

Excavation of the Windsor Road Water Main

NORTH WEST GROWTH CENTRE

SYDNEY WATER MANAGING THE FLOW OF GROWTH

Sydney Water is in the final stages of Package 1 of essential water related infrastructure to service the rapidly developing North West Growth Centre First Release Precincts in Sydney.

With Sydney's population expanding, the NSW Government has identified the North West Growth Centre as a key area to be developed. It is expected that the centre will contain approximately 70,000 new homes when complete.

Throughout the planning process and in coordination with other infrastructure providers, Sydney Water and its partners ensure that water related services are delivered to the precincts to allow development to proceed.

In November 2008 the Minister for Planning approved the delivery of water related infrastructure for the servicing of the North West Growth Centre First Release Precincts. Package 1 is the first stage of works to service these precincts.

The project has delivered a new drinking water reservoir and approximately 23 kilometres of drinking water, recycled water and wastewater pipelines. The contract was awarded in 2008 with construction completed in late 2010 and testing and restoration to be completed in 2011. Australian Water 1 project managed the works on Sydney Water's behalf and engaged the Reed Group to design, construct and commission the works.

Work has been carried out in the Baulkham Hills and Blacktown local government areas in the precincts of Riverstone, Alex Avenue and North Kellyville. The works affected the suburbs of Kellyville, Kellyville Ridge, Schofields, Rouse Hill, Stanhope Gardens, and Area 20.

The works constructed included;

- a wastewater carrier along Smalls Creek, and drinking and recycled water mains in Hezlett Road, Kellyville
- a 40 ML drinking water reservoir and associated connection work on Sydney Water land at Cudgegong Road, Rouse Hill

The North Kellyville Carrier

Construction of the Rouse Hill Reservoir

ASSET OWNER : Sydney Water Corporation
DESIGN & CONSTRUCTION
HEAD CONTRACTOR: Reed Constructions Australia
PRINCIPAL DESIGNER : AECOM
CONSULTING ENGINEERS : Demlakian Engineering
Secta Engineering
PROJECT END VALUE : \$68 Million
COMPLETION : March 2011

- a wastewater carrier to service the Alex Avenue precinct and
- drinking water mains to service the new reservoir and adjacent precincts.

Community relations were an essential consideration throughout the project. The construction teams faced the challenge of constructing major infrastructure within established communities which included homes, business, schools and public facilities.

The community were provided updates through letters, newsletters and advertisements throughout the construction period.

Special attention was also given to managing key environmental issues. This included the management of threatened and protected species of flora and fauna as well as the management of Indigenous and European heritage. The impact of construction on the environment was minimised through a comprehensive Environmental Management Plan. Some trees and vegetation needed to be cleared for the new infrastructure, however, this was kept to a minimum and areas are being progressively restored.

The restoration plan was started with 'Plant a Tree Day' on 20 July 2010. Reed Group worked with Greening Australia to collect native plant seeds to restore native plants affected by construction.

With the First Release Precincts Package 1 works now completed, Sydney Water will continue its planning, design and construction work for the other precincts in both the North West and the growing South West Areas.

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COMMUNICATING WITH THE COMMUNITY

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Communication with the local community was critical to the successful delivery of Package 1 of the North West Growth Centre and Reed Group engaged specialist firm Elton Consulting to plan and role out the community relations program for the project.

The delivery of water infrastructure to the precinct was the first indication that many local people saw of what is to come for the area, with the construction of some 70,000 dwellings planned over the next 30 years.

The first stage of the program for Elton Consulting was a close analysis of the impacts likely to be felt by the local community, followed by discussion with the team as to the best way of minimising these including meetings with landowners who were going to be directly affected by the works.

“Most people are tolerant of disruptions to their lives if they are treated with respect and given timely, accurate information” observes James Evans, Elton Consulting’s Director of infrastructure services, “it’s when they are kept in the dark that the trouble can start, often causing delays with their financial consequences”.

A multi-disciplinary consultancy, Elton had the added advantage of being familiar with both the area and people through previous work,

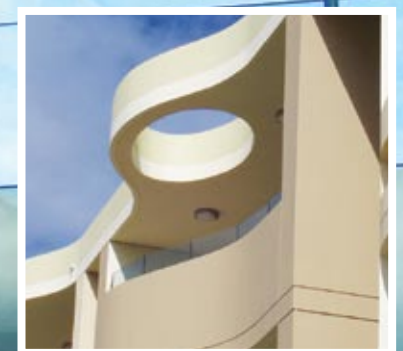
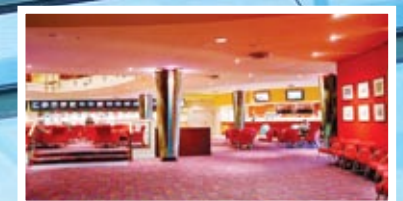
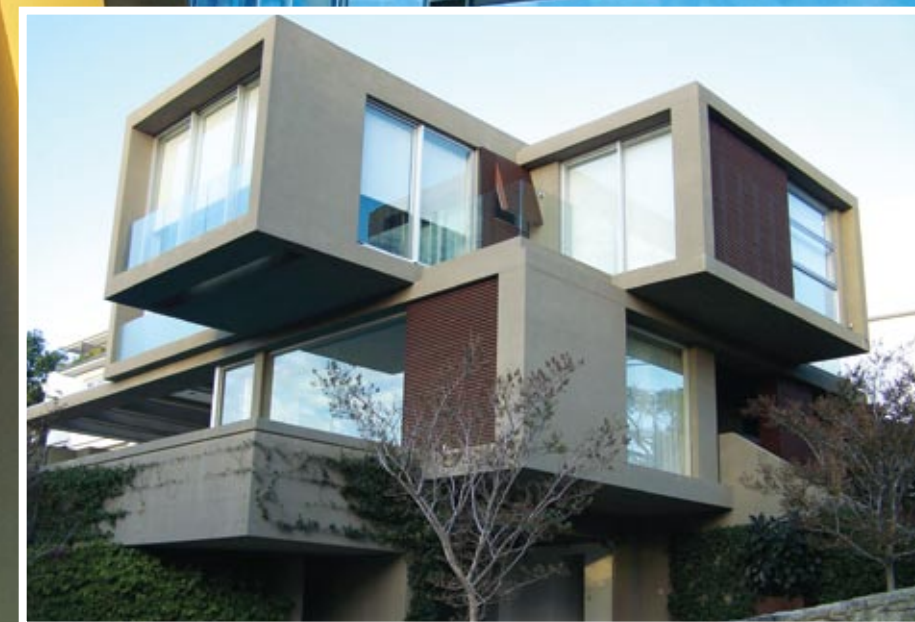
planning the social infrastructure for many of the precincts in the growth centre.

“Over the past fifteen years we have worked with local service providers and Government agencies to determine what the projected population needs in terms of community facilities, human services and open space,” says Associate Director and community planning expert Chris Manning.

The company then identifies when the services will be needed, their cost and who will deliver them. Whether it’s hard infrastructure or soft, the company always takes a strategic approach to its work.

“Our clients will often have a long term relationship with the communities their work is affecting”, remarks Evans “the reputational risks are therefore high and in part our job is to make sure the values the client articulates in the board room are delivered on the ground through the behaviour of their staff and subcontractors.”

Evans credits much of Elton’s national success to its people and its ability to provide end-to-end services to clients. “As a professional services company we have the capacity to add value from the feasibility stage through to planning and on to delivery, and often over very long periods of time”. Evans concluded.



ENGINEERING THE GROWTH OF A COMMUNITY

Established in 1984, Demlakian Consulting Engineers are experts in the structural, civil and hydraulic fields, bringing together over 100 years experience to provide the insight, diligence and resourcefulness to successfully diagnose and resolve all engineering and rectification issues. The design engineering teams apply ethical, cost-effective and intelligent advice throughout all stages of the construction process, and have consequently been engaged on a number of high-profile projects for a client base that includes companies, organisations and government departments. Numerous Demlakian projects have been recognised at both national and state level for all forms of excellence.

An extension of the Demlakian brand, Demlakian Strata & Remedial is an organisation that specialises in Strata defects and dilapidation investigations. Today, both Demlakian Consulting Engineers and Demlakian Strata & Remedial continue to boast a professional history without a single insurance claim. This, the team believes, is one of their greatest professional achievements to date.

With this extensive experience in the building and construction industry, Demlakian are proud to be associated with the North West Growth Centre project for which they were appointed as the professional consulting engineers. Their involvement in the project related to the undertaking of extensive dilapidation investigations of numerous real

estate properties, such as residential houses, apartments, and retail and commercial premises, not to mention an extensive investigation of Council assets in relation to the excavation work for the laying of Sydney Water pipes, along route of the services installed by Reed Constructions. Demlakian Engineers also engaged in hydraulic consulting services, which provided validation of design for reservoir mixing and the North Kellyville potable and recycled water distribution main.

Marek Blaszcakiewicz, a Director of Demlakian Consulting Engineers, said working on the project has been a “sensational” experience:

“The professionalism on display has been admirable, and the smooth running of all building operations has led to the successful creation of a rejuvenated urban community.”

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ENVIRONMENTALLY AWARE EXCAVATION

As the excavation and drain laying contractor on the Sydney Water North West Growth Centre Package 1, Killard Excavation played a key role in managing many of the environmental issues on the project.

Specialising in the renewal and installation of water and sewer mains and pipelaying, Killard Excavation has developed over the past decade into a highly respected multi-functional company and environmentally aware project manager.

Contracted by The Reed Group, Killard provided services to the project which included at Watermain Work 12, the installation of 4.5kms of DN450, 750, 900 and 1050 DICL and Sintakote SCL pipe including thrust bores, concrete encasement and major thrust block design. This included dual and triple main installation within shared trench within roadway, welding works, inspection points, valves, hydrants and connections.

Similar works were also carried out at Watermain Work 11 which involved the installation of 6.3kms of piping.

The area is home to a number of threatened and protected species and the Killard team were particularly vigilant in adhering to the Environmental Management Plan to protect and manage both flora and fauna.

It is this quality of work which has seen Killard grow from a three machine operation in 1999 to a thriving company, employing over 250 people and continuing to expand into new areas.

Their leading position in their field is reflected in other current projects which include contracts for BCV Networks Alliance: the Bankstown Ashfield Trunkmain comprising 1260m of DN 300 DICL; the Hyde Park Road Trunkmain comprising 1750m of DN450 DICL including OD560 PE installed via HDD Bore under the golf course; and reticulation on 11 and 12, southern Pipecracking Portion 1 and the installation of 2.1kms of OD 125 and OD 180 PE pipe.

Killard are also working on night works at Fraser Broadway for Christie Civil. These works involve installation of 200m of 1500mm diameter RCP stormwater pipe, breaking into Ovoid pipe, construction of a 4m x 2m wide pit, 3.8m deep at the intersection of Abercrombie Street and Broadway, the construction of 2m x 2m stormwater pits up to 3.8m deep and the shoring and steel plate design in to order to open Abercrombie Street up for traffic during the day.

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ADVOCATING FOR THE ENVIRONMENT

With an impressive track record in the supply of environmental management teams to major infrastructure projects, Onsite Environmental Management (OSEM) were engaged by Reed Group to fulfill the role of Project Environment Representative on the North West Growth Centre Project in Sydney.

OSEM was responsible for overseeing all environmental management for the project which included obtaining Project Approvals, compiling Environmental Management Plans and Systems, Control Maps and Work Method Statements.

The work also involved onsite supervision of environmentally sensitive works and included the creation of a number of management plans to protect threatened species including the Cumberland Plains Large Land Snail and several species of bats, on the project.

OSEM created tailored construction methodology to avoid impacting threatened flora species as well as preparing Consistency Assessments to realign the pipeline route to preserve riparian vegetation, avoid aboriginal heritage areas and reduce impacts on Endangered Ecological Communities. A number of Environmental Assessments were also required to determine the impacts of Underbore vs Open Trench technology at each creek crossing location.

The company showed great attention to detail throughout the project, in particular during Aboriginal heritage investigations where test excavation and sieving was required within close proximity to the

creekline. A complex water recycling system was setup to significantly reduce the amount of water required for the work, and to prevent sediment-laden water from polluting the creek.

OSEM has extensive experience across their field, providing environmental auditing, licensing, biodiversity assessment, ecological survey, EMS and CEMP preparation, environmental reporting and monitoring of air, water, noise and vibration services.

The company is currently working on a number of other major infrastructure projects including the Bulahdelah Bypass, Hunter Expressway, Oxley Highway upgrade, Camden Valley Way Upgrades, Maitland to Minimbah rail project, Southern Sydney Freightline, and the M2 Upgrade as well as numerous other projects for major clients including the NSW RTA and the ARTC.



ONSITE ENVIRONMENTAL MANAGEMENT

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COUNTING THE COST AND CLOCK

As a leading engineering and technical consultant with world-wide resources and extensive experience across government and private sector projects, Aurecon has been contracted as the independent technical and management system verifier for the North West Growth Centre.

“The real benefit we aim to deliver to the Reed Group, Sydney Water and Australian Water is cost and time savings through early identification of any inconsistencies or anomalies across a huge suite of detailed drawings during design stage,” said Peter West – Project Manager, Aurecon.

“We are responsible for reviewing and certifying compliance of all stages of the design work in key engineering disciplines and we certify compliance across multiple disciplines and undertake site audits,” added Peter.

Aurecon's Water group is currently undertaking a major growth initiative which will see our global water business expand to meet the needs of an ever increasing and diverse water industry across the region.

aurecon

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