

Changed Pages
Part III, Attachment III-D
Waste Management Unit Design

Part III
Attachment III-D

WASTE MANAGEMENT UNIT DESIGN

Pescadito Environmental Resource Center
MSW No. 2374
Webb County, Texas

PESCADITO
ENVIRONMENTAL RESOURCE CENTER

Initial Submittal March 2015
Revised September 2015
Revised November 2015
Technically Complete March 11, 2016
Modified October 2016
Modified August 2017

Prepared for:
Rancho Viejo Waste Management, LLC
1116 Calle del Norte
Laredo, TX 78041

Prepared by:
Aptim Environmental &
Infrastructure, Inc.
(f/k/a CB&I Environmental &
Infrastructure, Inc.)



12005 Ford Rd, Suite 600
Dallas, TX 75234

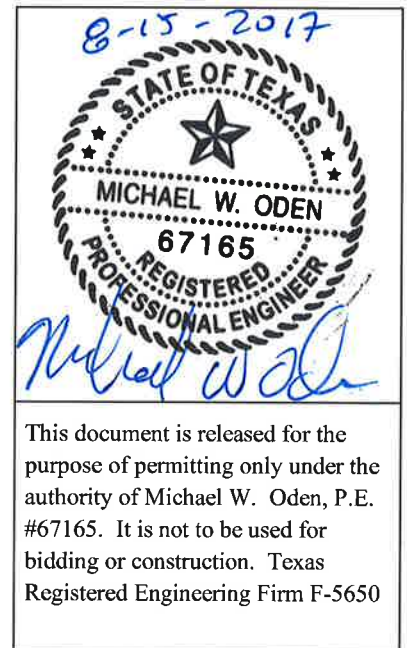
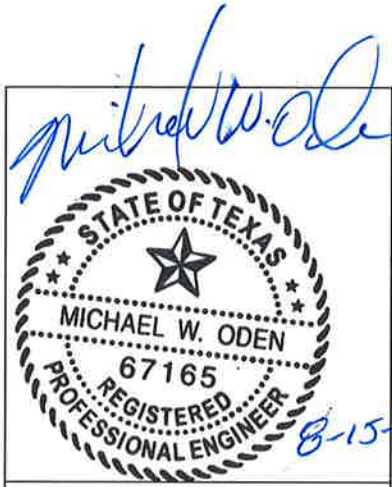


Table of Contents

1.0	STORAGE AND TRANSFER UNITS	1
1.1	Liquid Solidification	1
1.2	Large Item and Tire Storage Areas	2
1.3	Reusable Materials Storage Area	3
1.4	Citizen's Convenience Center	3
1.5	Leachate Storage Facility	4
2.0	SURFACE IMPOUNDMENTS.....	5
3.0	LANDFILL UNITS.....	6
3.1	All Weather Operations.....	6
3.2	Landfilling Method	7
3.3	General Landfill Design and Site Life Calculations	7
3.4	Liner and Final Cover Quality Control Plans.....	8

Attachment III-D Appendices:

- III-D.1 – Site Layout
- III-D.2 – Landfill Cross Sections
- III-D.3 – Landfill Design and Details
- III-D.4 – Landfill Operation and Site Life
- III-D.5 – Geotechnical Analyses
- III-D.6 – Leachate and Contaminated Water Plan
- III-D.7 – Liner Quality Control Plan
- III-D.8 – Alternate Final Cover Demonstration
- III-D.9 – Final Cover Quality Control Plan



This document is released for the purpose of permitting only under the authority of Michael W. Oden, P.E. #67165. It is not to be used for bidding or construction. Texas Registered Engineering Firm F-5650.

3.0 LANDFILL UNITS

There may ultimately be several landfill (waste disposal) units at the PERC facility, however, this application is for a single northeast unit. The unit has been designed for the acceptance of any waste delivered to the facility and will utilize a composite liner system consisting of a soil liner, flexible membrane liner and a leachate collection system. For any cell to receive class 1 waste, the soil component will be three feet thick and have a hydraulic conductivity no greater than 1×10^{-7} cm/sec. For cells where class 1 waste will not be deposited, the soil layer may be two-feet thick. Class 1 wastes will only be deposited up to the elevation of the perimeter berm and then covered with four feet of clay rich soil prior to adding MSW on top to the final elevations.

3.1 All Weather Operations

Interior roads at the facility will be constructed of native soils, crushed stone, gravel, concrete or masonry rubble, wood chips, sawdust or similar materials that provide access to the disposal area during all weather conditions. Existing roads for oil field traffic are constructed of native soils and have not been a problem for access during times of wet weather. However, to improve operating conditions during periods of wet weather, a disposal area that is close to an all-weather road may be reserved for use. This wet weather area will necessarily move as disposal operations advance.

Facility personnel will be responsible for maintaining the wet-weather landfill road for all-weather access to the disposal area. Stockpiles of material such as crushed stone, gravel, concrete or masonry rubble, wood chips, sawdust or similar material will be kept available for use in maintaining the access roads in a passable condition. Equipment such as motor grader, dozer or other appropriate equipment will be used when needed to control or remove mud from the interior landfill roads, the landfill entrance road and the off-site roads leading to the public roads.

Tracking of mud onto public roads will be minimized by the all-weather surfaces of the interior roads and the landfill entrance road. Additionally, the distance from the landfill entrance to the nearest public road (approximately 2.9 miles) will minimize the possibility of mud being tracked onto public roads. This road has been used for decades by oil and gas companies with no problems regarding the tracking of mud.

The landfill entrance road will be a 30 to 50-foot- wide concrete paved roadway and will provide mud control for waste hauling vehicles prior to exiting the site and returning to the off-site roads. Additional details of the landfill entrance road are provided in Appendix III-D.1.

3.2 Landfilling Method

The method of development of the waste management unit will be a combination of area-excitation fill followed by aerial fill. Daily cover will be applied whenever the landfill closes or at the end of each week during 24-hour per day operations as detailed in Part IV – Site Operating Plan. Final cover placement will generally follow the sequence of cell development as shown in Appendix III-D.1 and will occur as portions of the site are filled to capacity. Closure of completed areas will be in accordance with the closure plan provided in Part III, Attachment III-H.

3.3 General Landfill Design and Site Life Calculations

The waste disposal unit has been designed with a deepest elevation of excavation of 446.0 NAVD88 which is located in the sump of cell NE-3 and assumes a three foot compacted soil liner. NAVD 88 is the same as mean sea level (msl) and msl will be referenced in this application. The maximum elevation of waste is 701 and the maximum elevation of final cover is 704.

The final excavation side slopes will not be steeper than 3 horizontal to 1 vertical (3H:1V) and the side slopes of the aerial fill component will not be steeper than 4H:1V. The slope of the top dome is approximately 6 percent.

The unit represents approximately 14,306,484 cubic yards for waste and daily cover. Based on a daily waste receipt amount of 10,000 tons per day, 365 days per year of operation and an airspace utilization factor of 0.8775 (65 pounds per cubic foot), the life expectancy is estimated at 7 years. Detailed calculations and assumptions can be found in Appendix III-D.4.

Landfill design cross sections can be found in Appendix III-D.2 and other design details can be found in Appendix III-D.3.