URS

Memorandum

Date: 30 June 2005

To: BCP

From: Graeme Miller

Subject: Work Method Statement

Installation of Settlement Plates for Orica Subsidence Monitoring

1. Introduction

This memo forms the Work Method Statement for the installation of the settlement plates across the Botany investigation area as part of a subsidence monitoring program being undertaken by Orica. URS seeks to engage BCP to undertake the hand digging, installation and concreting works associated with the installation of the settlement plates. All works will be overseen by a URS field engineer.

2. Description of Infrastructure

Each settlement plate is a 0.4 m long x 0.4 m wide x 0.006 m thick steel pad, which has a 0.4 m long 0.025 m diameter rod welded to the centre of the pad. The settlement plates will allow Orica to assess whether subsidence of the ground surface is occurring as a consequence of the groundwater remediation program. This will be facilitated by periodic surveys of the elevation of the top of the settlement plate rod. Consequently, the plate needs to be protected from interference or damage such that the integrity of the surveys is maintained. The plates, therefore, need to be recessed below the ground surface underneath a protective cover. The covers need to be finished flush with the ground surface.

The covers which have been selected are stormwater/sewer covers and are very heavy (>100 kg). A backhoe will be employed to place the covers within the excavations to minimise the amount of manual handling. A schematic of the arrangement of the settlement plate and covers is attached.

3. Work Method

The following steps are required for the installation of the settlement plates. The tasks to be undertaken by BCP and URS are denoted by the use of the company acronyms.

1. Service clearance - all locations have been cleared of services either by:

- Orica (BIP and Southlands); or

URS Australia Pty Ltd (ABN 46 000 691 690)
Level 3, 116 Miller Street
North Sydney, NSW 2060 Australia
Tel: 61 2 8925 5500
Fax: 61 2 8925 5555

- URS (all other locations using dial before you dig plans and a cable location subcontractor).

2. Excavate by hand an approximately circular hole with a diameter of approximately 1.3 m. The hole is required to be 0.75 m deep. Place spoil by the side of the hole. (BCP).

3. Mix and place 0.1 m deep by 0.2 m wide ring of concrete around the outer edge of the base of the excavation to form a base for the cover (BCP).

4. Place the cover into the excavation (URS – subcontracted backhoe driver).

5. Mix and place cement (0.1 m deep) around basal section of the cover (on the outside of the cover) and then use spoil generated from the excavation to backfill the void around the outside of the cover. Backfill to bring back to original ground surface (BCP).

6. Place settlement plate into inside of cover (URS).

7. Place 0.3 m long 0.05 m diameter PVC sleeve around the rod on the settlement plate (URS).

8. Place 0.2 m of spoil over the base of the plate and surrounds under the cover (BCP).

9. Place remaining spoil in a 205 litre drum for collection by Collex (drum to be supplied and filled by BCP, waste disposal to be organised by URS).

A Job Safety Analysis (JSA) has been prepared by URS and is attached to this document. BCP will be required to adhere to the requirements of the JSA and the project specific health and safety plan. Of particular note is attention to the manual handling elements of the plan.