

**Part III  
Attachment III-D  
Appendix III-D.9**

**FINAL COVER QUALITY CONTROL PLAN**

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

**PESCADITO**  
ENVIRONMENTAL RESOURCE CENTER

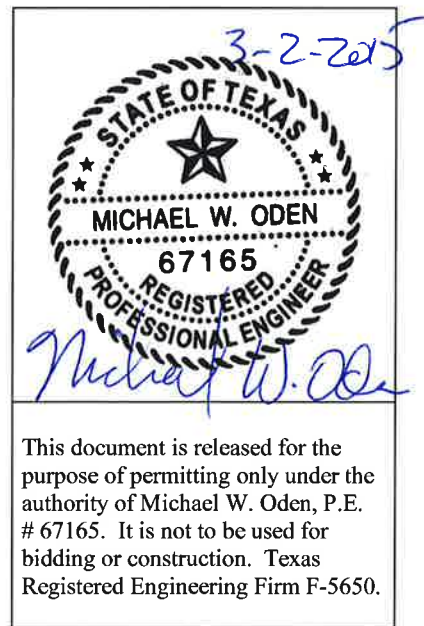
**March 2015**

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

**Prepared by:  
CB&I Environmental and  
Infrastructure, Inc.**

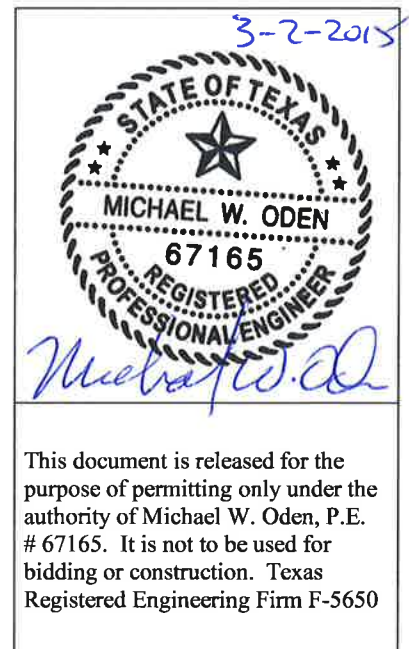


**12005 Ford Rd, Suite 600  
Dallas, TX 75234**



## Table of Contents

1.0	INTRODUCTION .....	1
2.0	FINAL COVER DESIGN.....	2
3.0	QUALITY ASSURANCE/QUALITY CONTROL .....	3
4.0	DOCUMENTATION .....	4



## 1.0 INTRODUCTION

The Pescadito Environmental Resource Center (PERC) is located in Webb County east of Laredo Texas. Webb County is an arid area of the state. Climate information from the Texas Water Atlas (Estaville & Earl, 2008) includes:

- Average annual precipitation (period from 1971 to 2000) is in the range of 20 to 24 inches and Annual Potential Evaporation. The PERC site receives about 22 inches annually.
- Annual Potential Evapotranspiration (Priestly Taylor method) is approximately 75 inches.
- Annual Potential Evapotranspiration (Penman method) is in the range of 100 to 110 inches.
- Gross Lake Surface Evaporation (average annual rate from 1950-1979) is in the range of 71 to 81 inches.

It is clear that there is a very significant precipitation deficit (negative water balance) in Webb County. A water-balance alternative final cover (AFC) should perform extremely well without relying on an exotic design, select soil materials, critical construction, establishment of vegetative cover, or other factors.

Further exacerbating the negative water balance for this project is the increase in surface runoff associated with a significant percentage (approximately 89%) of the landfill area being constructed with twenty-five percent slopes (4H:1V).

## 2.0 FINAL COVER DESIGN

The AFC design for the project consists of a seven-inch erosion cover underlain by a thirty-inch, low-permeability infiltration layer. Both layers can be constructed from the predominantly (>>90%) fine-grained, poorly permeable clayey soils resulting from the required excavation. Because of the arid conditions, i.e., the significant precipitation deficits, and the characteristics of available soils, the design of the AFC is not particularly sensitive to permeability variation or establishment of vegetation. A permeability of  $1 \times 10^{-5}$  cm/sec or less is the only significant requirement for both layers.

Special selection of material and/or material placement is not critical to achieve the required permeability. That opinion is based on multiple observations:

- Predominantly fine-grained soils, such as those present at the site, typically exhibit permeabilities less than  $1 \times 10^{-5}$  cm/sec without special preparation and/or placement.
- Most materials to be produced from the excavation are intensely fissured and/or blocky and excavation and stockpiling quickly reduces these materials to a uniform clayey soil.
- There are a number of dams and drainage diversion levees currently within the Applicant's property that were constructed with a dragline with no attempt at controlled placement that have performed well without seepage problems, etc.
- Two large test pits excavated in 2012 (Appendix III-E.2 - Subsurface Investigation Report) and subsequent observations of dumped backfill demonstrate that natural poorly pervious soil conditions quickly develop.

### **3.0 QUALITY ASSURANCE/QUALITY CONTROL**

Placement of the AFC is a fairly simple operation requiring little documentation beyond assuring that the soil materials have been placed to the proper thickness and that the berms and downchute structures have been constructed as designed. Survey documentation of thickness will be performed at a frequency no greater than 1 per 10,000 square feet of constructed cover. In an abundance of caution, laboratory permeability testing will also be conducted on samples of as-placed soils at a frequency of no less than one test per surface acre as specified in 30 TAC §330.457(c) for the infiltration layer in prescriptive final covers. Areas with failing tests will be disked, sprinkled with water, lightly compacted and retested.

#### 4.0 DOCUMENTATION

Completion of the Alternative Final Cover (AFC) will be certified by a Texas-licensed Professional Engineer. The certification will document that all quality assurance / quality control requirements have been met and that the constructed AFC complies with the permitted design. The certification will also be signed by the site operator and submitted to the executive director, or the Municipal Solid Waste Permits Section of the Permits Division of the Texas Commission on Environmental Quality (TCEQ). The AFC completion certification will include:

- The latest edition of any required TCEQ Report Forms completed with appropriate attachments
- A summary of all cover construction activities
- Drawings illustrating thickness survey locations and permeability sampling locations
- Laboratory permeability test results
- Records of any retesting and reworking of the AFC
- Thickness verification documentation
- As-built record drawings