

Considerations for Development On or Adjacent To a Closed Solid Waste Landfill

Introduction

Over the past decade, Ohio has seen a significant increase in development on closed solid waste landfills. The purpose of this document is to provide developers, as well as planning and development agencies, an outline of the general requirements and expectations of Ohio EPA when development is proposed on or adjacent to a closed solid waste landfill.

The primary authorization required from Ohio EPA to proceed with construction on, and in some cases adjacent to, a closed landfill is prescribed by Ohio Revised Code (ORC) Section 3734.02(H) and Ohio Administrative Code (OAC) Rule 3745-27-13. This is often referred to as a "Rule 13" authorization. In addition, other authorizations may be required from Ohio EPA to move forward with the project, including permits for air pollution control, installation of a public drinking water system, and surface water and storm water management. Authorizations may also be required from local and federal agencies, including the U.S. Army Corps of Engineers, the local Soil and Water Conservation district, and other agencies. It is also important to note that every landfill and every proposed development activity is unique. The local Ohio EPA office should be contacted early in the planning process to discuss the specifics of the project. The contact number for the Ohio EPA District Offices can be found at www.epa.ohio.gov/Directions.aspx.

Where Do I Start?

When a landfill is being proposed for redevelopment, a number of items must be considered. These include: age of the landfill, depth and height of waste, type of waste disposed, the need to relocate waste, any unique post closure issues or environmental impacts, and the actual redevelopment activities proposed. Ohio EPA's experience has shown that for landfill redevelopments to be protective of human health, public safety, and the environment, engineering enhancements and administrative controls are necessary. These may include the installation and operation of a final cover system meeting or exceeding current design standards, vapor barrier systems, a perimeter leachate collection system, an explosive gas management system, and activity and use limitations enacted through recorded environmental covenants. In addition, adequate financial assurance for a landfill construction project will likely be required prior to the time when waste will first be disturbed.

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It is also important that the design of all utility systems (gas, electric, drinking water, telecommunications, storm water, and sanitary sewer) be constructed in a manner protective of human health, public safety, and the environment. Ohio EPA permitting requirements will likely apply to the construction of storm and sanitary sewer lines and public water supply lines.

Below is a broad list of additional items which must be considered when there is a proposed construction project on or adjacent to a closed solid waste landfill. This is not an exhaustive list and further items may need to be considered based on site specific conditions.

Environmental Considerations when Developing on or Near a Closed Landfill

Solid Waste

- Authorization under Rule 13 is necessary for all environmental and geotechnical investigatory work.
- Engineering controls and gas monitoring may be necessary to ensure there is no vapor intrusion or gas migration into buildings or leaving the project area through utility trenches.
- Construction of buildings on a landfill may require buildings to be constructed on pilings or other specialized support systems. This geotechnical design needs to be considered in the Rule 13 application.
- Settlement of the landfill throughout the life of the redevelopment needs to be considered for building, parking lot, and utility maintenance. Significant settlement should be anticipated if waste is to be relocated and recompact as a part of the project.
- Leachate management may be necessary as part of the project. Leachate is any liquid which comes in contact with waste. Added weight on the landfill may cause leachate outbreaks.
- Relocation of waste presents a number of concerns that must be addressed. These include operational issues, odor control concerns, engineering challenges, and potential for future settlement. Any waste or leachate which is removed from the site must be characterized in accordance with OAC Rule 3745-52-11 to determine if the waste is a hazardous waste.

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- Any public and private entities that may become part of the chain of title as new property owners are subject to background check requirements in ORC Sections 3734.41 through 47.
- Construction on a landfill will likely require financial assurance for closure and post closure care. Post closure care can be extended by the director of Ohio EPA. It is not uncommon for Ohio EPA to require financial assurance for 30 years of post closure care. The financial assurance provides Ohio EPA insurance that if a project is started but not completed, Ohio EPA has the financial resources to adequately close and monitor the site.

Surface Water

- A general NPDES construction site storm water permit is required for any construction project disturbing one or more acres of land. The permit requires the applicant to develop a pollution prevention plan and ensure that storm water run-off from the site is properly controlled during and after construction.
- Any impact to “waters of the state” such as wetlands or streams on the property requires a 401 Water Quality Certification from Ohio EPA and may also require a 404 permit from the U. S. Army Corps of Engineers.
- A permit to install (PTI) is required from the Ohio EPA Division of Surface Water for the installation of a sanitary sewer, on-site septic system or package treatment system, holding tank, or other wastewater treatment system.

Drinking Water

Waterline alignments must avoid sources of contamination. Waterlines cannot be located in liquid waste or in waste located within soil subject to seasonal or permanent ground water. There will likely be special construction techniques, such as clay backfill, plugged hydrant weep holes, plastic pipe restrictions, and alternate alignments for routing of waterlines around areas of known or suspected areas of contamination. Applicants are required to submit detailed plans for public water supplies to Ohio EPA Division of Drinking and Ground Waters before construction can begin. The plans must be prepared and submitted by a professional engineer registered in the State of Ohio. The plans and supporting information must include the following:

- A site development map which clearly shows the following items within the project limits:
 - the proposed waterline(s) and all existing waterline(s);
 - buildings, roads, railroad tracks, and easements;
 - all underground utilities, including sanitary and storm sewers, storm ditches and outfalls, and surface water drainage ways;

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- all on-site ground water wells (private and public potable, non-potable, monitoring, test, and geotechnical);
- all potential sources of sanitary risk, including known or suspected limits of waste placement (vertical and horizontal limits), underground storage tanks, etc.
- Environmental sampling/boring data collected along the waterline alignment. The data must include the following, at a minimum:
 - depth to ground water and direction of flow;
 - information regarding any perched water table(s);
 - information regarding high ground water levels, including seasonal variations;
 - boring material characterization (boring logs);
 - chemical analysis results for contaminants of concern along the waterline alignment (generally from the boring holes).
- Ownership information for the waterline. This includes identifying who the owner will be, who will bill for the water supplied, and who will maintain/repair the waterline(s).

Air Pollution

- Development on closed landfills and waste relocation projects will require reasonably available control measures (RACM) for fugitive emissions from the construction activities.
- Contingencies in the event that regulated asbestos materials are discovered should be considered.

Conclusions and Recommendations

Redeveloping on or adjacent to a closed landfill can be challenging and complex, from both a technical and regulatory perspective. That is why it is very important that any prospective developer or planning agency interested in a landfill property contact Ohio EPA early in the planning process to help determine the feasibility of redeveloping the landfill and to help ensure that all parties have a clear understanding of the scope of the project, regulatory requirements, and typical time frames for processing various authorizations for the project. Early and up front communication can help avoid costly mistakes and set the stage for successfully moving a project through redevelopment.

As a starting point, anyone interested in knowing more about landfill redevelopment should contact their local Ohio EPA district office, Division of Solid & Infectious Waste Management. The contact number for the Ohio EPA District Offices can be found at www.epa.ohio.gov/Directions.aspx. For additional guidance regarding Rule 13 please see Ohio EPA Guidance Document #631, [Implementation of Rule 13 \[OAC 3745-27-13\]](#).