



# Planning for the Future:

## Reuse Assessment for the John Garland Park Site

### Kansas City, Kansas

### DRAFT FINAL

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EPA Region 7

*funded by*  
United States Environmental Protection Agency (EPA)

*prepared for*  
Kansas City / Wyandotte County Unified Government  
Oak Grove Neighborhood Association

*prepared by*  
E<sup>2</sup> Inc.

## **Forward**

EPA's primary responsibility at environmentally impaired sites is to ensure the protection of human health and the environment. EPA's Superfund Redevelopment Initiative (SRI) provides support to help communities and stakeholders in their efforts to return environmentally impaired sites to protective and productive use. Conducting a reuse assessment that engages site owners and community stakeholders in evaluating future use options for a Site can inform EPA's remedy selection process, help facilitate site stewardship, and support the long-term effectiveness of a site's remedy. This reuse assessment, funded by SRI, characterizes the current conditions at the John Garland Park Site, documents site owner reuse goals, and outlines key stewardship and reuse considerations for the Site.

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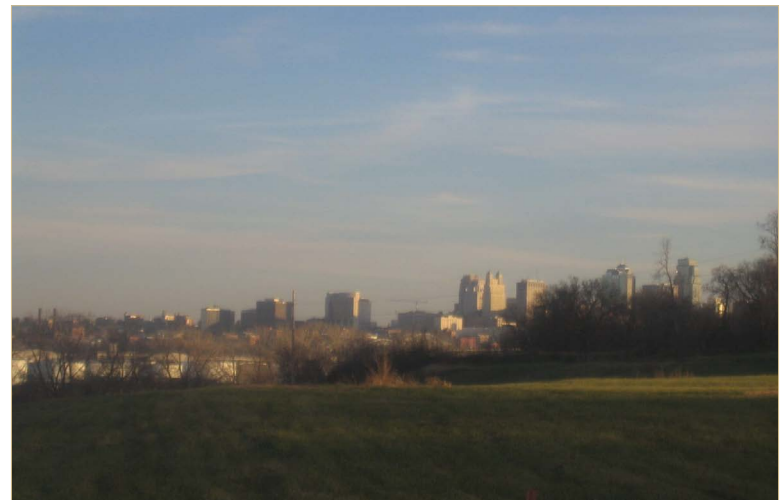
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*Above: View of the John Garland Park Site and picnic pavilion from 5th Street. Below: View of Kansas City skyline from Site.*



## I. INTRODUCTION

The John Garland Park (JGP) Site is a former municipal landfill located in Kansas City, Kansas. Owned by the Kansas City / Wyandotte County Unified Government (Unified Government), the Site operated as a sanitary landfill and model landfill training facility from 1972 until 1974. The Kansas Department of Health and Environment (KDHE) is currently overseeing long-term operation and maintenance activities, corrective actions, and regulatory compliance at the Site.

The JGP Site is located in the northeast section of Kansas City, Kansas, near the intersection of North 5th Street and Cleveland Avenue, as shown in Figure 1. Residential homes in the Oak Grove Neighborhood border the Site to the west and south. A rail line and the Fairfax Industrial District are located north and east of the Site. After the landfill's closure, a public park that featured ball fields, basketball courts, a playground, and picnic shelter was established on the southern portion of the Site. The construction of the park was part of the original plan for the landfill as a demonstration of surface reuse at sanitary landfills and was intended to serve as a neighborhood amenity. However, due to community concerns about environmental health and safety, the Unified Government closed the park in the 1990s.

Since the closure of the municipal park, several proposals for the site's reuse have been contemplated, ranging from a multi-use recreational park, to commercial green houses, to a renewable energy demonstration park. In addition, residents of the Oak Grove Neighborhood have requested assistance from EPA Region 7 to help evaluate new uses at the Site that can serve as amenities and benefits for nearby residents.

At the request of EPA Region 7, E<sup>2</sup> Inc. conducted a site visit in December 2008 to tour the Site and meet with representatives of the Unified Government, EPA Region 7, KDHE, and the Oak Grove Neighborhood. Discussions with the Unified Government and regulatory authorities identified a number of uncertainties regarding the specific

details of the remedy in place at the JGP Site that need resolution in order to properly evaluate potential future uses for compatibility with the remedy.

The purpose of this reuse assessment is to evaluate the site's suitability for future use through an analysis of known remedy components and physical features based on existing documentation. This report summarizes the findings of the reuse assessment including property owner reuse goals, a site reuse characterization, considerations for evaluating past and future reuse proposals, and other reuse considerations.

## II. REUSE GOALS

EPA Region 7, KDHE and Unified Government representatives agree that returning the JGP Site to productive reuse would benefit the Site and the community. During initial discussions, Unified Government representatives identified the following reuse goals for the JGP Site:

- Transform the Site into a positive community asset.
- Provide low-impact community uses that are compatible with long-term operation and maintenance of the landfill such as hiking trails, greenhouses, native prairie, bird habitat restoration, and educational opportunities.
- Consider a renewable technology demonstration park, if viable.

Although beyond the scope of this reuse assessment report, future reuse planning efforts could engage the community further in defining reuse goals for the Site.



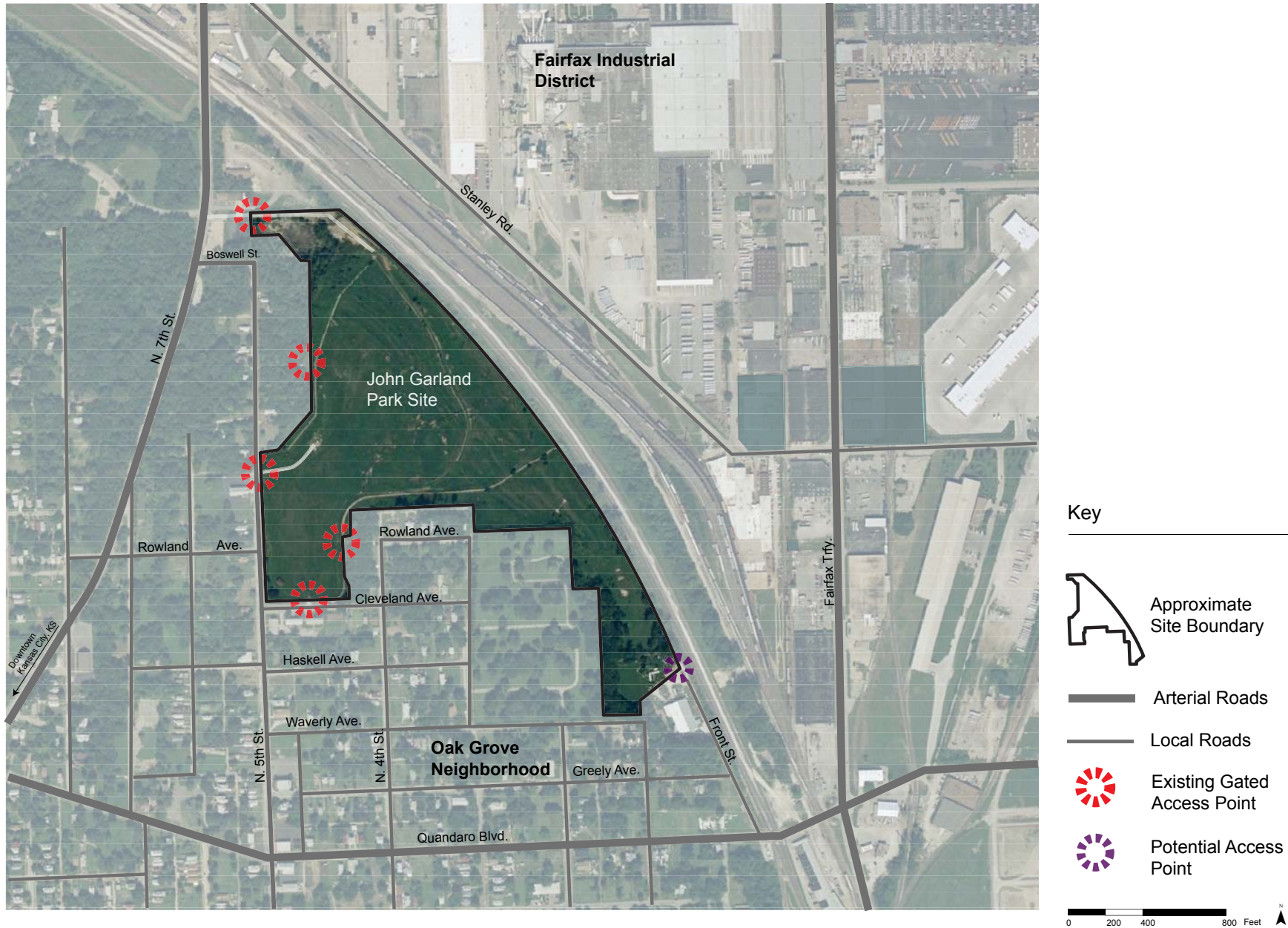


Figure 1: Site Location Map

### III. REMEDY COMPONENTS

E<sup>2</sup> Inc. evaluated landfill closure plans, corrective action plans, and the site's risk evaluation to characterize remedial constraints, grades, extent of waste, depth of cover, and depth of waste. The following pages describe the findings of this analysis in detail.

#### *Site Remedy Considerations*

The maintenance and long-term stewardship obligations for the remedy at the JGP Site are documented in a 2008 Consent Order and Final Agreement (CAO) for post-closure care activities at the Site. The CAO stipulates that the Unified Government will conduct post-closure care activities through 2025, which include:

- Maintaining the integrity of the final cover.
- Monitoring ground water.
- Monitoring landfill gasses and improving the landfill gas venting system.

These remedial components (shown in Figure 2) must remain in place over the long-term and need to be considered as constraints to the site's reuse.

#### *Landfill Disposal Area and Cap*

The landfill occupies the area of the Site highlighted in light gray on Figure 2. Waste disposal areas contain approximately 767,000 cubic yards of waste covered with a single layer of clean fill. A vegetated soil cap remains in place.

#### *Methane Gas Monitoring and Extraction System*

The potential for off-site migration of landfill gasses is one of the primary threats to human health and environment at the Site. Landfill gasses are currently managed through a combined active-passive trench system. A gravel-filled perimeter trench is designed to collect and distribute landfill gasses to a series of passive landfill gas vents. The Unified Government plans to replace this system with a fully active extraction

system in the near future. Subsurface pipes will transport landfill gasses directly to extraction vents via an active blower system. Landfill gas vents may need to remain in place over the long-term. Access restrictions are necessary for areas immediately surrounding each gas vent.

#### *Ground Water Monitoring*

Ground water monitoring wells are primarily located off-site to the north of the JGP site. Three monitoring wells are located on site along the northern edge of the property (MW-A, MW-J and MW-K).

#### *Surface Water Drainage*

Concrete-lined surface water drainage channels run along the perimeter of the landfill, draining surface water to stormwater catchments along the northern edge of the Site. Drainage channels are designed to direct surface water off and around the cap to prevent erosion. Historically, surface water ponding and seeps have been identified as key maintenance concerns at the Site. KDHE tracks seeps located to the southeast of ground water monitoring wells MW-A and MW-J. Access restrictions are recommended for areas prone to seeps, due to the potential for human exposure to contaminated leachate.

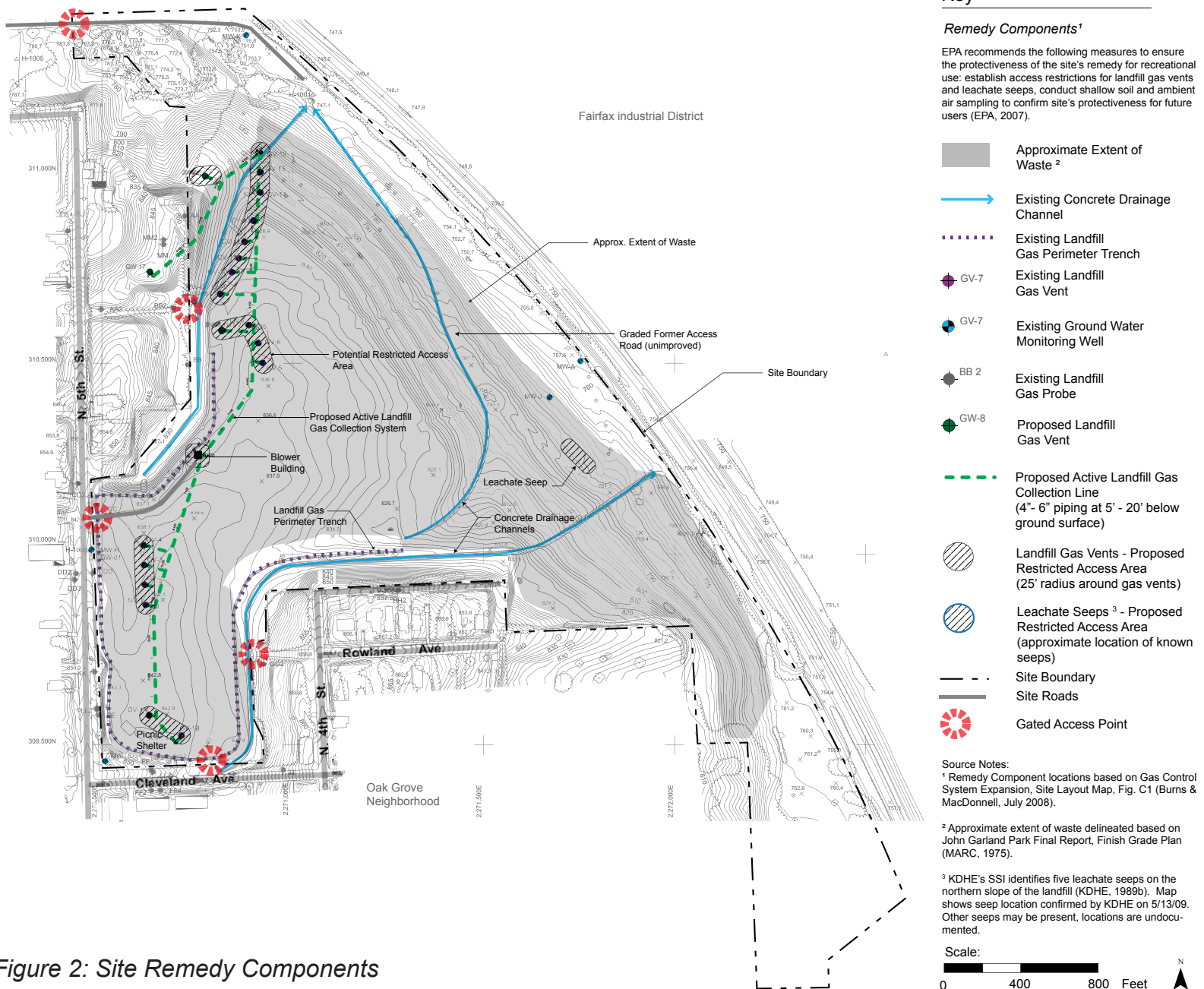
#### *Remedy Protection and Long Term Stewardship Considerations*

In 2006, EPA Region 7 initiated the process of developing a Ready for Reuse Determination (RfR) for the JGP Site. An RfR is an environmental status report that identifies uses a remedy can safely support under certain conditions. At the time, EPA determined that a risk assessment was needed to complete the RfR. Subsequently, EPA Region 7 developed a qualitative risk assessment that evaluated human health risks for recreational uses on the surface of the Site. The risk assessment indicated the need for additional air monitoring and soil sampling prior to restoring recreational uses at the Site.<sup>2</sup>

<sup>1</sup> KDHE. *Consent Agreement and Final Order* (2008).

<sup>2</sup> EPA. *Screening Level Risk Evaluation for John Garland Park Site* (2007).





## IV. TOPOGRAPHY

The Site slopes from south to north, from Cleveland Avenue to the rail line. Grades on the southwest and central areas of the Site are gentle to moderate. Grades steepen significantly throughout the northern and eastern areas.

Figure 3 characterizes the Site in terms of grades less than 3 percent, 3 to 5 percent, 5 to 10 percent, and greater than 10 percent. Grades greater than 10 percent cover almost half of the Site presenting significant constraints to future uses. Grades less than 5 percent are generally considered to be suitable for active recreational uses. However, additional clean fill will likely be needed to create level surfaces for structures or sports fields.



*View of level area looking south toward Cleveland Avenue.*



*View looking north of level areas in southeastern area of Site. Landfill gas vents are visible in the foreground. The Fairfax Industrial District is visible in the background.*



*Steep slopes and drainage channels on the northern half of the Site.*



Figure 3: Grade Characterization



## V. LANDFILL COVER - DEPTH and EXTENT

During initial discussions with EPA, KDHE and the Unified Government, uncertainty regarding cover depth and material was identified as an issue that needed further clarification. EPA's Screening Level Risk Evaluation describes that final landfill closure plans, dated 1975, included a three-foot cap constructed of clean fill excavated from on-site borrow areas.<sup>3</sup> However, final cover depth varied from two to three feet across the Site. Due to settling, erosion and deterioration of the cap, a cap repair project was conducted in the 1990s; additional fill was brought to southern and eastern portions of the Site and used for re-grading as part of this effort.

To approximate the current depth of cover, E<sup>2</sup> Inc. performed a depth of cover analysis focused on the southeastern area of the Site where cap improvements were made. Figure 4 was developed by transposing elevations from cross-sections provided in 1993 Cap Improvement Contract Drawings.<sup>4</sup> As-built drawings were not available to confirm actual depth of cover post-construction.

Figure 4a translates elevations into approximate zones of cover depth and illustrates that depths range from one to six feet throughout southern and central portions of the Site. Additional cover may be present, but depths and material composition are unknown. Given these uncertainties, the Site could benefit from additional soil borings and soil sampling to identify cover depths and composition.

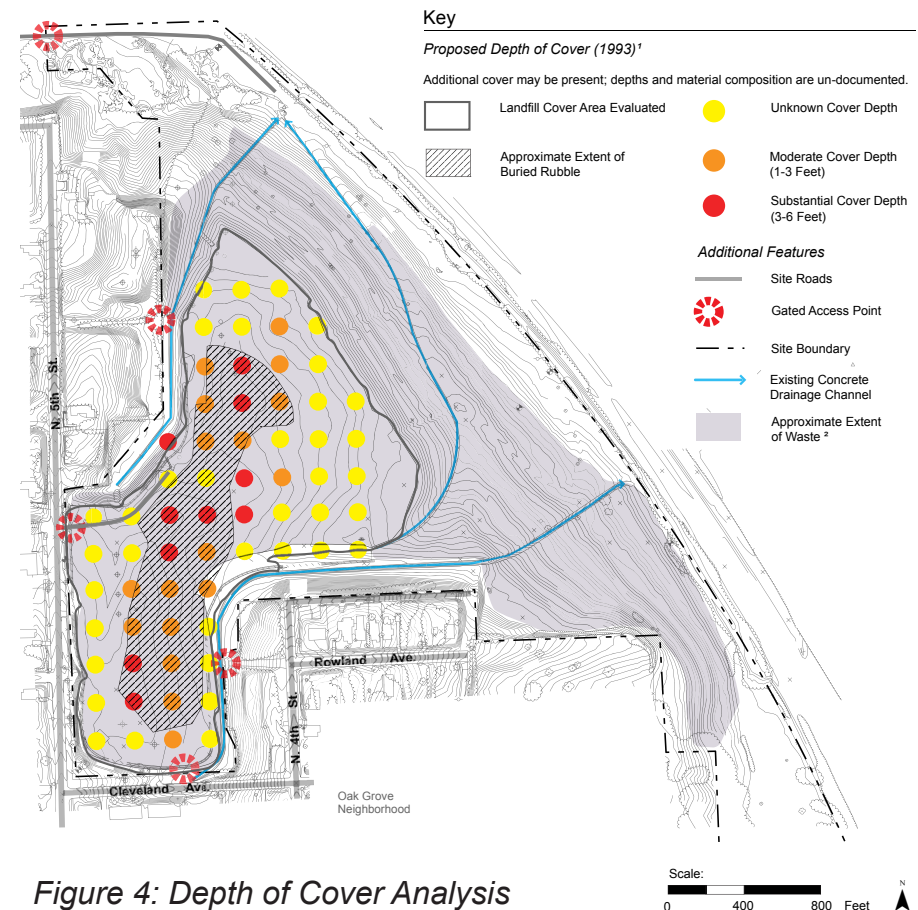
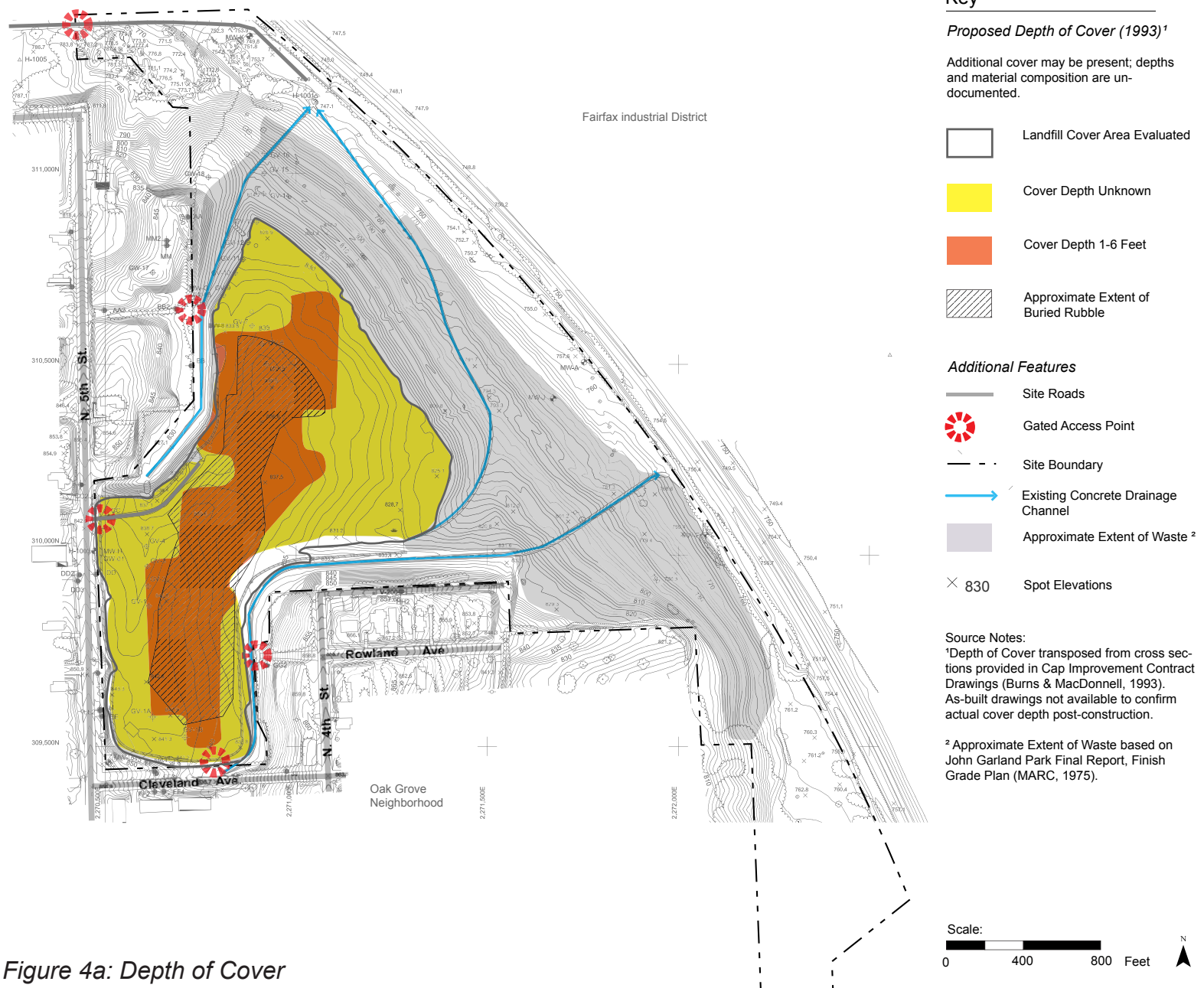


Figure 4: Depth of Cover Analysis

<sup>3</sup> EPA. *Screening Level Risk Evaluation for John Garland Park Site* (2007).

<sup>4</sup> Burns and MacDonnell. *Cap Improvement Contract Drawings* (1993).



## VI. Potential Development Constraints

The previous four sections have highlighted factors that are likely to influence potential development at the Site including existing remedy components, access, grades, cover depth, and extent of waste. Figure 5 integrates these characteristics to delineate development constraint zones, ranging from Zone A (fewest constraints), to Zone F (restricted access). Development constraints for each zone are summarized in Table 1.

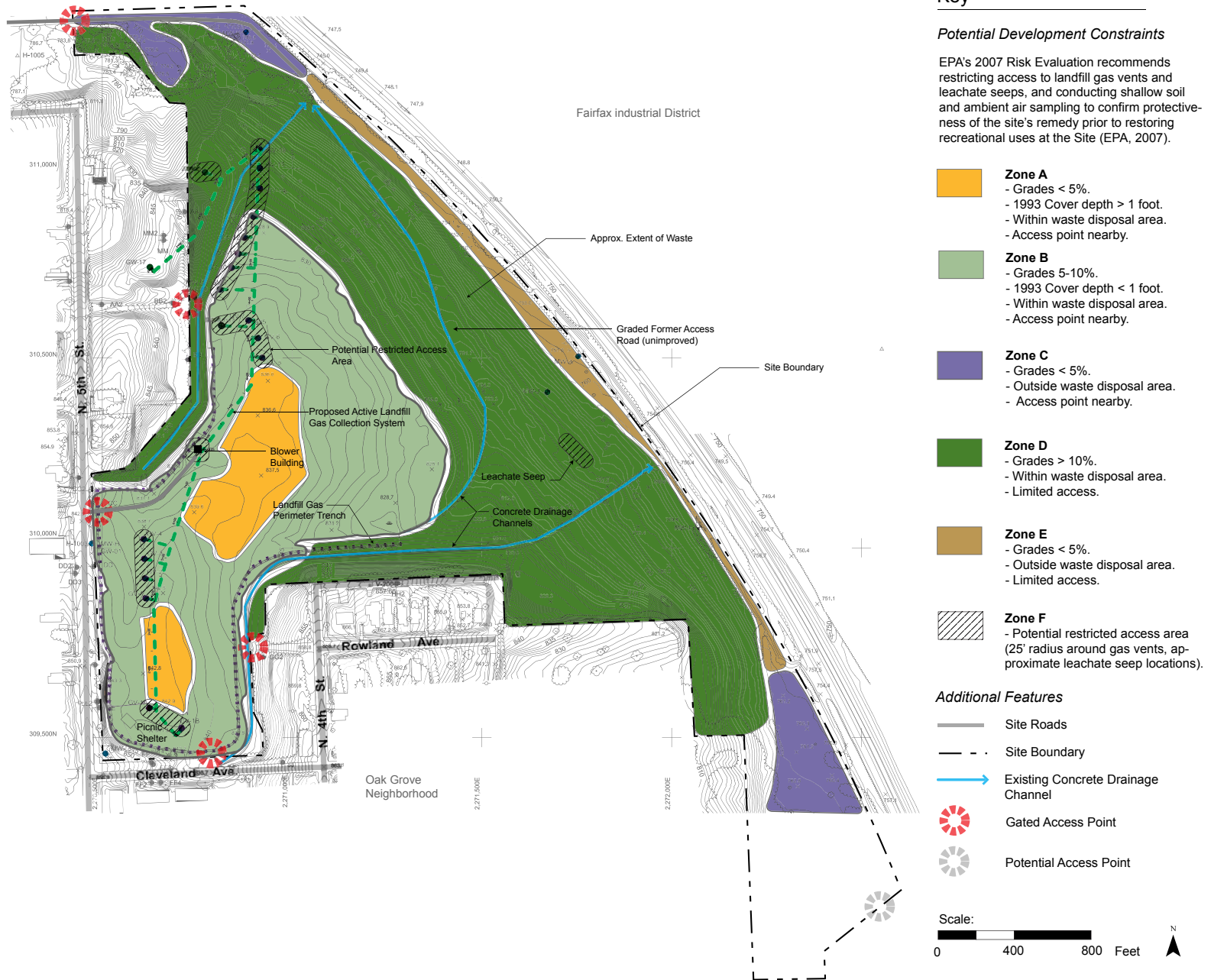


*View looking east across the southern portion of Site toward 5th Avenue.*

**Table 1: Potential Development Constraints**

<b>Zone A</b>	<ul style="list-style-type: none"> <li>Grades less than 5 percent.</li> <li>1993 additional cover depth greater than one foot.</li> <li>Within waste disposal area.</li> <li>Access point nearby.</li> </ul>
<b>Zone B</b>	<ul style="list-style-type: none"> <li>Grades ranging from 5 to 10 percent.</li> <li>1993 additional cover depth less than one foot.</li> <li>Within waste disposal area.</li> <li>Access point nearby.</li> </ul>
<b>Zone C</b>	<ul style="list-style-type: none"> <li>Grades less than 5 percent.</li> <li>Outside of waste disposal area.</li> <li>Existing or potential access point nearby.</li> </ul>
<b>Zone D</b>	<ul style="list-style-type: none"> <li>Grades greater than 10 percent.</li> <li>Within waste disposal area.</li> <li>Limited access.</li> </ul>
<b>Zone E</b>	<ul style="list-style-type: none"> <li>Grades less than 5 percent.</li> <li>Outside waste disposal area.</li> <li>Limited access.</li> </ul>
<b>Zone F</b>	<ul style="list-style-type: none"> <li>Long-term access restrictions for remedy components.</li> </ul>





## VII. DEVELOPMENT SUITABILITY

Figure 6 provides a framework for evaluating existing or potential reuse proposals based on the development constraints highlighted on the previous pages. Figure 6 identifies six development zones that characterize the site's suitability for generalized reuse activities. Table 2 outlines descriptions for each zone. In summary, approximately 25 acres of the Site are constrained by steep grades limiting recreational use to light amenities such as trails. However, the southwestern portion (approximately 13 acres total) could be suitable for sports fields or light structures with additional fill as needed to create level surfaces.

### *Long-term Protectiveness Considerations*

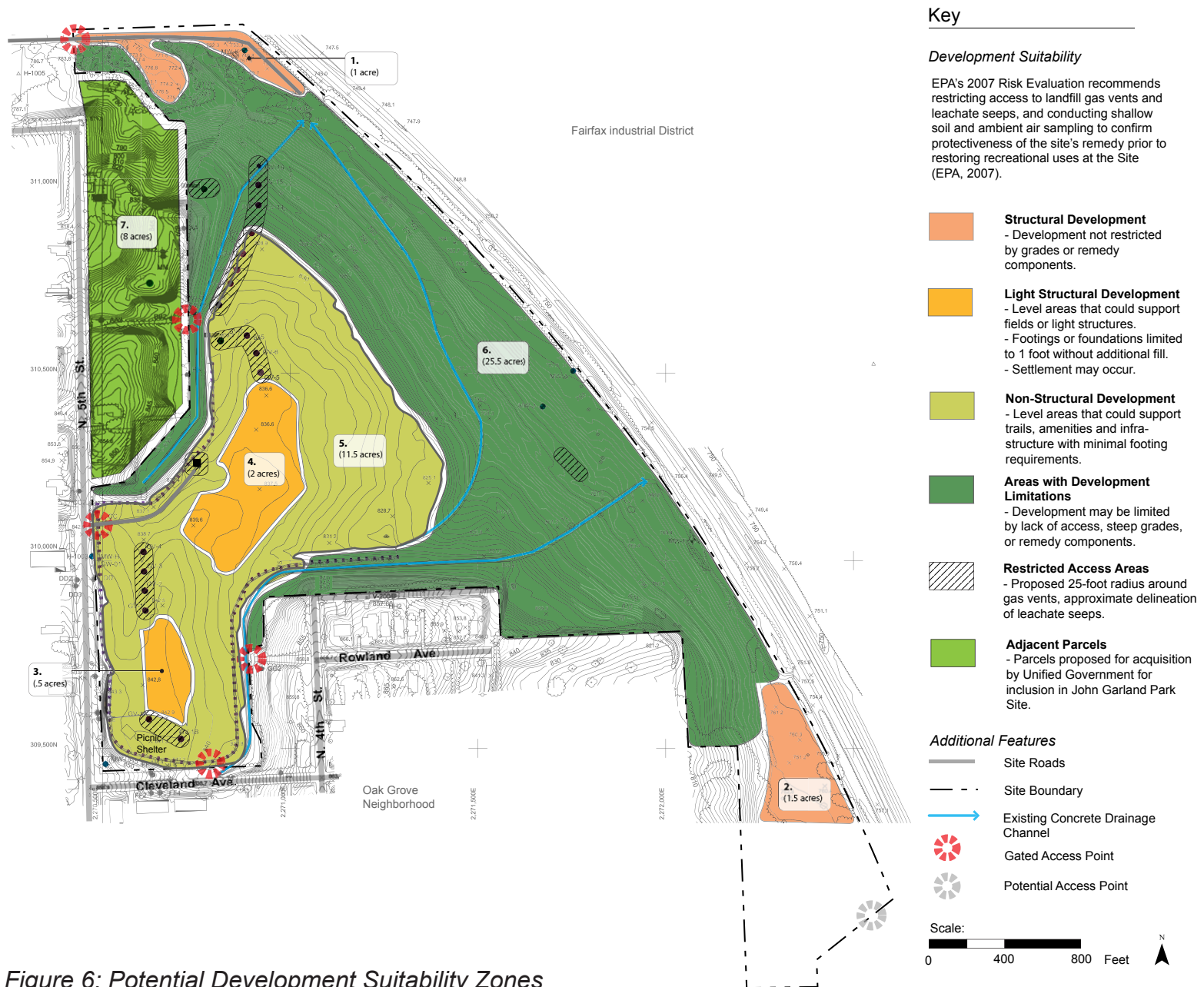
EPA Region 7, KDHE and Unified Government representatives agree that returning the JGP Site to productive reuse would benefit the Site and the community. However, as mentioned previously additional testing has been advised to ensure the Site is safe for recreational use.

In August 2009, EPA developed a scope of work for site reassessment activities at the JGP Site targeted to evaluate surface soil and ambient air quality within Structural and Non-Structural Development Zones (highlighted in Figure 6). EPA anticipates that a site reassessment summary report could be available in Spring 2010.

*Table 2. Development Suitability Zones*

<b>Potential Structural Development (2.5 acres)</b>	Areas 1 and 2 shown on Figure 6 would not likely be restricted by remedy components, waste or grades and could be suitable for future structural development such as buildings or infrastructure.
<b>Light Structural Development (2.5 acres)</b>	Areas 3 and 4 include level surfaces that could potentially support sports fields or light structures requiring shallow footings of less than 1 foot. However, settling could occur.
<b>Non-Structural Development (10.5 acres)</b>	Area 5 includes level areas that are potentially suitable for infrastructure and amenities, such as trails, access roads or parking areas with minimal footing requirements. Future uses would need to take into account access restrictions for remedy components (methane gas vents) in these areas.
<b>Areas with Development Limitations (24.5 acres)</b>	Area 6 includes portions of the Site with existing remedy components, limited access and steep slopes (grades greater than 10 percent). This area covers the majority of the northern half of the Site and could potentially be suitable for trails.
<b>Adjacent Parcels (8 acres)</b>	The Unified Government is in the process of acquiring a number of vacant residential properties located in Area 7 along the eastern edge of the Site. This area will serve as a buffer separating the landfill from residential areas to the east. Southern portions of this area would likely be suitable for non-structural development.
<b>Restricted Access (2 acres)</b>	The locations of existing and proposed methane gas vents, as well as identified "seeps" are highlighted on this map as restricted access areas, due to the need to prevent future users from exposure to flammable gasses or contaminated leachate.





## VIII. REUSE PROPOSALS

While final reuse recommendations for the Site will need to consider the findings of the site reassessment and risk evaluation activities discussed in the previous section, several reuse plans have articulated potential future uses for the JGP Site. The following section presents a summary and preliminary evaluation of previous reuse proposals based on the potential development constraints and development suitability considerations identified in Sections VI and VII.

### *John Garland Park Concept Plan (Multi-Use Recreation Facility)*

From 2001 to 2003, the Kansas State University Center for Hazardous Substance Research, as subcontractor to the Midwest Hazardous Substances Research Center at Purdue University, worked with local non-profit organization Associated Youth Services (AYS) and members of the Oak Grove Neighborhood Association (OGNA) to develop a community vision for the reuse of the JGP Site. The two-year effort, which included multiple workshops, visioning sessions and design charrettes, produced a plan for a multi-use recreation park (Figure 7). OGNA leadership sought funding to implement the park and with Kansas State's assistance secured a \$100,000 grant from EPA's Environmental Justice program. Due to a combination of factors, OGNA declined to accept the grant and has not pursued the plan to reuse the Site as a park.

The 2003 Reuse Concept Plan, as shown in Figure 7, envisions a multi-use park on the southeastern portion of the Site. The concept plan for the park includes the following components:

- Walking / jogging trails.
- Lookout points.
- An amphitheatre and performance lawn.
- Shelter structures (3).
- Baseball fields (2).
- Soccer / football field.
- Art installations (e.g., site and neighborhood history wall).
- Parking areas (2).
- Basketball court.
- Skate park.





### *John Garland Park Concept Plan Preliminary Evaluation*

E<sup>2</sup> Inc. performed a preliminary screening evaluation comparing the site's 2003 reuse concept plan (Figure 7) with the development suitability zones map (Figure 6). Table 3 provides preliminary feasibility, remedy and maintenance considerations for each of the concept plan's 19 different components. Recommendations from this analysis are summarized below.

#### Preliminary Screening Evaluation:

- With some modification, the trails, lookout points, art installations, and performance lawn components of the plan would likely be compatible with the site's remedy and potential development constraints and could serve as neighborhood amenities with relatively low maintenance and installation costs. These elements also appear to be consistent with the reuse goals identified by the Unified Government.
- Sports fields, court sports, parking areas, shelter structures, and skate park elements of the plan could serve as potentially viable reuse options. However, proposed locations and the number of features would likely need to be modified to account for level grades, depth of cover, and other remedy components. Physical space limitations due to the site's remedy and potential development constraints would likely limit the extent to which all of these elements could be appropriately sited. These components would likely have higher installation and maintenance costs.

### *Commercial Greenhouse*

Community organization AYS proposed a greenhouse for the Site that would use on-site methane gasses to generate heat for the facility. The greenhouse would serve as a commercial growing operation and job training facility for local youths. AYS abandoned the project when it determined that the thermal potential of the site's landfill gas reserves was not sufficient for use as a heating fuel and that market conditions in the greenhouse industry would not support the proposed program.

#### Preliminary Screening Evaluation:

- Concept plans were not available to verify locations of proposed greenhouse facilities.
- Areas identified as suitable for light structural development (Zones 3 and 4 on Figure 6) could potentially support commercial greenhouse structures, such as hoop houses with footing depths of less than one foot.
- Further evaluation is necessary to determine feasibility of locating utility corridors on capped portions of the Site.

### *Renewable Technology Demonstration Park*

Unified Government and neighborhood stakeholders have expressed interest in renewable energy opportunities at the Site. The Unified Government Office of the Mayor requested and received a consultant proposal to conduct a feasibility study evaluating the site's potential for renewable energy generation. Conceptual plans were not available to verify the locations of potential renewable energy facilities.

*Table 3: Reuse Suitability Evaluation (2003 Reuse Plan)*

Activity	Proposed Zone(s)	Feasibility Concerns	Remedy Considerations	Maintenance and Costs	Suitability of Proposed Location
<b>Jogging Trails</b>	Light Structural Development, Non-Structural Development	Trail system encroaches on gas vent restricted access areas in several locations. Modify / simplify layout to avoid restricted access areas.	Consistent with cap remedy.	Extensive trail system would require higher up-front and long-term maintenance costs. Modified simple loop trail system with one or two spurs would require lower installation and maintenance costs.	High
<b>Amphitheater</b>	Non-Structural Development	Located on a steeper grade outside of area of analysis.	Compatibility dependent on amphitheater design.	Moderate installation and maintenance costs.	Medium
<b>Performance Lawn</b>	Light Structural Development, Non-Structural Development	Grading improvements needed to create level performance space.	Additional fill may be needed to allow for grading.	Variable depending on size and design elements.	High
<b>Shelter House A</b>	Non-Structural Development	May encroach on restricted access area around a gas vent. Area not recommended for structural development.	Cover depth likely not suitable for structures with footings.	Moderate installation and maintenance costs.	Low
<b>Eastern Ballfield</b>	Non-Structural Development	Grading and access improvements needed for active sports.	Turf / cap maintenance requirements	High installation and maintenance costs.	Low
<b>Western Ballfield</b>	Light Structural Development, Non-Structural Development	Grading and access improvements needed for active sports.	Turf / cap maintenance requirements	High installation and maintenance costs.	Low
<b>Soccer/Football Field</b>	Non-Structural Development	Grading and access improvements needed for active sports.	Turf / cap maintenance requirements	Moderate installation and maintenance costs.	Medium
<b>Lookout Points</b>	Non-Structural Development	Easily integrated into trail system.	Consider shallow footings for signage or interpretive exhibits to accommodate cap remedy.	Installation and maintenance costs low for outer sites and medium for central site.	High
<b>Shelter House B</b>	Light Structural Development	Footings limited to 1 foot without additional fill.	Consistent with cap remedy.	Moderate installation and maintenance costs.	Medium
<b>Shelter House C</b>	Non-Structural Development	Area not recommended for structural development.	Cover depth likely not suitable for structures with footings.	Moderate installation and maintenance costs.	Low
<b>Playground</b>	Non-Structural Development	Area not recommended for structural development.	Playground surface fill should be at least 1 foot deep. Footings for installations could compromise landfill cover.	Medium installation and maintenance costs.	Low
<b>Cleveland Avenue Parking Lot</b>	Non-Structural Development	Easily integrated into existing road access points.	Consider constructing surface out of flexible material to allow for settling.	Installation and maintenance costs dependent on surface material.	Medium
<b>5th Street Parking Lot</b>	Non-Structural Development	Easily integrated into existing road access points.	Consider constructing surface out of flexible material to allow for settling.	Installation and maintenance costs dependent on surface material.	Medium
<b>History Art Walls</b>	Light Structural Development, Non-Structural Development	Shift location slightly northeast to move entirely into Area 4.	Consider shallow footings of 1 foot to accommodate cap remedy.	Variable depending on size and design elements.	High
<b>Basketball Courts</b>	Light Structural Development, Non-Structural Development	Located near the proposed Active Landfill Gas Collection System.	Consider constructing surface out of flexible material to allow for settling.	Installation and maintenance costs dependent on surface material.	Medium
<b>Skate Park</b>	Non-Structural Development	Will need some grading work in order to create a level park.	Consider constructing surface out of flexible material to allow for settling.	Installation and maintenance costs dependent on surface material and park design.	Medium



## V. CONCLUSIONS & NEXT STEPS

The Unified Government's reuse goals and findings of the reuse characterization indicate that the JGP Site could likely be returned to reuse to benefit the Unified Government and residents of Kansas City. A reasonable future use of the JGP Site could focus on recreation activities. However, additional steps are recommended to refine a successful recreational reuse proposal.

- Site reassessment activities are needed to clarify the protectiveness of the Site for future recreational users.
- A community outreach process is encouraged to develop a plan for the reuse of the Site that is fully supported by the community stakeholders.

### *Site Reassessment and Ready for Reuse Determination*

During 2010, EPA and the Agency for Toxic Substances and Disease Registry (ATSDR) intend to conduct an analysis of shallow soil samples and ambient air at the Site to determine if there is any contamination at the Site that might pose an adverse risk to people using the Site in the future. EPA could potentially incorporate the findings of the site re-assessment in a Ready for Reuse Determination (RfR). This step could help to address community public health and safety concerns about reuse at the Site.

### *Community-Based Reuse Framework*

Once the site reassessment is complete, and EPA and the state determine that the Site is safe for recreational reuse, the Unified Government may consider conducting a community outreach process to refine community goals and specific uses for the Site consistent with the site's remedy and physical features outlined in this document.

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