

CHARLES STURT UNIVERSITY INTEGRATED FIELD LABORATORY, WAGGA WAGGA



Overview

Charles Sturt University appointed Zauner Construction to undertake the construction of an Integrated Field Laboratory, which included a rhizolysimeter and automated rainout shelters, as part of their \$45 Million NaLSH (National Life Sciences Hub) project. This laboratory augments the existing laboratory constructed 15 years ago with this project tripling the size of the Rhizolysimeter with the addition of two new bunkers which contain 36 cylinders each. As well as the increase in the capacity, it also utilizes the latest technology with full integration with the campus network allowing for the monitoring of test results from any computer connected to the Universities LAN (Local Area Network).

The Wagga Wagga Rhizolysimeter is the only functioning Rhizolysimeter of its type in the southern hemisphere. Unlike controlled environments, the Rhizolysimeter is an advanced field based facility for study of the dynamics of crops, soil processes, water usage and soil based carbon sequestration in real environments, improving understanding of the actual processes and dynamic interactions between plant, soil and environment.

Structure

The new laboratory is comprised of two underground concrete laboratories connected by a corridor. It includes two entry/exit structures, two overhead gantry cranes to allow the easy installation and removal of sample cylinders, mobile rainout shelters to allow the university to control soil moisture content, a transportable office building to be used as a classroom, a colorbond shed for general storage and a service road.

Services

Services for the project included an upgrade of HV (High Voltage) power to the site including a new transformer, water, sewer (septic system) and fiber optic connection to the Universities LAN.

Site Restrictions & Environmental

Environmental concerns were a significant factor in this project as the soil removed from the construction site was to be replaced to the same condition it was removed. This meant that the soil was replaced in layers and compaction levels matching the existing soil profile. Traffic around the site was controlled to ensure the remainder of the site did not suffer from compaction issues and to allow the test area to be returned to the client as close to an undisturbed paddock as possible.

Constraints & Innovations

The existing High Voltage lines ran directly across the site and had to be replaced before any works could be undertaken. This project was also in progress during one of the wettest summers on record. The challenge this presented was by virtue of the fact that a large part of the project involved underground construction and the need to keep water from the construction area. This was managed by using pumps and adjusting construction methods, such as temporary trenches, covers etc, to reduce the impact of the mud and rain.

Time & Performance

The project was delivered on time despite the weather and existing High Voltage lines.

Client

Charles Sturt University
 Stephen Butt
 Facilities Director
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Value

\$2.1m

Construction Period

August 2010 to April 2011

Location

Wagga Wagga, NSW