Logan City Council

DCEO Paper for Approval

Logan Water Alliance
Loganholme Recreational Precinct Wastewater Infrastructure - Detailed Design

22 April 2013
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1. Purpose of Paper

The purpose of this paper is to seek approval from the DCEO Road & Water Infrastructure for the Logan Water Alliance (LWA) to proceed with the Loganholme Recreational Precinct Wastewater Infrastructure - Detailed Design at the estimated cost of $201,073 (exclusive of GST).

2. Project Background

This project involves detailed design for a new pump station and conveyance infrastructure from the Loganholme Recreational Precinct to the Loganholme WWTP. The objective of this project is to provide wastewater services for proposed developments in the Loganholme Recreational Precinct. The development sites are currently not serviced.

This project was originally approved for design and construction in September 2011 (ALG Paper 179 - EW7683) based on a budget estimate of $761,000 and a completion date of June 2012. The predominant driver for the works then was the impending relocation of Alma Park Zoo.

The project was subsequently put on hold in October 2011 due to the uncertainty of the date of the Alma Park Zoo relocation. However, engineering investigations and some detailed design had been undertaken prior to the project being put on hold at a total cost of $75,669 (Cost + Fee).

Following a review of the original scope, a revised solution has been identified which will include changes to the pump station and additional services to cater for future developments in the Precinct. It is expected that construction of this project will now be required within the 2014/15 financial year and hence detailed design is required to minimise the delivery period.

To finalise the revised design for the project, an additional $125,404 (Cost + Fee) is required. The work carried out previously under project EW7683 and the costs incurred will be incorporated under this new Design Only Task.

The total estimated cost of the project including design, construction and commissioning is $1.2 million.

3. Project Deliverables

3.1 Scope of Design Proposed Design Task

The proposed infrastructure included in this design is as follows:

- construction of a new pre-cast concrete wastewater pumping station (5-6m deep, 2.2m diameter) and associated internal pipework, electrical works and site layout, PWWF=6.2L/s
- a new DN100 x 160m rising main pipeline from the pump station
- a new DN150 x 210m gravity main pipeline to the pump station (southern gravity section)
- a new DN150 x 340m gravity pipeline to the existing system (northern gravity section)
- new DN1050 discharge - and reticulation manholes
Task scope is as follows:

- review related planning and previous designs as well as additional requirements
- develop design criteria
- determine appropriate pipe material for the project
- liaise with DTMR for approval of pipeline(s) within DTMR corridor
- undertake Environmental and Approval investigations as necessary
- complete investigations (DBYD, Survey, Potholing, Geotechnical)
- design of rising main, gravity mains as well as pump station
- hold 30% & 85% DOAR workshops
- complete Risk Assessment (i.e Safety in Design Register)
- prepare budget cost estimate
- prepare construction program
- finalise Issue for Construction (IFC) drawings
- prepare Design Report (which summarises design assumptions.)

The task deliverables will include:

Design

- IFC Drawings
- Design Task Report as per ALG paper 232b (including Safety in Design)

Environmental

- Identify all environmental constraints

Approvals

- Identify all necessary approvals required to implement project.

4. Budget Provision

The budget estimate for this task includes the following components:

<table>
<thead>
<tr>
<th></th>
<th>Expended Previously (as part of project EW7683)</th>
<th>Variation Required</th>
<th>Total Design Only Task Estimate (DES-004)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct Costs</td>
<td>$64,177</td>
<td>$100,540</td>
<td>$164,717</td>
</tr>
<tr>
<td>Fee</td>
<td>$11,492</td>
<td>$24,864</td>
<td>$36,356</td>
</tr>
<tr>
<td>Total Estimated Cost (incl Fee)</td>
<td>$75,669</td>
<td>$125,404</td>
<td>$201,073</td>
</tr>
</tbody>
</table>

The costs incurred previously under project EW7683 will be transferred to this new Design Only Task (DES-004).

All costs are exclusive of GST.
5. **Recommendation**

It is recommended that:

The DCEO - Road & Water Infrastructure approve for the Logan Water Alliance (LWA) to proceed with the Loganholme Recreational Precinct Wastewater Infrastructure - Detailed Design Task at an estimated cost of $201,073 (exclusive of GST).

[Signature]
Rajindar Singh  
Water Infrastructure Delivery Program Leader  
Date: 22/4/2013

[Signature]  
Tony Goodhew  
Water Infrastructure Manager  
Date: 29/4/13

[Signature]  
Silvio Trinca  
Deputy CEO  
Road & Water Infrastructure  
Date: 29/4/13

[Signature]

Supported / Not Supported

Approved / Not Approved
Attachment A

Project Brief / ALG 326 / Task Notice / Task Budget Request

Task No: 92-12-04
Loganholme Recreational Precinct Detailed Design

Project Brief
### Revision History

<table>
<thead>
<tr>
<th>Revision Date</th>
<th>Version Number</th>
<th>Author</th>
<th>Description of Change/Revision</th>
</tr>
</thead>
<tbody>
<tr>
<td>27/02/13</td>
<td>1</td>
<td>LWA</td>
<td>First Issue</td>
</tr>
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</table>

### Approvals

<table>
<thead>
<tr>
<th>Role</th>
<th>Action</th>
<th>Name</th>
<th>Signature</th>
<th>Date</th>
</tr>
</thead>
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<tr>
<td>Water Infrastructure Delivery Program Leader</td>
<td>Supported</td>
<td>Rajindar Singh</td>
<td></td>
<td>10/4/2013</td>
</tr>
<tr>
<td>Water Infrastructure Manager</td>
<td>Approved</td>
<td>Tony Goodhew</td>
<td></td>
<td>24/4/13</td>
</tr>
</tbody>
</table>
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### Project Details

<table>
<thead>
<tr>
<th>Annual Program Name and Number</th>
<th>□ Renewal Works</th>
<th>✗ New Works</th>
</tr>
</thead>
</table>

**And/or**

**Project Name and Number**

Loganholme Recreational Precinct – Detailed Design
92-12-04

**Project Description**

This project involves detailed design for a new pump station and conveyance infrastructure from the Loganholme Recreational Precinct to Loganholme WWTP.

The scope of the Detailed Design phase includes the design of:

- A new 2.2m (diameter) x 5-6m (deep) pump station, including internal pipework, electrical works, and site layout
- 160m of DN100 wastewater rising main
- 210m of DN150 gravity main to convey flow to the new pump station
- 340m of DN150 gravity main to convey flow from the discharge point to the existing gravity network
- DN1050 discharge and reticulation manholes

**Project Objective**

The objective of this project is to provide wastewater conveyance for future development in the Loganholme Recreational Precinct.

This detailed design task will involve the preparation of:

- Issued For Construction Drawings
- Design Task Report
- Environmental Assessment
- Approvals Memorandum

**Product**

- □ Water
- □ Recycled
- ✗ Wastewater
- □ Treatment

**Project Phase**

- □ Master Planning
- □ Concept Planning
- □ Detailed Planning
- □ Preliminary Design
- □ Construction/Delivery
- □ Project Development
- □ Other

**Asset Class**

- □ Mains
- ✗ Pump Stations
- □ Reservoirs
- □ Telemetry’ Control Systems
- □ Land
- □ Buildings (linked)
- □ Buildings (unrelated)
- □ Meters
- □ Support Services
- □ Other

**Business Driver**

- □ New (Growth) 100%
- □ Replacement %
- □ Improvement %
- □ Compliance %

**Related Planning**

- LCC_DOCS-#7161430-Final Planning Report - Loganholme Rec Precinct Prelim Infrastructure Assess. - 90-10-82 LWA

**Related Projects**

N/A
### Part B

#### Business Drivers and Strategic Alignment

<table>
<thead>
<tr>
<th>Non-Infrastructure</th>
<th>A non-infrastructure solution was not feasible as there is currently no wastewater infrastructure servicing the area</th>
</tr>
</thead>
</table>
| Demand forecast and impact of revised forecast | The water demand and wastewater loads that will result from the future developments has been estimated by benchmarking water consumption for similar land uses and making assumptions regarding rates of return to sewer.  
A revised forecast may lead to a change in the sizing and staging of the proposed infrastructure. |
| Asset condition and risk assessment results | No existing assets exist and hence no asset condition or risk assessment was undertaken.  
The flow rate from both developments is relatively low and consequently there is potential to connect into the existing network via the local Chetwynd St wastewater catchment without impacting of existing levels of service.  
Note that there are two existing commercial properties downstream of the developments which have proposed development applications. These properties have not been considered in the analysis as no information has been supplied. |
| Legislative link or regulator correspondence | N/A |
| Customer Service Standard | Desired Standards of Service (DSS) have been used as the basis for this assessment, including for sizing of new infrastructure. The DSS have been adopted from the Review of Desired Standards of Service, undertaken by the Logan Water Alliance in September 2010. |
| Customer/community consultation | N/A |
| Strategic Alignment: | This project aligns with the following Plans:  
Draft Water NetServ Plan:  
- Appendix H: Infrastructure Planning and Program Development Management Plan  
- Appendix I: Infrastructure Program Delivery Management Plan  
- Appendix M: Wastewater Overflow Management Plan  
Corporate Plan:  
2009-2014 Corporate Plan (revised 2012)  
- Priority 1 Infrastructure and Community Facilities: Strategy 1.1 Infrastructure Planning and Maintenance - Provide and maintain well planned and timely infrastructure asset to service the needs of our community and business and to underpin growth.  
- Priority 1.6 Water and Wastewater - Deliver effective and efficient water and wastewater services |

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Document Number: 8308939
## Business Case

**Background and Current Situation/Effect**

The driver for the proposed works is to provide wastewater services for proposed developments near Chetwynd Street, Loganholme. The development sites are currently not serviced.

Previous planning recommendations for this project have been superseded following an initial Detailed Design Phase. This is as a result of further liaison with LCC to include additional services for future adjacent developments.

<table>
<thead>
<tr>
<th>Business Benefits</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ Providing Capacity to meet growth</td>
<td></td>
</tr>
<tr>
<td>▪ Improving levels of service</td>
<td></td>
</tr>
<tr>
<td>▪ Improve operability of network</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Business Risks</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ Failure to provide network capacity to cater for growth</td>
<td></td>
</tr>
<tr>
<td>▪ Damage to reputation</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Consequences (if not proceeding or delayed)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ Lack of growth in the area</td>
<td></td>
</tr>
<tr>
<td>▪ Damage to reputation</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Options Identification Options Analysis - must consider</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ Do nothing</td>
<td></td>
</tr>
<tr>
<td>▪ Existing Asset Option(s) (Modification to the existing network operations to defer expenditure)</td>
<td></td>
</tr>
<tr>
<td>▪ Non-infrastructure/asset alternatives(s) (E.g. demand management)</td>
<td></td>
</tr>
<tr>
<td>▪ New infrastructure/asset option(s)</td>
<td></td>
</tr>
</tbody>
</table>

The option identification for this project has been completed in the planning phase. All required options were considered.

No further options identification will take place during the Detailed Design phase unless there is a change to assumptions.

| Options modelled using the most recent DSS | Options were modelled using the most recent DSS during the planning phase. |

| Multi Criteria Analysis (where applicable) | A Multi Criteria Analysis (cost and non-cost assessment) was undertaken during the planning phase. |

No further MCA is required during the Detailed Design phase.

| Identification of existing assets being made redundant before the end of useful life | N/A |

<p>| Efficiency opportunities | Information from the initial Detailed Design phase will be incorporated into this project where possible. The new pump station will be constructed with consideration of possible connections by adjacent developments in the future. |</p>
<table>
<thead>
<tr>
<th><strong>Recommended Option</strong></th>
<th>The recommended option from the planning phase was revised in the initial Detailed Design phase. The scope changed and the location of the proposed pump station changed. The scope of the revised option is described below.</th>
</tr>
</thead>
</table>
| **In Scope**           | This project involves detailed design for a new pump station and conveyance infrastructure from the Loganholme Recreational Precinct to Loganholme WWTP.  

The scope of the Detailed Design phase includes the design of:  
- A new 2.2m (diameter) x 5-6m (deep) pump station, including internal pipework, electrical works, and site layout  
- 160m of DN100 wastewater rising main  
- 210m of DN150 gravity main to convey flow to the new pump station  
- 340m of DN150 gravity main to convey flow from the discharge point to the existing gravity network  
- DN1050 discharge and reticulation manholes  

This detailed design task will involve the preparation of:  
- Issued For Construction Drawings  
- Design Task Report  
- Environmental Assessment  
- Approvals Memorandum |
| **Out of Scope**        | The scope excludes:  
- Construction  
- Commissioning and handover |
| **Standard of Work**    | The next phase of this project will take account of:  
- Logan City Council Standard Specifications  
- WSA Codes  
- Relevant Australian Standards  
- Relevant Codes of Practice  
- Project Specification  
- Consideration of input from Logan City Council Water Operations |
Part D

Cost Estimate of Preferred Option

<table>
<thead>
<tr>
<th>Cost</th>
<th>Infrastructure</th>
<th>$201,073</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Detail Design</td>
<td>$201,073</td>
</tr>
<tr>
<td></td>
<td>Estimated Delivery</td>
<td>$991,560 (estimate from initial Detailed Design Phase)</td>
</tr>
</tbody>
</table>

Total Estimated Project Cost

Tick Appropriate Box

- Master planning using unit rates (+/- 50%)
- First Principles Estimate (+/- 30%)
- Detailed Cost Estimate/Quotation (+/- 10%)
- Other ........................................

Basis of Estimate:

Five Year Program

<table>
<thead>
<tr>
<th>Year</th>
<th>2012/13</th>
<th>2013/14</th>
<th>2014/15</th>
<th>2015/16</th>
<th>2016/17</th>
<th>Total (SK)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capital ($K)</td>
<td>$117</td>
<td>$84</td>
<td>$991.2</td>
<td></td>
<td></td>
<td>$1,192</td>
</tr>
<tr>
<td>Operating ($K)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total ($K)</td>
<td>$117</td>
<td>$84</td>
<td>$991.2</td>
<td></td>
<td></td>
<td>$1,192</td>
</tr>
</tbody>
</table>

Required Timing

- Start Date: Design is estimated to be completed in August 2013
- End Date: Construction to be completed by June 2015
- Duration: 27 Months

Project Support

- Procurement: N/A
- Efficiency Gains: N/A

Risk Management

- Risks are to be assessed and managed in accordance with Logan City Councils Risk Management Framework (DM#6586907).

Constraints / Assumptions

- The following assumptions have been made:
  - The wastewater load for the future housing expo is 73EP
  - The wastewater load for the recreational precinct is 37EP
  - It is assumed that the developments will go ahead as planned
  - No surge analysis will be undertaken
  - No technical specification will be prepared
  - A pre-cast wastewater pump station will be utilised for this project
  - Survey and poothing works will be undertaken for a portion of this project. It is assumed that no unknown services will affect the pipeline alignment.
  - A geotechnical investigation will be undertaken for this project. It is assumed that ground conditions will not affect constructability.
- It is assumed that all approvals and easements associated with the proposed works will be granted.

The following constraints have been identified:
- Constructability: the project site is adjacent to DTMR property. Particular considerations will be needed with regard to construction techniques and impact on road users.
- Environment: Environmental approvals will be required to complete the next phase of this project.
- Town Planning: The relevant statutory approvals will be identified on completion of the Detailed Design.

<table>
<thead>
<tr>
<th>Key Stakeholders</th>
<th>Refer Appendix A</th>
</tr>
</thead>
</table>
| Appendices       | Appendix A: Stakeholder List  
Appendix B: Map/Plan  
Appendix C: Cost Estimate |
**Appendix A - Stakeholder Register**

<table>
<thead>
<tr>
<th>Function</th>
<th>Interest</th>
<th>Impact</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planning</td>
<td>Any planned augmentations</td>
<td>Medium</td>
<td>Water Infrastructure Manager - Tony Goodhew</td>
</tr>
<tr>
<td>Planning</td>
<td>Any planned augmentations</td>
<td>Medium</td>
<td>Water Infrastructure Planning Program Leader - Sandy Stewart</td>
</tr>
<tr>
<td>Operations</td>
<td>Network Operations</td>
<td>Medium</td>
<td>Logan Water Operations Manager Palith Sirawardana</td>
</tr>
<tr>
<td>Operations</td>
<td>Network Operations</td>
<td>Medium</td>
<td>Network Operations &amp; Maintenance Program Leader Rezaul Haque</td>
</tr>
<tr>
<td>Asset Management</td>
<td>Network Assets</td>
<td>Medium</td>
<td>Logan Water Business Manager Daryl Ross</td>
</tr>
<tr>
<td>Asset Management</td>
<td>Network Assets</td>
<td>Medium</td>
<td>Program Leader - Water Asset Management Darren Moore</td>
</tr>
</tbody>
</table>
Appendix B - Maps
Appendix C – Cost Estimate
## Submission Schedule

EW 7683 Loganholme Recreational Precinct (RC.rev5)

**Period:** March 26, 2015 - 16.27.15

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Unit</th>
<th>Quantity</th>
<th>Unit Rate</th>
<th>Amount (AUD)</th>
</tr>
</thead>
<tbody>
<tr>
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<td><strong>DESIGN DEVELOPMENT COSTS</strong></td>
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<td>Design Development Cost - (end of July 2012)</td>
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<td>33,623.00</td>
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<td></td>
<td>Design Development Cost - (to complete)</td>
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<td>117,002.19</td>
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<td>Total - Design Development Cost</td>
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<td>150,625.19</td>
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<td><strong>B</strong></td>
<td><strong>Work Package - Project Management - Tent</strong></td>
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<td></td>
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<td>51,310.80</td>
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<td>Total - Work Package - Project Management</td>
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<td><strong>C</strong></td>
<td><strong>DELIVERY COST - (Indirect &amp; Direct)</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Indirect Delivery Cost</td>
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<td>Design Group Management</td>
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<td>Planning and Property TOC Costings</td>
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<td>4,269.20</td>
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<td>Incremental Weather Allowance</td>
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<td>1.000</td>
<td>6,600.00</td>
<td>6,600.00</td>
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<td>Total - Indirect Delivery Cost</td>
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<td><strong>D.1</strong></td>
<td><strong>Direct Delivery Cost</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prelim/Site Establishment &amp; Project Management &amp; Supervision - Sub Contractor</td>
<td>item</td>
<td>1.000</td>
<td>88,668.20</td>
<td>88,668.20</td>
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<tr>
<td></td>
<td>Total</td>
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<td></td>
<td></td>
<td>88,668.20</td>
</tr>
<tr>
<td><strong>D.2</strong></td>
<td><strong>Pipeline &amp; Pumps Station Construction</strong></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Environmental Protection &amp; Control</td>
<td>item</td>
<td>1.000</td>
<td>2,910.00</td>
<td>2,910.00</td>
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<tr>
<td></td>
<td>OD 110 PE100 PN 16 Rising Main - Type 1 Trench</td>
<td>m</td>
<td>158.000</td>
<td>456.03</td>
<td>22,052.74</td>
</tr>
<tr>
<td></td>
<td>DN 150 DWV, SN 8, RRI, Gravity Main - Type 1 trench</td>
<td>m</td>
<td>340.000</td>
<td>347.10</td>
<td>118,044.00</td>
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<tr>
<td></td>
<td>DN 1050 - Reticulation Manholes</td>
<td>no</td>
<td>7.000</td>
<td>10,337.53</td>
<td>72,363.06</td>
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<td></td>
<td>DN 1050 - Discharge Manholes</td>
<td>no</td>
<td>1.000</td>
<td>9,865.45</td>
<td>9,865.45</td>
</tr>
<tr>
<td></td>
<td>Cut in Work (into Existing manholes)</td>
<td>item</td>
<td>1.000</td>
<td>6,715.20</td>
<td>6,715.20</td>
</tr>
<tr>
<td></td>
<td>Filtrate Pump Station - Package Plant (DN 2200 x 5.20mdeep)</td>
<td>item</td>
<td>1.000</td>
<td>58,605.00</td>
<td>58,605.00</td>
</tr>
<tr>
<td></td>
<td>Install Pump Station</td>
<td>item</td>
<td>1.000</td>
<td>29,333.33</td>
<td>29,333.33</td>
</tr>
<tr>
<td></td>
<td>Electrical Works &amp; Controls - Pump Station</td>
<td>item</td>
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<td>9,566.88</td>
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<td>Total - Pipeline Construction</td>
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<td>D.3</td>
<td>New Gravity Mains</td>
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<td></td>
<td>Section 1 - From PS to South</td>
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<td></td>
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<tr>
<td></td>
<td>DN 225 DIL, PN 35, Rising Main - Type I trench</td>
<td>m</td>
<td>2,300</td>
<td>2,035.15</td>
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<td>DN 150 DWV, SN 8, ERJ, Gravity Main - Type I trench</td>
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<td>210,000</td>
<td>189.66</td>
<td>39,828.60</td>
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<td>DN 1050 - Retication Mainhees no</td>
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<td>7,000</td>
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<td>Materials - Free Issue</td>
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<td>Total</td>
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<td>131,100.90</td>
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<td>TOTAL - DELIVERY COST</td>
<td></td>
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<td>765,504.65</td>
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<tr>
<td>E</td>
<td>PROJECT Fee</td>
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<td>Tenix Construction Fee</td>
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<td>Total - PROJECT TOTAL</td>
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<td></td>
<td>1,104,506.43</td>
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<td>F</td>
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<td></td>
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<td></td>
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<tr>
<td></td>
<td>Logan Water - Design Development</td>
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<td>Total - Logan Water</td>
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<td>10,624.32</td>
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<td>$ - TOTAL TOC - (A+B+C+D+E+F)</td>
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<td>1,115,132.75</td>
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<td>G</td>
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<td></td>
<td>Contingency Allowance (10% of Deliver Cost)</td>
<td>item</td>
<td>1,000</td>
<td>77,500.00</td>
<td>77,500.00</td>
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<tr>
<td></td>
<td>$ - TOTAL BUDGET - (A+B+C+D+E+F+G)</td>
<td></td>
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<td>1,192,632.75</td>
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<td></td>
<td>Total for project</td>
<td></td>
<td></td>
<td></td>
<td>1,192,632.75</td>
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</tbody>
</table>
To ALG
From APMT
Subject Approval of Design Task Budget Request for Loganholme Recreational Precinct
Date 22 March 2013
Ref ALG-326

1. Purpose
The purpose of this paper is to seek approval from the ALG to complete the design for works in EW7683 – Loganholme Recreational Precinct under the auspices of a new Design Only Task. The Owner has advised that project construction has been rescheduled to 2014/15, but is desirous of having the design complete should the project be ready for construction once the development triggers are apparent to minimise the required delivery period.

The Alliance has received a Design Task Notice from Logan City Council for this work and has prepared a budget for undertaking the Task for the approval of the ALG as follows:

<table>
<thead>
<tr>
<th>Task Budget Request I.D</th>
<th>Task Notice Number</th>
<th>Task Title</th>
<th>Task Budget (Cost + Fee)</th>
</tr>
</thead>
<tbody>
<tr>
<td>92-12-04</td>
<td>DES-004</td>
<td>Loganholme Recreational Precinct – Detailed Design</td>
<td>$201,073</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total</td>
<td>$201,073</td>
</tr>
</tbody>
</table>

2. Background
An Emergent Works paper (ALG Paper 179 – EW7683) was approved in September 2011 for the design and construction of the following:

- Construction of pre-cast concrete wastewater pumping station (5.5 m deep, 2.2 m diameter);
- New DN100 mm x 340 m rising main pipeline;
- New DN150mm x 152 m gravity main pipeline.

The above EW7683 works (Refer Figure1 of Design Task Notice for details of original scope) were required to be completed by June 2012, to suit impending relocation of a zoo. The budget estimate at that time was $761,000. During preparation of the design, the scope was increased at the request of Council to include an additional gravity main to service a smaller lot to the north of the Recreational Precinct which would otherwise have no connection.
Engineering investigations (such as survey and geotechnical) and detailed design were undertaken to a 30% detailed design level before the project was put on hold. This was due to the uncertainty over when the zoo would be relocating. The project is now unlikely to be required before the end of 2013 and it was suggested at the October 2012 ALG meeting that the design be completed in readiness. By this stage the project estimate had risen to approx $1.3 M.

The ALG questioned the cost of the project on the basis that only three connections were being provided and requested the Alliance to review the proposed scope to ensure the most cost effective solution was being designed. The review concluded that there is no viable alternative servicing strategy. It should be noted that whist only four “connections” are being provided, 11 ha of development area are being serviced with the new wastewater collection system. A revised design solution has been identified that is able to eliminate the gravity sewer located to the north of the pump station, and reduce the project capital cost from $1.26M to $1.2M (saving of $60,000).

The recommended solution for servicing the Loganholme Recreational Precinct now consists of:

- Design of a new pre-cast concrete wastewater pumping station (5-6m deep, 2.2m diameter) and associated internal pipework, electrical works and site layout. The pump station will be designed for PWWF=6.2L/s
- a new DN100 x 160m PE rising main pipeline from the pump station
- a new DN150 x 210m gravity main pipeline to the pump station (southern gravity section)
- a new DN150 x 340m gravity main pipeline to the existing system (northern gravity section)

Figure 2 (contained within the Design Task Notice) illustrates the proposed solution.

A total cost of $75,669 (Cost + Fee) has been incurred against project EW7683 to date.

Due to the revised scope and changes to the pump station location, an additional $125,404 (Cost + Fee) variation cost will be required to finalise the design for the project. This variation cost includes the cost associated with performing additional site investigations (survey, potholing, and geotechnical) and preparing new drawings. Every attempt will be made to reuse previous design works where possible.

All costs incurred previously as part of EW7683, will be transferred over to the new design only task, hence a total Design Only task amount of $201,073 (Cost + Fee).

The project is currently required to be constructed within the 2014/15 financial year.

Costs have been calculated using Alliance Contractor rates and fees. LCC staff will be utilised where available and appropriate to reduce overall Task Cost.
3. Previous ALG Paper relating to this Work Package

<table>
<thead>
<tr>
<th>Paper</th>
<th>Subject</th>
<th>Outcome</th>
<th>Approved Date</th>
</tr>
</thead>
</table>

4. Recommendation

The APMT has reviewed the budget prepared and recommends that the additional funding of $125,404 to complete detailed design be approved by the ALG resulting in a new design only task budget of $201,073. (Cost + Fee)

David Fullerton  
Alliance Manager

Tony Goodnew  
Water Infrastructure Manager
### DESIGN TASK NOTICE

<table>
<thead>
<tr>
<th>DESIGN TASK NOTICE NO:</th>
<th>DES-004</th>
<th>PRIORITY</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>DESIGN TASK NAME:</td>
<td>Loganholme Recreational Precinct – Detailed Design</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>REQUESTED BY:</td>
<td>Rajindar Singh</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SUBMITTED BY:</td>
<td>Anthony Domanti</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DATE:</td>
<td>22 March 2013</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### PROGRAM AREA:
- Water
- Wastewater
- Recycled Water
- Treatment

### Design Task Overview

This design task follows from recommendations made in the Preliminary Infrastructure Assessment Task 90-10-82 and previous EW7683 project (Refer ALG paper 179) information as well as subsequent discussions with LCC to include additional services for future developments.

The driver for carrying out these works is the need to provide wastewater services for proposed developments near Chetwynd St, Loganholme. These developments are:

- Future Housing Expo (temporary development proposed by Future Housing Taskforce) on SP106465/10
- Recreational Precinct (permanent zoo development proposed by Logan City Council) on SP101446/2
- Retail development on RP864113
- Retail development (Resort) on SP101446/4
- Possible future development at 4142 Pacific Highway

Work involves the construction of a new wastewater pump station, situated on LCC land reserved for the relocation of Alma Park Zoo, adjacent to the DTMR service road to the south-east of the Pacific Highway, exit 31 at Beenleigh. The pumping station will be supplied by Flygt, as a packaged, pre-assembled precast concrete structure, complete with all necessary equipment to allow ease of installation. The well will be at a depth suitable to service lots to the southern end of the project. Provision for electricity shall be from the nearest Energex supply in the area and electrical design of the pump station done by the LWA.

The pump station will include the construction of a rising main that will discharge into a new gravity main connected to the existing reticulation towards Loganholme WWTP. A gravity main (located south of the pump station) will also be required.

The pump station will also service Alma Park Zoo, also known as the ‘Recreational Precinct’.

The works are scheduled to be constructed in Yr 2014/15.

### Related Documents

Supporting documents / Tasks include:

- Logan Water Alliance, Loganholme Recreational Precinct Preliminary Infrastructure Assessment, Task No. 90-10-82
Design Task Previous Scope

An emergent works paper (ALG Paper 179 – EW7683) was approved in September 2011 for the design and construction of the following:

- Construction of pre-cast concrete wastewater pumping station (5.5 m deep, 2.2 m diameter);
- New DN100 mm x 340 m rising main pipeline;
- New DN150mm x 152 m gravity main pipeline.

Figure 1 illustrates the previous scope associated with the EW7683 project.

Figure 1: Original Scope (as part of EW7883)
Design Task Proposed Scope

The proposed infrastructure included in this design is as follows:

- construction of a new pre-cast concrete wastewater pumping station (5-6m deep, 2.2m diameter) and associated internal pipework, electrical works and site layout. The pump station will be designed for PWWF=6.2L/s
- a new DN100 x 160m rising main pipeline from the pump station
- a new DN150 x 210m gravity main pipeline to the pump station (southern gravity section)
- a new DN150 x 340m gravity main pipeline to the existing system (northern gravity section)
- new DN1050 discharge- and reticulation manholes

Figure 2 illustrates the proposed alignment of the new rising main and gravity mains. The
Design Task Deliverables
- IFC Drawings
- Design Task Report
- Environmental Assessment
- Approvals Memo

Business Drivers
- Environmental
- Levels of Service
- Growth
- OH&S
- Business Improvement

  - Development growth
  - Compliance with Legislation
  - Protection of public health
  - Environmental due diligence

Link to Corporate / Operational / Total Management Plans
Priority 1: Infrastructure and community facilities
Priority 3: Growth management

Business Benefits
- Providing Capacity to meet growth
- Improving levels of service
- Improve operability of network

Task Timeframe
Following approval by the ALG the timeframe for delivery of this Task is:

- Target Completion Date: August 2013 ALG
- Critical Milestone
  - Date:
  - Explanation:

Notice to Logan Water Alliance
Please prepare a Task Budget Request for the Task

<table>
<thead>
<tr>
<th>Authorised By:</th>
<th>Name</th>
<th>Signature</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Infrastructure Delivery Program Leader</td>
<td>R Singh</td>
<td>[Signature]</td>
<td>20/3/13</td>
</tr>
<tr>
<td>Received By:</td>
<td>Design Manager</td>
<td>A Domani</td>
<td>[Signature]</td>
</tr>
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</table>

Design Task Notice: DES-004
Page 4 of 4
Date issued: 22/03/2013
Rev: 4
DESIGN TASK BUDGET REQUEST

DESIGN TASK NO: 92-12-04  TASK NOTICE NO: DES-004

DESIGN TASK NAME: Loganholme Recreational Precinct - Detailed Design

SUBMITTED BY: Anthony Domanti

DATE: 22 March 2013

FINANCIAL YEAR: 2012/13

FOR APPROVAL BY: ALG

NEW DESIGN TASK REQUEST: ☒ CHANGE EXISTING DESIGN TASK: ☐

Design Task Budget

The budget estimate for this Task is detailed in the attached Resource & Task Plan.

Design Task Budget Request $201,073 ($75,669 spent previously, with $125,404 variation cost required to complete the project)

Budget Estimate

A total cost of $75,669 has already been incurred against project EW7683, which was initially approved in September 2011 (refer ALG Paper 179).

It is important to note that the scope of the project has changed since 2011 (Refer Design Task Notice for illustrations of original EW7683 scope vs. proposed solution). Due to the revised scope, and changes to the pump station location, an additional $125,404 variation cost will be required to finalise the design for the project. This variation cost includes the cost associated with performing additional site investigations (survey, potholing, and geotechnical) and preparing new drawings. Every attempt will be made to reuse previous design works where possible.

All costs incurred previously as part of EW7683, will be transferred over to the new design only task, hence a total Design Only task amount of $201,073.

The variation cost for completing this Task has been broken-down as:

<table>
<thead>
<tr>
<th>Direct Costs</th>
<th>Fee (On Alliance Contractor Costs)</th>
<th>Total (Cost + Fee)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alliance Contractor &amp; Expenses</td>
<td>Logan City Council</td>
<td>$100,540</td>
</tr>
</tbody>
</table>

The total project capital cost of constructing the proposed works as previously recommended is approximately $1.2 M.

The Design Only task will address work elements such as the preparation of a first principles estimate, development of a construction program and Safety in Design Register. These activities will be detailed in the Design Task Report.
A break-down of the costs by function which comprises the Design Only Task variation request is summarised below together with a breakdown of costs incurred previously as part of EW7683

<table>
<thead>
<tr>
<th>Task Detail</th>
<th>Spent Previously (Cost + Fee)</th>
<th>Variation requested in this Design Only Task (Cost + Fee)</th>
<th>Total Design Only Task Breakdown (Cost + Fee)</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Detailed Design</td>
<td>$43,125</td>
<td>$62,519</td>
<td>$105,644</td>
<td>• Increased design scope, and associated modifications to existing drawings</td>
</tr>
<tr>
<td>Investigations (including Survey, Geotechnical and potholing, includes $5,000 contingency)</td>
<td>$17,470</td>
<td>$27,500</td>
<td>$44,970</td>
<td>• Additional geotechnical work is required due to relocated pump station. Some existing boreholes are not deep enough, new boreholes required for new scope</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Additional survey south of pump station is required (and associated potholing)</td>
</tr>
<tr>
<td>Construction input, Safety staff input supervision and estimating</td>
<td>$11,000</td>
<td>$19,595</td>
<td>$30,595</td>
<td>• Additional cost associated with supervising investigations.</td>
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<tr>
<td>Community</td>
<td>$275</td>
<td>$2,542</td>
<td>$2,817</td>
<td>• Consistent with original EW7683 amount</td>
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<tr>
<td>Environmental</td>
<td>$3,799</td>
<td>$9,088</td>
<td>$12,887</td>
<td>• Consistent with original EW7683 amount</td>
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<td>Approvals</td>
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<td>$4,160</td>
<td>$4,160</td>
<td>• Consistent with original EW7683 amount</td>
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<td>Totals (Cost + Fee)</td>
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<td>$125,404</td>
<td>$201,073</td>
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</table>
Breakdown of Task Variation Budget (of $125,404) by function

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<th>Sub-task</th>
<th>Description</th>
<th>Direct Cost (Cost + Fee)</th>
<th>Milestone Completion</th>
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<td>Task Start Up/Investigations</td>
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<td>30% Design</td>
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<tr>
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<td>85% Design</td>
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<tr>
<td>4</td>
<td>Final IFC Drawings and associated deliverables</td>
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<tr>
<td>5</td>
<td>Task Close Out</td>
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<td>Total Direct Costs</td>
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<tr>
<td></td>
<td>Fee</td>
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<tr>
<td></td>
<td>Task Total Cost</td>
<td>$125,404</td>
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</tr>
</tbody>
</table>

Scope of Design Proposed Design Task

To complete the detailed design for the upgrade works as recommended in the Preliminary Infrastructure Assessment Task 90-10-82 and previous EW7683 and well as subsequent discussions with LCC to include services for future developments.

The proposed infrastructure included in this design is as follows:

- construction of a new pre-cast concrete wastewater pumping station (5-6m deep, 2.2m diameter) and associated internal pipework, electrical works and site layout, PWWF=6.2L/s
- a new DN100 x 160m rising main pipeline from the pump station
- a new DN150 x 210m gravity main pipeline to the pump station (southern gravity section)
- a new DN150 x 340m gravity main pipeline to the existing system (northern gravity section)
- new DN1050 discharge- and reticulation manholes
### Task Scope/ Methodology
- Review related planning and previous designs as well as additional requirements
- Confirm business drivers
- Develop design criteria
- Determine appropriate pipe material for the project.
- Undertake site visits (as necessary)
- Liaise with DTMR for approval of pipeline(s) within DTMR corridor
- Undertake Environmental and Approval investigations as necessary
- Complete investigations (DBYO, Survey, Potholing, Geotechnical)
- Design of rising main, gravity mains as well as pump station
- Hold 30% & 85% DOAR workshops (produce DOAR minutes)
- Complete Risk Assessment (i.e. Safety in Design Register)
- Prepare budget cost estimate
- Prepare construction program
- Finalise Issue for Construction (IFC) drawings
- Prepare Design Report (which summarises design assumptions)

### Task Deliverables
- **Design**
  - IFC Drawings
  - Design Task Report as per ALG paper 232b (inc Safety in Design Chapter)
- **Environmental**
  - Identify all environmental constraints
- **Approvals**
  - Identify all necessary approvals to implement project.

### Design Task Comments
**Assumptions**
- No surge analysis will be undertaken
- No technical specification will be prepared
- A pre-cast wastewater pump station will be utilised for the project
- Design flows accepted as per previous discussions with LCC

**Appended to the DESIGN TASK BUDGET REQUEST**

Resource & Task Plan (Part C)