

# Green Infrastructure Project Completion Report

## Project E-06: City Parking Lot #3

PREPARED BY: CH2M HILL  
DATE: November 2010  
Contractor: Davis Walbridge

The purpose of this memorandum is to document a summary of the important information noted during the design and construction of the City Parking Lot #3 green infrastructure project.

### Item #1: Stormwater Details and Specifications

- 1A. Inlet Restoration.** Upon punch list walkthrough for substantial completion, the Owner (City) observed that two (2) of the inlets being connected to the infiltration bed were in a deteriorated state, and requested the inlets to be rebuilt and/or restored. Additional mason work was performed by the contractor at no additional cost due to a credit available from other favorable conditions at the site. For future projects involving connections to existing inlets, the inlets should be thoroughly inspected in the City's presence to determine if restoration is required.

### Item #2: Porous Concrete Quality Control

- 2A. Test Pad Quality Control.** Per contract specifications, the contractor is required to become certified by the National Ready-Mix Concrete Association (NRMCA) in the construction of porous concrete. While the test pad is intended to be a learning experience for the contractor in the construction of porous concrete, and is part of the certification requirements, it is also a requirement in the contract specifications to provide a visual example to the owner and engineer to ensure the product installed at the project site is of acceptable quality. For this project, due to low quality in the test pad mix batch, and concerns in construction methods, the test pad exhibited locations of poor quality. This was noted in a letter to the contractor from the engineer dated October 18, 2010. While the test pad was rejected, the contractor was allowed to proceed with porous concrete construction at the project site under close inspection by the owner, engineer, and inspector, and thus serve as another "test pad." The corrective measures noted in the letter to the contractor were followed and quality control actions were taken, thus resulting in an acceptable placed product with an acceptable finished surface. If the contractor is being certified construction of porous concrete as part of a project, if possible the construction schedule should provide adequate time for placement of a 2<sup>nd</sup> test pad if necessary.
- 2B. Cold Weather Placement.** As with most concrete mixes, curing time is critical to the quality and performance of porous concrete. By contract specification, 7 days curing time are required prior to any traffic, and 10 days prior to truck traffic. In addition, unless the concrete is heated, a "curing day" is only acceptable if the average ambient temperature is 50° F or higher. While the contractor did provide 7-days curing time, 3 days of that period did not meet temperature requirements. Additional time was not possible due to the need to re-open the parking lot. As such, the quality of the installation at City Lot #3 will be closely monitored. In the future the contractor's schedule must be closely monitored to ensure adequate curing time is provided.

### Project Metrics Summary

Bid Price \$235,000

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Change Order Total	\$4,102
Total Project Cost	\$239,102
Total Estimated CSO Reduction	481,000 gallons
Cost per CSO Reduction	\$0.50 per gallon