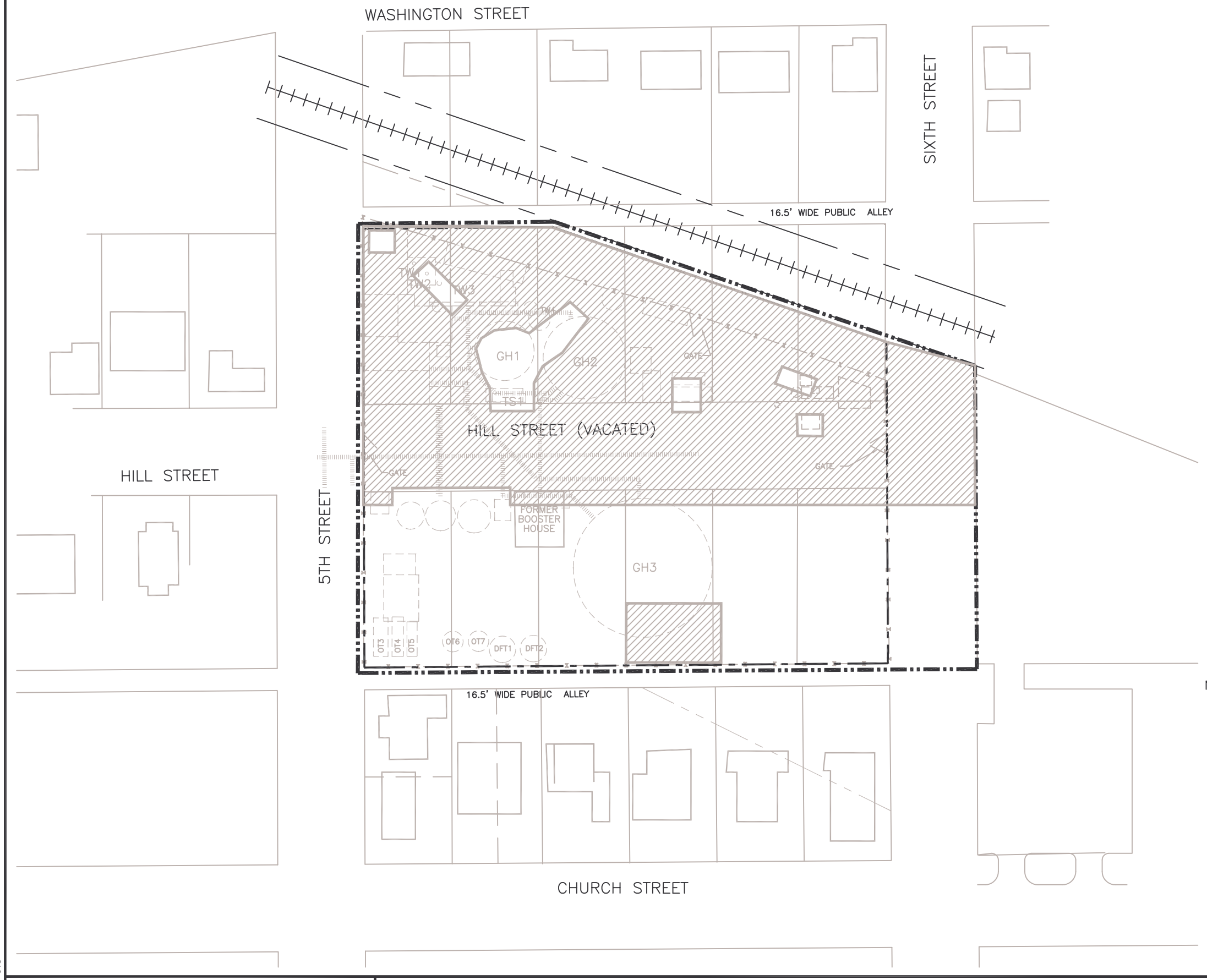
PSC

TITLE:
HORIZONTAL EXTENT OF SUBSURFACE IMPACT EXCEEDING TIER 1 REMEDIATION OBJECTIVES FOR SOIL INGESTION EXPOSURE PATHWAY

DWN:	DES:	PROJECT NO: 62403053
TMM	PTS	AMERENIP CHAMPAIGN, ILLINOIS
CHKD:	APPD:	
DATE: 12/5/08	REV:	FIGURE 2-1



LEGEND

- HISTORICAL MANUFACTURED GAS PLANT STRUCTURES (APPROXIMATE)
- FORMER GAS PLANT PIPING (APPROXIMATE)
- EXISTING STRUCTURES (APPROXIMATE)
- CURRENT AMERENIP PROPERTY BOUNDARY
- REMEDIATION SITE BOUNDARY
- FENCE
- SOIL INHALATION PATHWAY HORIZONTAL EXTENT EXCEEDING TIER 1 ROs

NOTE: THE HISTORICAL MANUFACTURED GAS PLANT STRUCTURES ARE A COMPOSITE FROM SANBORN FIRE INSURANCE MAPS AND HISTORICAL AMERENIP SITE PLANS. THE EXACT LOCATIONS OF THE FEATURES ARE NOT KNOWN. STRUCTURES AND BUILDINGS MAY HAVE SERVED MULTIPLE PURPOSES DURING THE OPERATION OF THE PLANT.

SOURCE: THE SOURCE FOR THE PROPERTY BOUNDARY SURVEY IS VEGRZYN, SARVER AND ASSOCIATES.

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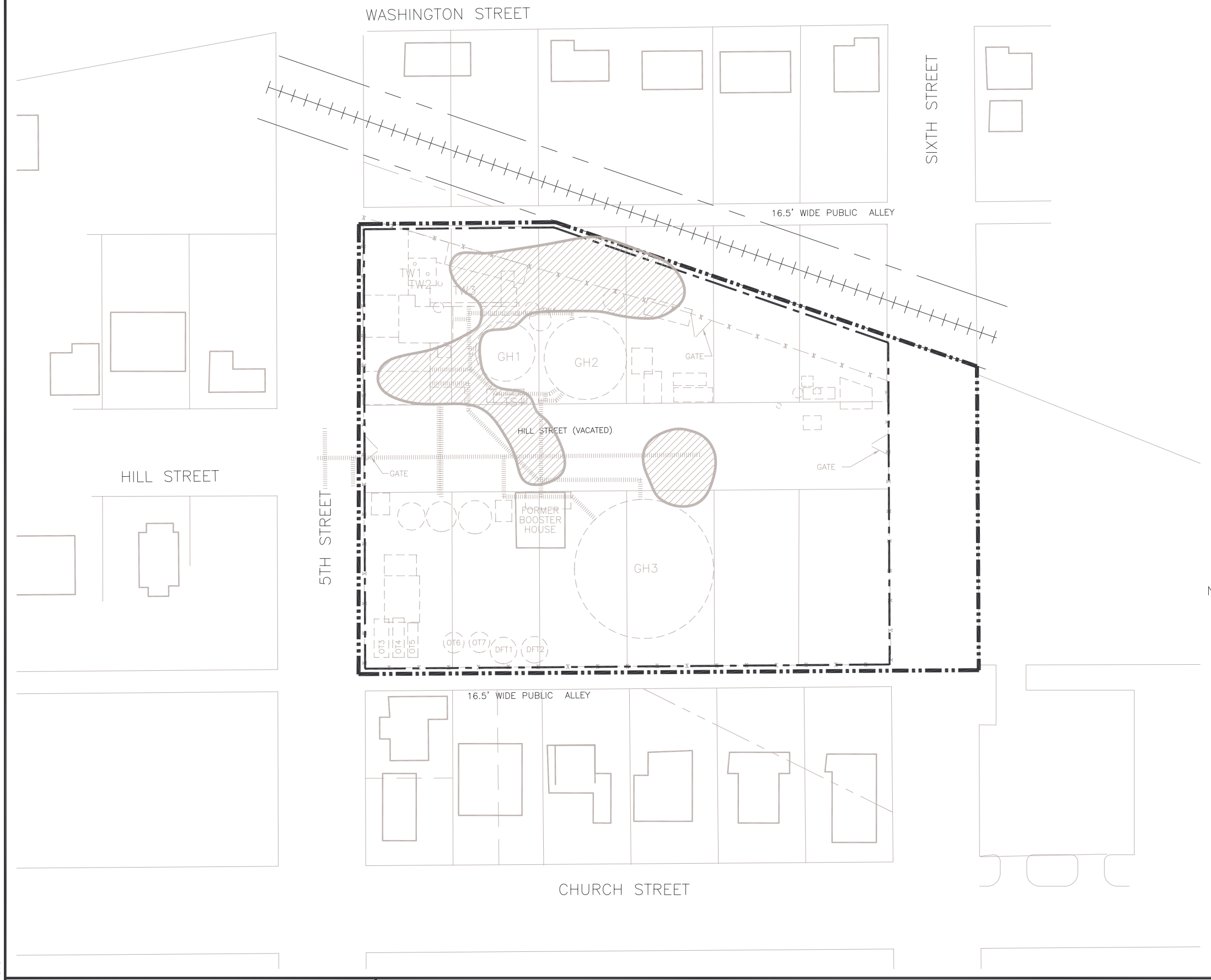
PSC

TITLE:
HORIZONTAL EXTENT OF SUBSURFACE IMPACT EXCEEDING TIER 1 REMEDIATION OBJECTIVES FOR SOIL INHALATION EXPOSURE PATHWAY

DWN: TMM	DES: PTS	PROJECT NO: 62403053	
CHKD:	APPD:	AMERENIP CHAMPAIGN, ILLINOIS	
DATE: 12/5/08	REV:	FIGURE 2-2	



LEGEND

- HISTORICAL MANUFACTURED GAS PLANT STRUCTURES (APPROXIMATE)
- FORMER GAS PLANT PIPING (APPROXIMATE)
- EXISTING STRUCTURES (APPROXIMATE)
- CURRENT AMERENIP PROPERTY BOUNDARY
- REMEDIATION SITE BOUNDARY
- FENCE
- INDOOR INHALATION EXPOSURE PATHWAY HORIZONTAL EXTENT EXCEEDING TIER 1 ROs

NOTE: 1. The historical manufactured gas plant structures are a composite from Sanborn Fire Insurance maps and historical Ameren site plans. The exact locations of the features are not known. Structures and buildings may have served multiple purposes during the operation of the plant.

2. Tier 1 RO exceedances are shown for On–Site only. Off–Site exceedances exist beyond the Site property boundary and are addressed individually with separate RORs and RAPs.

SOURCE: The source for the propperty boundary survey is Vegrzyn, Sarver, and Associates.

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PSC

TITLE:
HORIZONTAL EXTENT OF SUBSURFACE IMPACT EXCEEDING TIER 1 REMEDIATION OBJECTIVES FOR INDOOR INHALATION EXPOSURE PATHWAY

DWN:	DES:	PROJECT NO: 62403053
TMM	PTS	AMERENIP CHAMPAIGN, ILLINOIS
CHKD:	APPD:	
DATE: 12/5/08	REV:	FIGURE 2–3

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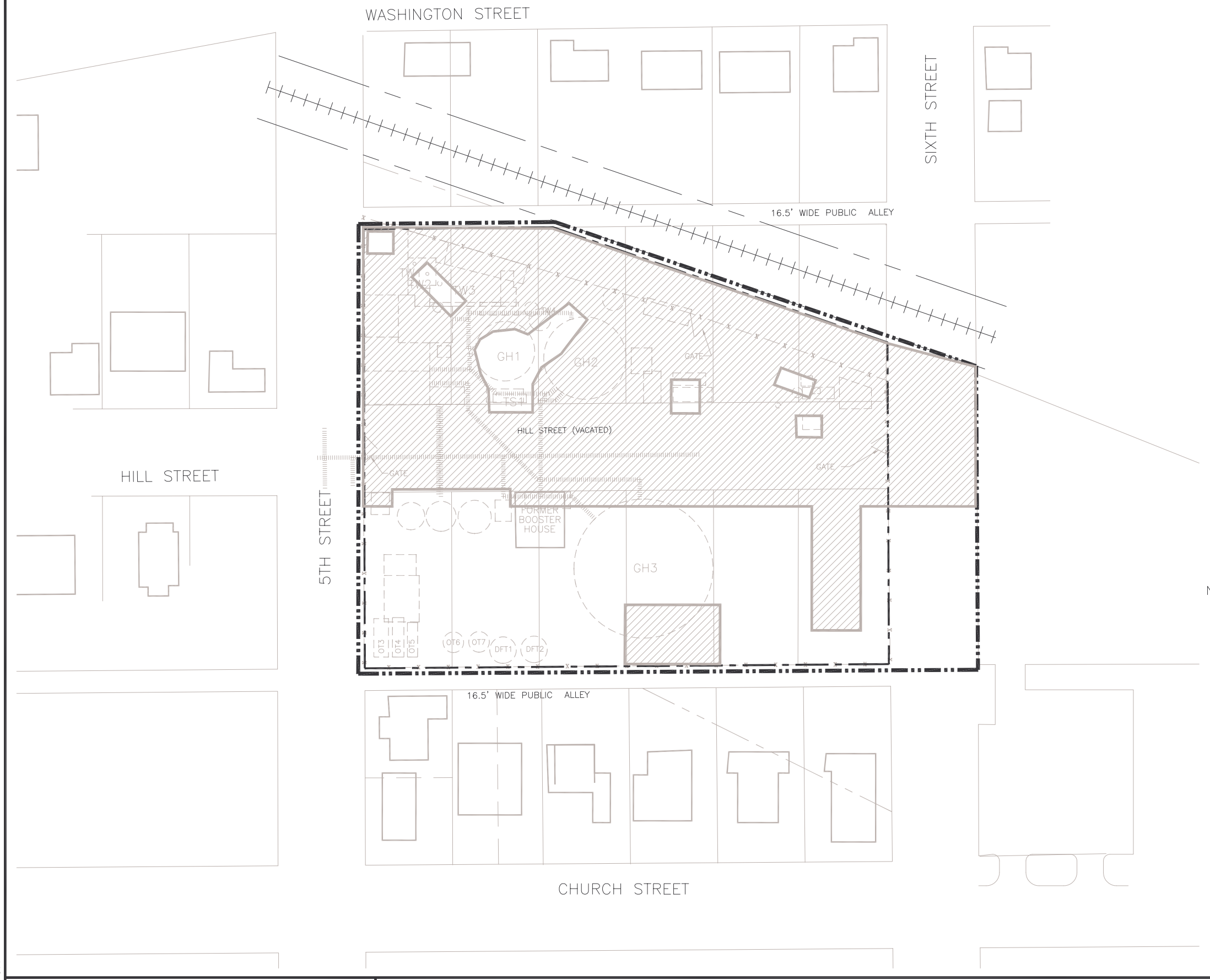

LEGEND

- HISTORICAL MANUFACTURED GAS PLANT STRUCTURES (APPROXIMATE)
- FORMER GAS PLANT PIPING (APPROXIMATE)
- EXISTING STRUCTURES (APPROXIMATE)
- CURRENT AMERENIP PROPERTY BOUNDARY
- REMEDIATION SITE BOUNDARY
- FENCE
- SOIL COMPONENT TO GROUNDWATER INGESTION PATHWAY HORIZONTAL EXTENT EXCEEDING TIER 1 ROs

NOTE: 1. The historical manufactured gas plant structures are a composite from Sanborn Fire Insurance maps and historical Ameren site plans. The exact locations of the features are not known. Structures and buildings may have served multiple purposes during the operation of the plant.

2. Tier 1 RO exceedances are shown for On-Site only. Off-Site exceedances exist beyond the Site property boundary and are addressed individually with separate RORs and RAPs.

SOURCE: The source for the propperty boundary survey is Vegrzyn, Sarver, and Associates.

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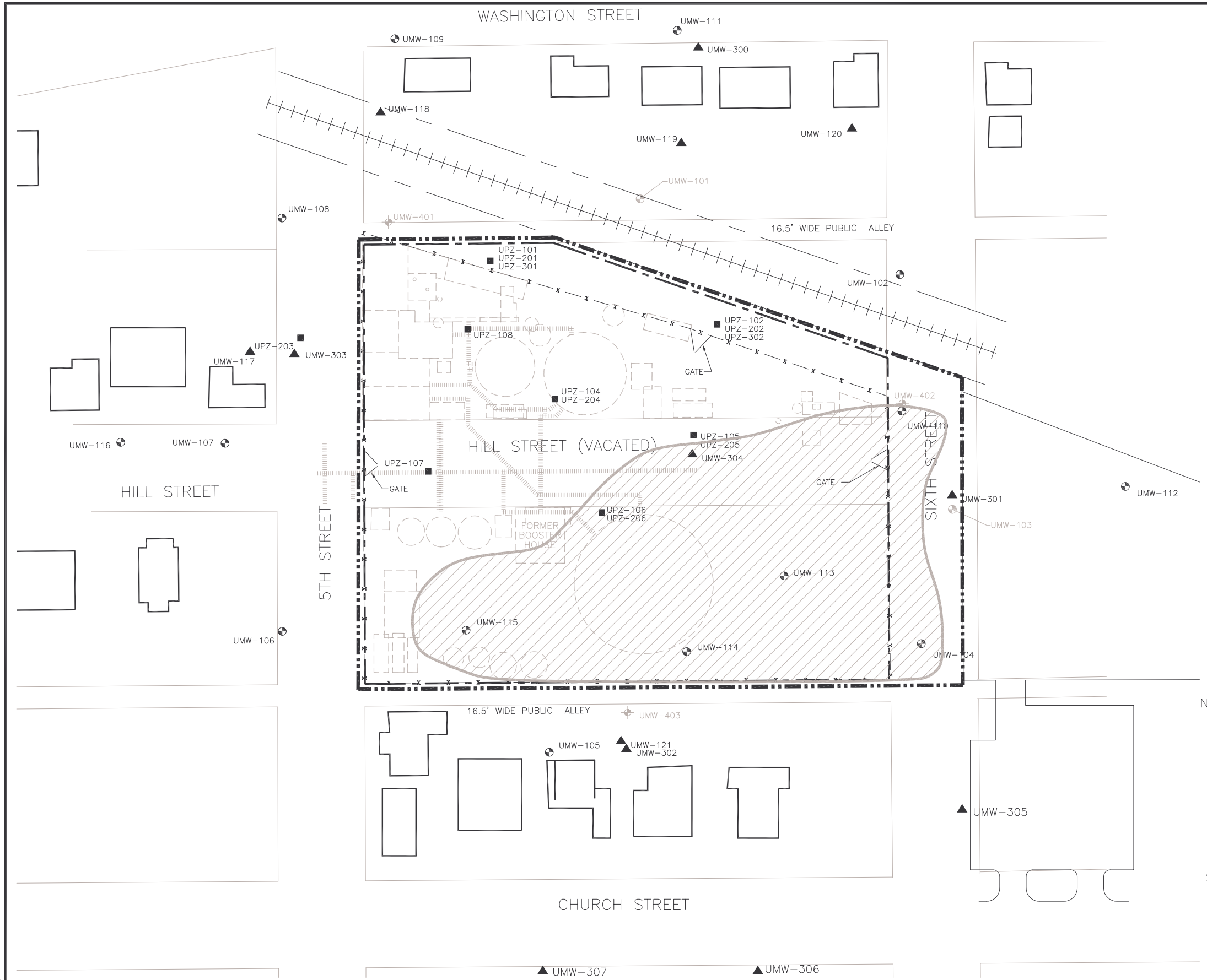
PSC

TITLE:
HORIZONTAL EXTENT OF SUBSURFACE IMPACT EXCEEDING TIER 1 REMEDIATION OBJECTIVES FOR SOIL COMPONENT TO GROUNDWATER INGESTION EXPOSURE PATHWAY

DWN: TMM	DES: PTS	PROJECT NO: 62403053 AMERENIP CHAMPAIGN, ILLINOIS
CHKD:	APPD:	
DATE: 12/5/08	REV:	FIGURE 2-4



LEGEND

- HISTORICAL MANUFACTURED GAS PLANT STRUCTURES (APPROXIMATE)
- FORMER GAS PLANT PIPING (APPROXIMATE)
- EXISTING STRUCTURES (APPROXIMATE)
- CURRENT AMERENIP PROPERTY BOUNDARY
- REMEDIATION SITE BOUNDARY
- FENCE
- UPZ-102 / UPZ-202 / UPZ-302 — NESTED PIEZOMETERS (SHALLOW 5' TO 10', MEDIUM 20' TO 25', AND DEEP 30' TO 35') COMPLETED IN GLACIAL TILL
- UMW-113 — SHALLOW GROUNDWATER MONITORING WELLS (APPROXIMATELY 20') COMPLETED IN UPPER GLACIAL TILL (ACTIVELY MONITORED)
- UMW-401 — DEEP GROUNDWATER MONITORING WELLS (APPROXIMATELY 150') COMPLETED IN GLASFORD FORMATION
- UMW-401 — WELLS THAT HAVE BEEN ABANDONED
- UMW-118 — NEW WELL LOCATIONS (ACTIVELY MONITORED)
- GROUNDWATER HORIZONTAL EXTENT EXCEEDING TIER 1 ROs

NOTE: 1. The historical manufactured gas plant structures are a composite from Sanborn Fire Insurance maps and historical Ameren site plans. The exact locations of the features are not known. Structures and buildings may have served multiple purposes during the operation of the plant.

2. Tier 1 RO exceedances are shown for On-Site only. Off-Site exceedances exist beyond the Site property boundary and are addressed individually with separate RORs and RAPs.

SOURCE: The source for the propperty boundary survey is Vegrzyn, Sarver, and Associates.

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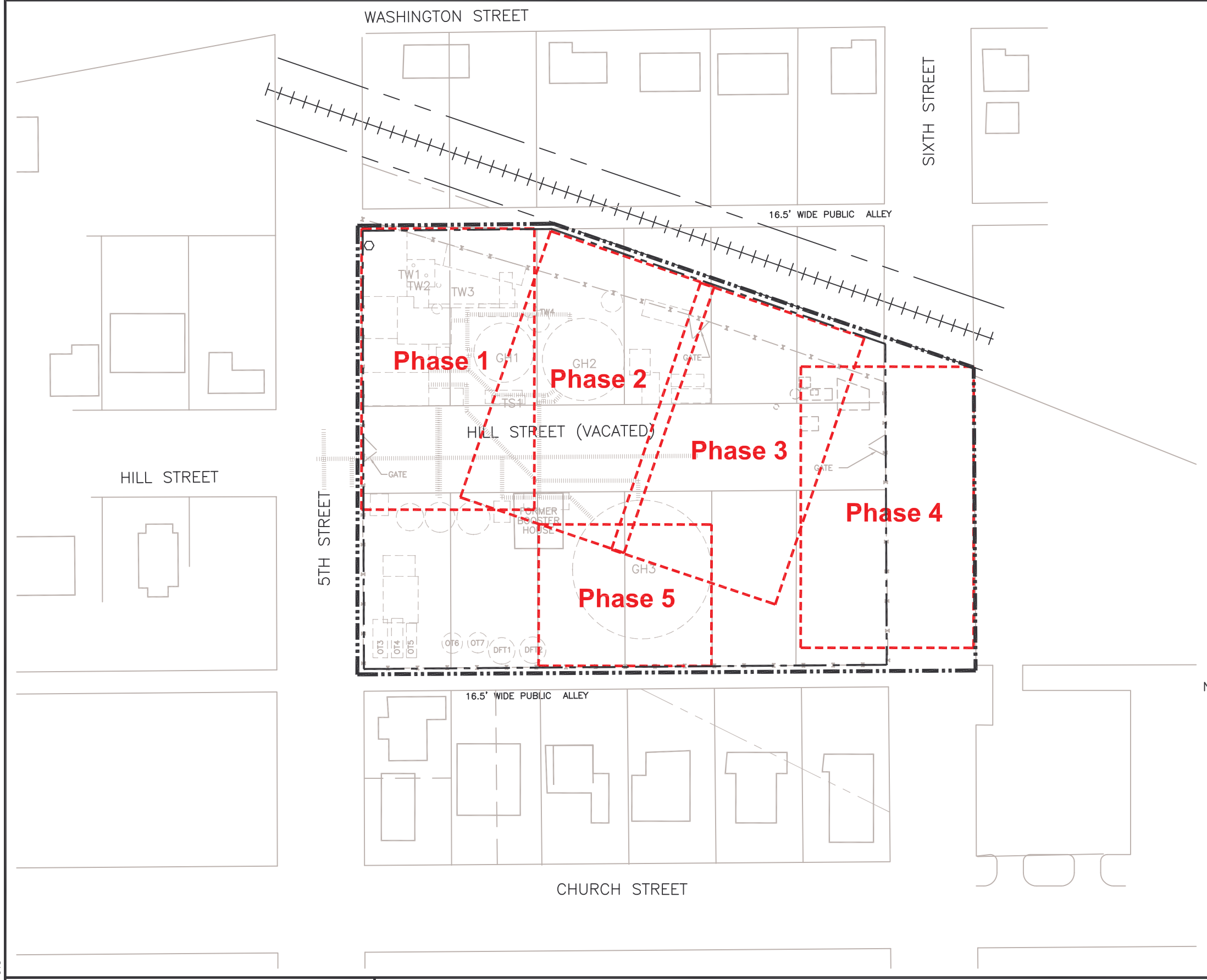
PSC

TITLE:
EXCEEDANCE OF CLASS I GROUNDWATER STANDARDS
SEPTEMBER 2008

DWN:	DES:	PROJECT NO: 62403053
TMM	MRC	AMERENIP CHAMPAIGN, ILLINOIS
CHKD:	APPD:	
DATE: 11/17/08	REV:	FIGURE 2-5



LEGEND

- HISTORICAL MANUFACTURED GAS PLANT STRUCTURES (APPROXIMATE)
- FORMER GAS PLANT PIPING (APPROXIMATE)
- EXISTING STRUCTURES (APPROXIMATE)
- CURRENT AMERENIP PROPERTY BOUNDARY
- REMEDIATION SITE BOUNDARY
- FENCE
- PROPOSED TEMPORARY TENT STRUCTURE LOCATIONS

NOTE: THE HISTORICAL MANUFACTURED GAS PLANT STRUCTURES ARE A COMPOSITE FROM SANBORN FIRE INSURANCE MAPS AND HISTORICAL AMERENIP SITE PLANS. THE EXACT LOCATIONS OF THE FEATURES ARE NOT KNOWN. STRUCTURES AND BUILDINGS MAY HAVE SERVED MULTIPLE PURPOSES DURING THE OPERATION OF THE PLANT.

SOURCE: THE SOURCE FOR THE PROPERTY BOUNDARY SURVEY IS VEGRZYN, SARVER AND ASSOCIATES.

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TITLE:
PROPOSED TEMPORARY TENT STRUCTURE LOCATIONS

DWN: TMM	DES: PTS	PROJECT NO: 62403053	
CHKD:	APPD:	AMERENIP CHAMPAIGN, ILLINOIS	
DATE: 12/5/08	REV:	FIGURE 3–1	

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LEGEND

- HISTORICAL MANUFACTURED GAS PLANT STRUCTURES (APPROXIMATE)
- FORMER GAS PLANT PIPING (APPROXIMATE)
- EXISTING STRUCTURES (APPROXIMATE)
- CURRENT AMERENIP PROPERTY BOUNDARY
- REMEDIATION SITE BOUNDARY
- FENCE
- EXCAVATION EXTENTS – 0 TO 3 FOOT DEPTH
- EXCAVATION EXTENTS – 0 TO 10 FOOT DEPTH

NOTE:

THE HISTORICAL MANUFACTURED GAS PLANT STRUCTURES ARE A COMPOSITE FROM SANBORN FIRE INSURANCE MAPS AND HISTORICAL AMERENIP SITE PLANS. THE EXACT LOCATIONS OF THE FEATURES ARE NOT KNOWN. STRUCTURES AND BUILDINGS MAY HAVE SERVED MULTIPLE PURPOSES DURING THE OPERATION OF THE PLANT.

SOURCE: THE SOURCE FOR THE PROPERTY BOUNDARY SURVEY IS VEGRZYN, SARVER AND ASSOCIATES.

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PSC

TITLE:
EXTENT OF PROPOSED SOIL REMOVAL ACTIVITIES

DWN: TMM	DES: PTS
CHKD:	APPD:
DATE: 12/5/08	REV:

PROJECT NO: 62403053
AMERENIP
CHAMPAIGN, ILLINOIS

FIGURE 3–2

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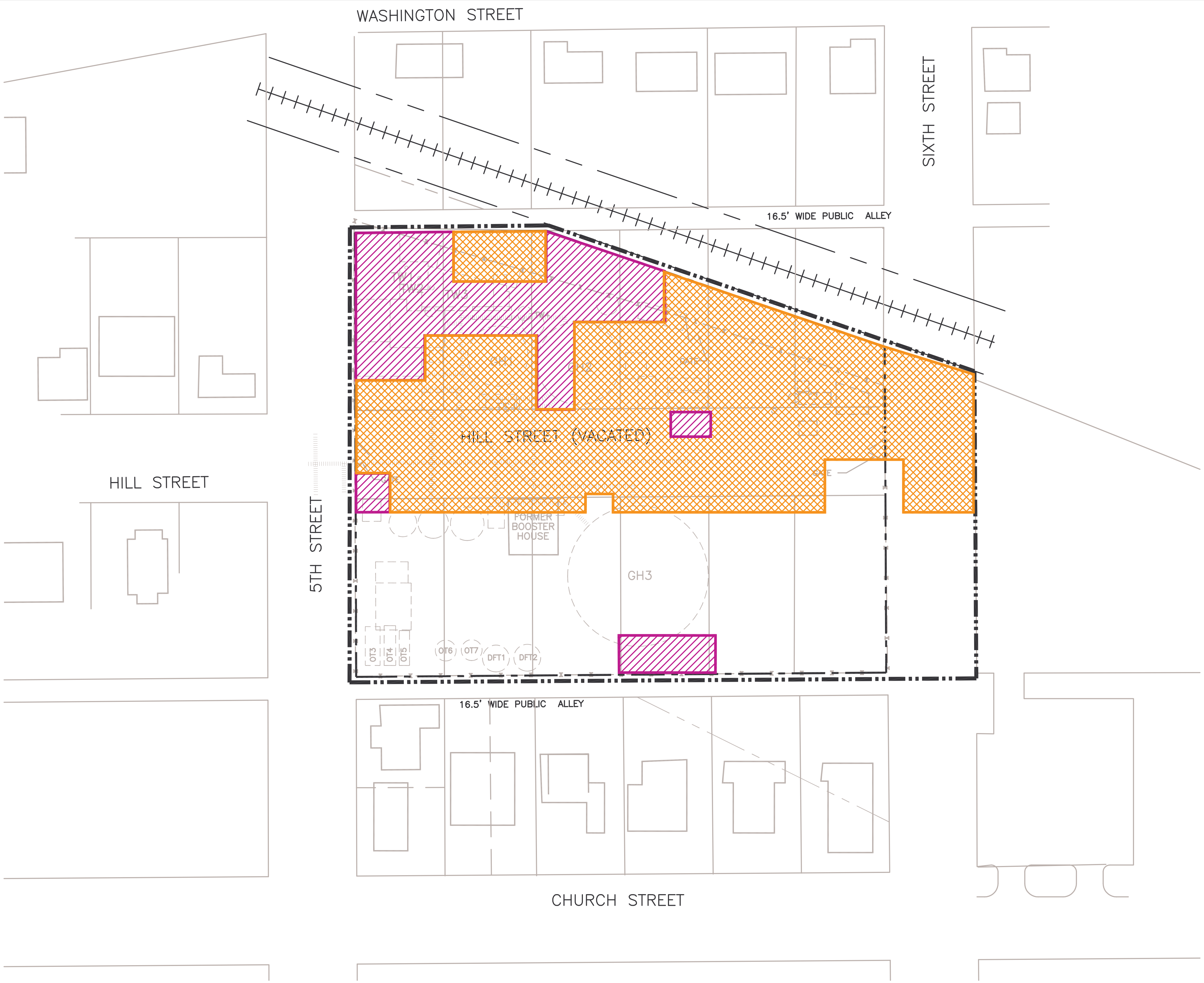

LEGEND

HISTORICAL MANUFACTURED GAS PLANT STRUCTURES (APPROXIMATE)

FORMER GAS PLANT PIPING (APPROXIMATE)

EXISTING STRUCTURES (APPROXIMATE)

CURRENT AMERENIP PROPERTY BOUNDARY

REMEDIATION SITE BOUNDARY

FENCE

IN–SITU CHEMICAL OXIDATION TREATMENT AREA FROM 10 TO 20 FEET BELOW GROUND SURFACE

IN–SITU CHEMICAL OXIDATION TREATMENT AREA GREATER THAN 20 FEET BELOW GROUND SURFACE

NOTE: THE HISTORICAL MANUFACTURED GAS PLANT STRUCTURES ARE A COMPOSITE FROM SANBORN FIRE INSURANCE MAPS AND HISTORICAL AMERENIP SITE PLANS. THE EXACT LOCATIONS OF THE FEATURES ARE NOT KNOWN. STRUCTURES AND BUILDINGS MAY HAVE SERVED MULTIPLE PURPOSES DURING THE OPERATION OF THE PLANT.

SOURCE: THE SOURCE FOR THE PROPERTY BOUNDARY SURVEY IS VEGRZYN, SARVER AND ASSOCIATES.

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PSC

TITLE: IN–SITU CHEMICAL OXIDATION EXTENT OF TREATMENT

DWN: TMM	DES: PTS
CHKD:	APPD:
DATE: 12/5/08	REV:

PROJECT NO: 62403053
AMERENIP
CHAMPAIGN, ILLINOIS

FIGURE 3–3