T & J CONSTRUCTIONS

STEBONHEATH WETLANDS



LOCATION
Corner of Curtis Road and Stebonheath Road

CONTRACT VALUE
$679,400

CONSTRUCTION PERIOD
December 2012 - April 2013

FORM OF CONTRACT
AS2124-1997

CLIENT
City of Playford

PROJECT SUPERVISOR:
Jeffrey Way

REFEREE
Rocco Ventra
City of Playford
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DESCRIPTION OF PROJECT:
Bulk and detail excavation, clay lining of wetlands and swale, preparation for gabion baskets, installation of Managed Aquifer Storage and Recovery HDPE pipe work (2.56km) and 1.67km of electrical and coms conduit. Installation of large stormwater infrastructure (1500 RCP, automated ludwici valves, Pump Stations), cement treated rubble base in the capture basin.

PROJECT CHALLENGES:
1. Deep excavation and freestanding benched detention basin walls. Backfilling to 98% standard behind and under gabion baskets to ensure the detention ponds, capture basin and wetlands are impermeable to water (1 X 10-9 permeability). No heavy machines could be used directly behind the gabion walls.
2. Working in a live stormwater system which despite the summer period had several flood events. This is managed with the use of large 6" centrifugal pumps, temporary bunds and scraping the slop immediately off the base. T & J Constructions worked to move the water into completed areas which maintained the moisture content in the clay liner.

KEY CONSTRUCTION PROCESSES:
The Stebonheath Wetlands is the primary collection point of stormwater for Playford's Managed Aquifer Storage and Recovery (MSAR). Stormwater is biologically treated through the wetlands and then secondarily treated in the onsite before being injected into the Aquifer for storage. The bore onsite allows Playford to extract the water to maintain the wetlands. A fundamental requirement of a successful capture swale, basin and wetland is an impervious clay liner to hold the water.

T & J Constructions removed the onsite material and constructed a new compacted clay liner under level 1 supervision (FMG engineering) over 150,000m2. We installed 2.56km of reticulated water piping, two complete pump stations, a 1050RCP wetland drainage/inlet structure and an overflow weir. The works require 1.67kms of communications and electrical conduits to work between the bore, pump stations and automated valves. Around the site an access road was constructed and we constructed a cement treated base in the capture basin. Onsite traffic management for construction was significant with a number of GPS guided plant working as well as suitably sized dump trucks to maximise productivity.

The works included;
Extensive Bulk Materials Handling and conditioning 25,000m3
Significant Services Installation
Cross and Longitudinal Drainage
Structural Fill and rock Protection
Ancillary Works Such as electrical reticulation and recycled water reticulation
Moderately Complex Environmental Risk Management
Special Foundation and/or subgrade and subsoil treatments
Pavement Construction using modified materials
Granular Pavement Construction
Bulk Earthworks Excavation
Semi Complex Site Traffic Management (multiple dump trucks, rollers, graders, semis and excavators on single site)