



Planning for the Future:

A Reuse Characterization for the Butterworth Landfill Superfund Site Grand Rapids, Michigan

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EPA Region 5
Superfund Redevelopment Initiative

funded by
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prepared for
City of Grand Rapids, MI

prepared by
E² Inc.

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Site Characterization Assessment Overview

U.S. EPA Region 5 and the City of Grand Rapids continue to work together as part of EPA's Return to Use Initiative to support the successful reuse of the Butterworth Landfill NPL Site. The Butterworth Landfill may present unique opportunities for future uses because of its size, level surface, and prime urban location. To provide effective long-term stewardship of the site and ensure that any future uses maintain protection of human health and the environment, EPA and the City have worked with the community to develop a site reuse framework and conceptual design plan.

Building upon the site's existing reuse framework, this reuse characterization serves as a screening tool to provide a base of fundamental site-specific information and considerations for the City of Grand Rapids as it considers potential future uses at the site. This document provides key information about the physical conditions at the site, along with identification of basic issues associated with on-site activities that could affect or be affected by those conditions. It provides five site maps, each emphasizing a different aspect of site conditions and highlighting associated issues for consideration in future use deliberations. The five maps identify key information relating to remedy; utilities; access; drainage and stormwater; and property parcel ownership.

This document serves as a planning tool for the City as it considers specific design alternatives at the site; it is not a reuse plan for the site, but may provide a basis for a final conceptual reuse plan that provides conceptual layout and design options.

Consideration of future uses requires that existing remedy components remain protective. In some instances, it may be technically feasible to modify aspects of the remedy to accommodate a future use. However, any costs associated with modifications that exceed effectiveness and protectiveness requirements must be born by parties requesting the modifications. Engineering plans for a reuse design or related technical feasibility studies should be undertaken by the City as it progresses with future use plans at the site, and in all instances any modifications to the remedy must be submit-

ted to the Butterworth PRP Steering Committee for approval, and then to EPA Region 5 for approval.

Site Remedy Characterization

The primary existing components of the site remedy are a landfill cap and monitoring wells. The PRP Steering Committee has completed implementation of the remedy, and the site is currently protective for general access by the public.

Site Characteristics and Reuse Implications

- The landfill cap covers the vast majority of the site. It is 48 inches in depth on the western and eastern portions of the site and 12 inches in the middle portion of the site, as indicated in Figure 1. The slope of the cap is 1%-3%, with steeper slopes of 5-15% along the edges and several areas within the interior of the cap. Steeper slopes help to maintain necessary surface water drainage patterns to protect effectiveness of the cap. The cap should not be disrupted¹.
- EPA has indicated that the addition and placement of grading material (soil, gravel and pavement) to support planned future site uses (e.g., soccer fields, skate park, trails, roadways, and parking lots) on the eastern and western portions of the site is acceptable. However, the landfill's settlement rates and load-bearing capacity across the site have not yet been studied. If structures or paved surfaces like parking lots are to be placed on-site, these factors will require further evaluation.
- Gas probes, gas wells, leachate monitoring wells, and ground water monitoring wells are located generally along the perimeter of the site, with greater prevalence along the outer edge of the paved access road in the southern portion of the site adjacent to the Grand River. These instruments serve to monitor the effectiveness of the site's remedy. Minor modifications, such as restructuring the wells to run flush with the site's surface, may be feasible technically and financially; given their general absence from the central area of the site, however, the wells may pose few obstacles to future uses.

¹ The post-construction risk assessment for the site identifies and details acceptable surficial uses; those details will be incorporated into a conceptual reuse plan for the site.

Summary

The key elements of the site's remedy are the cap and various types of wells. Future use considerations must recognize the significance of keeping the cap in tact. Although cost will be a significant factor, modifying elements of the remedy could be possible with EPA and PRP approval. For example, an increase in grade could be made to the cap for elevation, or wells may be made flush-mount. Any consideration of modification to the cap slopes, e.g., from added grade, would require considerable technical evaluation.

Legend to Figure 1
















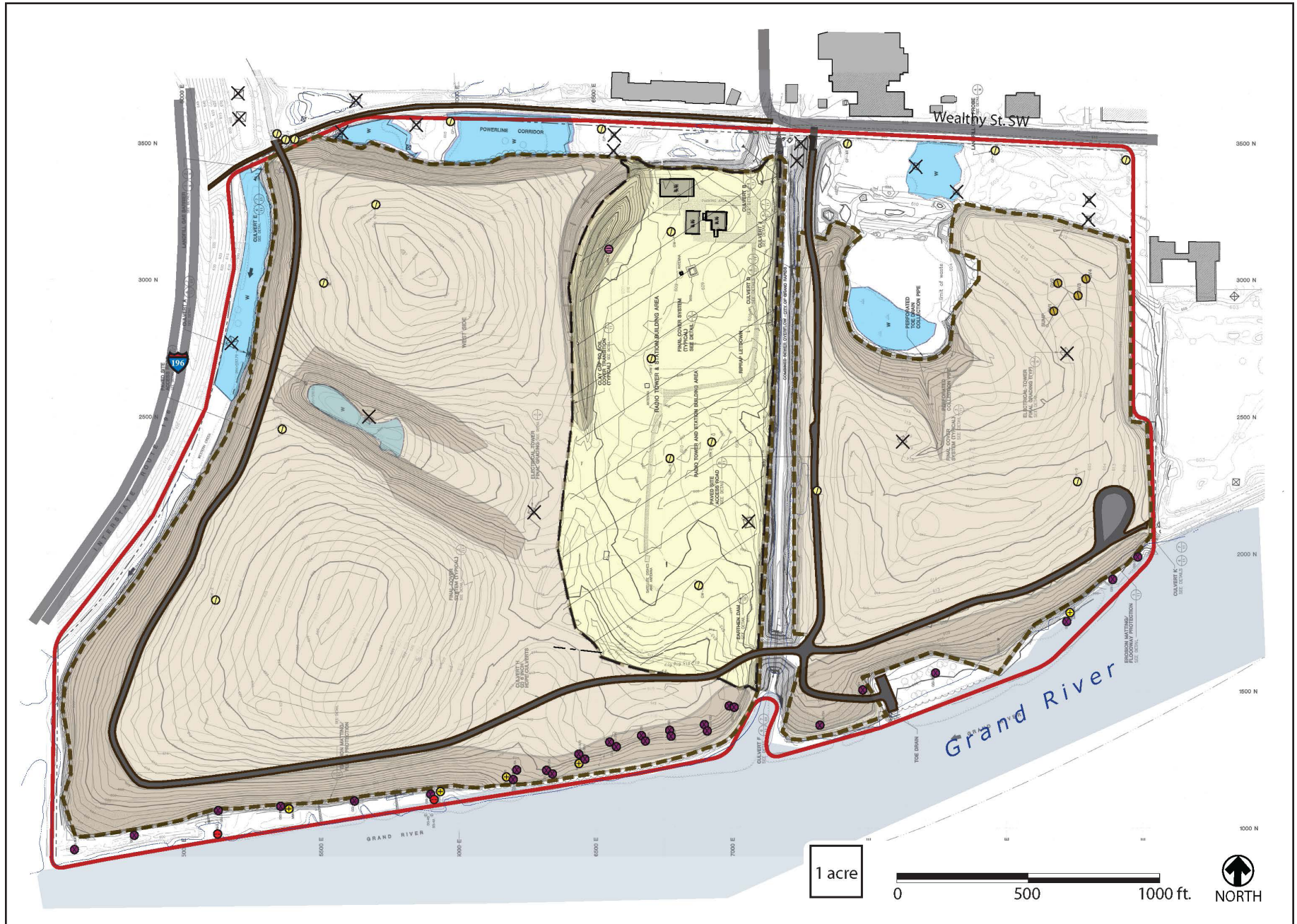
	Butterworth Landfill Superfund Site Boundary		LHW - Leachate Head Well Location
	Paved Access (20' wide)		GP / GW - Gas Probe / Gas Well Location
	Property Boundary Line		SG - (unknown sample type)
	Existing Building		GSI - ACL Compliance Monitoring Well or Sentinel Monitoring Well Location
	Electrical Tower		MW - Water Table Monitoring Well Location
	12" Cap Area		GV - Temporary Passive Gas Vent
	48" Cap Area		
	1-10% Slopes		
	>11% Slopes		

FIGURE 1: SITE REMEDY CHARACTERIZATION



Utilities Characterization

The site's location in an urban area makes utility and water/sewer access to the site readily available in certain areas and potentially available in others, but with greater financial and technical implications.

Site Characteristics and Reuse Implications

- Electric power corridors run east-west along the site's northern boundary and east-west through the middle of the site, as indicated on the corresponding map. Electrical lines could be extended along the site's perimeter (the western and eastern boundaries), or through the electric power corridor to supply electricity for pathways, fields, and parking lot lighting systems. In addition, electrical lines could be extended beneath or beside the main access road with some modification to the cap in that area. Extending electrical lines throughout the central areas of the site would require adding fill to contain utility lines (e.g., grass-covered soil berms) or a subsurface conduit with minimal disturbance to the cap. Installation of berms would require additional study and special consideration for surface slope, surface water flow, subsurface refuse compression rates, and affects on remaining size of usable land. Consideration should be given to address the impact of light fixtures and supports on the cap or pavement, as well as options for light-weight, low-impact lighting for potential use in the east-west power corridor.
- Sewer and water main trunk lines are located along Wealthy Street, adjacent to the site's northern boundary. An off-site property parcel owned by the City of Grand Rapids located adjacent to the northwestern corner of the site could potentially support a public restroom. Absent significant modification to the remedy, sub-surface toilets and running water on-site are not feasible due to the importance of keeping the cap intact. Consideration could be given to elevated chemical treat toilets or portable toilets on central areas of the site. Developing water lines along the site could be technically feasible, but the climate

in Grand Rapids may limit its functional viability without subsurface installation, something the presence of existing waste and the cap would complicate technically and financially. Extending a water line along the main access road perpendicular to Wealthy Street could pose additional opportunities, although modification to the cap would likely be necessary and subsurface piping could be prohibited. Options for ultra-modern, freeze resistant water pipes that do not require significant subsurface placement may exist and could be considered for extending water services through the site.

Summary

Water and electric could be accessed along the northern edge of the site with no modification to the remedy. A city-owned parcel adjacent to the northwestern edge of the site could support public restrooms within a reasonable distance from the western portion of the site. Sewer and water access on-site is complicated significantly by restrictions to subsurface activity and cap maintenance requirements. Electric could be provided through the central area of the site via the electric corridor that runs east-west through the middle of the site and extended along the paved access road

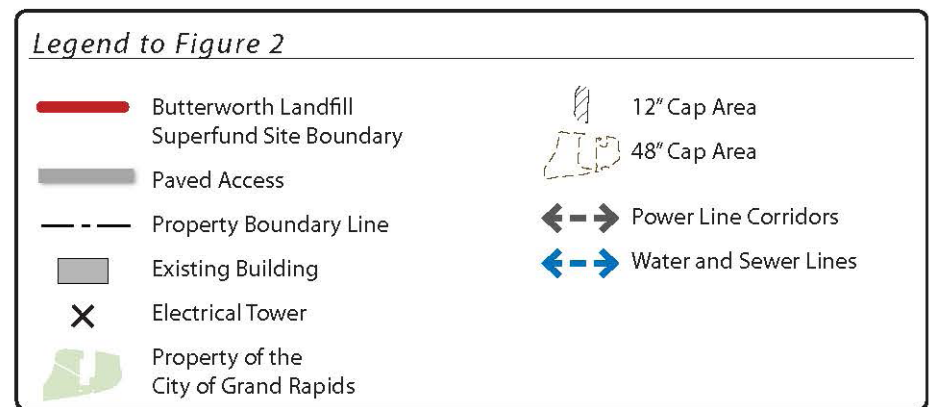


FIGURE 2: SITE UTILITIES CHARACTERIZATION



Site Access Characterization

The site is located in an easily accessible urban area. Key issues for future use consideration are compatible pedestrian and vehicular access to internal areas of the site, and adequate parking to support site uses. The only paved road through the site has been approved in part, for incorporation with the City's bike/pedestrian trail system.

Access and Transportation Characteristics and Reuse Implications

- Vehicular access to the site is currently via the site's access road, off Wealthy Street in the northern, central portion of the site. This paved twenty-foot-wide main access road runs north-south through the middle portion of the site, ending at the boat launch, east-west along the southern edge of the site, and north-south along the western edge of the site. The road's primary intended uses are fire protection and boat launch access; it has also been approved as a bike/pedestrian trail by the City. These trails will also connect with two additional proposed trails located to northwest and southeast of the site, as indicated by the trailhead markers on the map. The access road is wide enough to support two-way vehicular traffic (with no shoulder), or one-way, single-lane traffic; it cannot accommodate simultaneous two-way vehicular traffic and provide a safe pedestrian/bicycle trail.
- Should the access road be designated as a two-way vehicular roadway, a substitute trail could be built on the internal (landfill) side of the main access road to avoid additional management relating to surface slope and well. The new trail could continue to serve as a connector trail feeding into the City's other off-site trails.
- There are no vehicular parking areas currently on-site. Further examination is necessary to determine whether the access road would support vehicle parking on its edge (if, e.g., the access road was designated as a one-way, single-lane vehicular road).
- Should the access road be designated as a roadway to support additional activ-

ity on site, consideration should be given for maintaining emergency vehicle access. Currently, only one vehicular access point exists where the main access road intersects with Wealthy Street.

- If the access road is not designated for or will not support vehicular parking, off-site parking areas would need to be identified. Opportunities for city partnerships with local businesses near the site, as well as shuttle-based services from designated locations, should be considered for certain future uses depending on parking demand. The site may support paved parking areas, but consideration should be given to optimal uses for competing demands for site space, and existing grading and slope requirements.

Summary

Full advantage should be taken of the existing road for access and parking, if possible. It would be more feasible to re-establish a biking trail on the site than additional vehicular access. Absent access-road parking, portions of the site will need to be designated for parking areas, competing for other uses at the site, or accommodations for off-site parking will need to be considered. Additional access for emergency vehicles should be addressed.

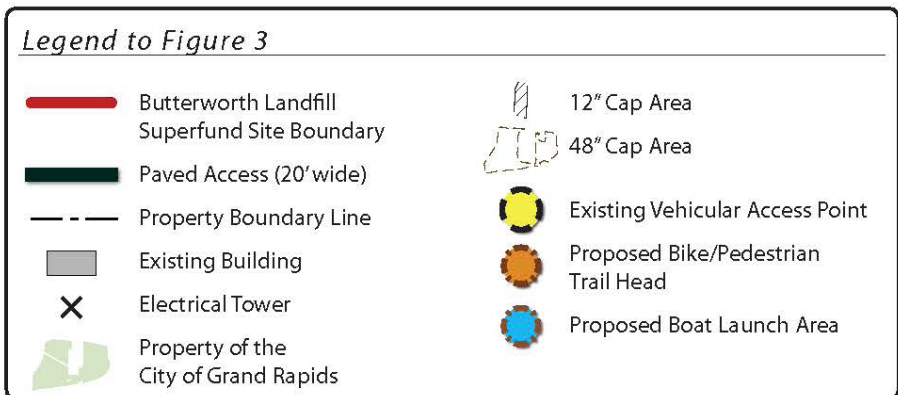


FIGURE 3: SITE ACCESS CHARACTERIZATION



Site Drainage and Stormwater Characterization

A critical element in the protectiveness of the site's remedy is surface water drainage. Modifications to the site surface affecting slope or grade must be closely studied to ensure continued protectiveness of the site cap.

Drainage and Stormwater Characteristics and Reuse Implications

- Culverts are located throughout the site to provide efficient surface water channeling to off-site areas, as indicated on the corresponding map. A vegetated stormwater drainage canal runs north-south from Wealthy Street into the Grand River. In addition, wetlands are located in low-lying areas – along the site's northwestern and western boundaries, and in the northern portion of the site's eastern area --- to serve as wildlife habitat and provide collection zones for stormwater runoff. Grading and vegetation along the drainage network sustain proper functioning of the swales and ditches to ensure positive drainage off the cap. These components, along with the 10-15%-slope areas along the edge of the site collectively provide surface water management at the site, and require study prior to surface modifications.
- EPA has indicated that areas throughout both sides of the site could be graded to support planned future site uses (soccer fields, skatepark, motocross, and additional trails, etc.) provided that existing drainage patterns are maintained. Modification to areas with a 10-15% slope would require significant study prior to modification or may be unfeasible.

Summary

Any surface modifications affecting slope or grade should be studied to prevent damage to the site's remedy. Additional grading is possible at the site, but site plans must incorporate existing drainage patterns.

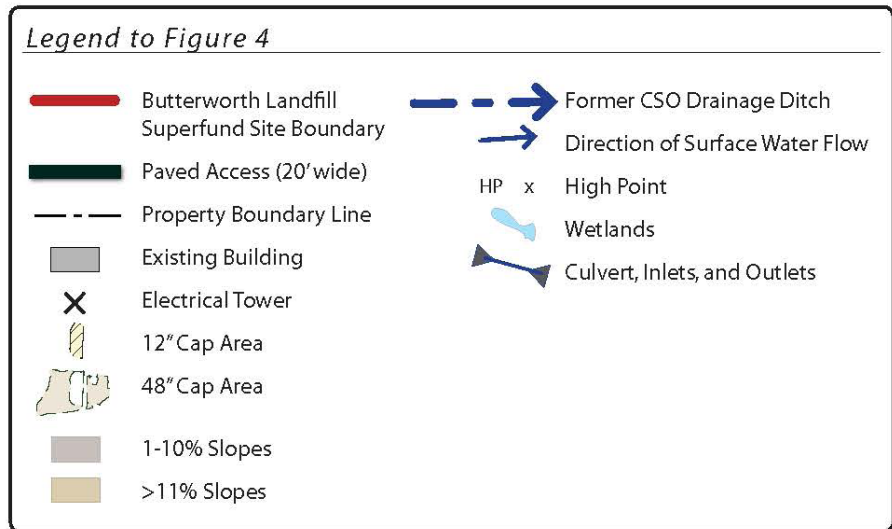







FIGURE 4: SITE STORMWATER MANAGEMENT AND DRAINAGE CHARACTERIZATION



Site Ownership and Parcel Information

The site consists of thirty-one parcels. There are five property owners: the City of Grand Rapids, Furniture Broadcasting Corporation, Consumers Energy Company, TMD Realty, and Developers Inc. The tax parcel information is provided in the following table.*

Consumers Energy Company 			TMD Realty 		
Map #	Tax Parcel Number	Footage	Map #	Tax Parcel Number	Footage
1	41-13-35-104-001	46,609	18	41-13-35-176-002	174,239
2	41-13-35-126-001	137,214			
3	41-13-35-126-002	112,820	City of Grand Rapids 		
4	41-13-35-126-008	16,704	Map #	Tax Parcel Number	Footage (none recorded)
5	41-13-35-126-006	8,733	19	41-13-35-104-002	
6	41-13-35-127-003	14,080	20	41-13-35-503-004	
7	41-13-35-129-003	21,780	21	41-13-26-503-001	
8	41-13-35-226-010	784,080	22	41-13-35-151-001	
9	41-13-35-151-002	112,820	23	41-13-35-126-003	
10	41-13-35-126-004	110,346	24	41-13-35-126-009	
11	41-13-35-128-004	81,726	25	41-13-35-251-002	
12	41-13-35-129-005	46,609	26	41-13-35-251-001	
			27	41-13-35-176-003	
Furniture City Broadcasting Corporation 			28	41-13-35-176-005	
Map #	Tax Parcel Number	Footage	29	41-13-35-151-004	
13	41-13-35-128-003	506,167	30	41-13-35-151-003	
14	41-13-35-129-004	398,772			
15	41-13-35-176-007	71,775	Developers Inc. 		
16	41-13-35-129-006	13,634	Map #	Tax Parcel Number	Footage
17	41-13-35-176-003	none recorded	31	41-13-34-400-002	261,360

*Source:

<https://ims.ci.grand-rapids.mi.us/viewer.htm>

FIGURE 5: SITE OWNERSHIP CHARACTERIZATION

