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PORTLAND SEWERAGE AUGMENTATION

Provision of Detailed Design Services for New Sewage Treatment Plant

Proposal Number: WSP 15026

27 March 2015

Lithgow City Council



Document Control

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Executive Summary

Lithgow City Council requested a proposal for providing detailed design and associated tender documentation services for the augmentation of the Portland Sewage Treatment Plant (STP). NSW Public Works appreciates the opportunity to continue to partner with Lithgow City Council and contribute to the successful delivery of the Portland STP augmentation.

As a partner with government and ministerial responsibilities, NSW Public Works will share with Lithgow Council the responsibility to ensure the success of this critical project. We provide both expert advice to Government agencies and professional services to drive public value for money for our clients and the community. We are a trusted public servant in the community who have successfully supported major programs of work to deliver well engineered, practical and economic solutions within NSW and other states. The work will be undertaken utilising the combined expertise of NSW Public Works.

Our aim is to deliver the "value for money" plant which provides process robustness and future flexibility to meet EPA requirements for the community. We will provide a comprehensive design and associated tender documentation to enable Council to obtain a competitive construction price as well as contain the costs of construction through minimal variations.

We are familiar with the publication *Getting it Right the First Time*, Engineers Australia 2005, and note that 60-90% of variations are due to poor project design documentation. We will work with Council to achieve the best balance between process risk and capital cost which will minimise the potential for an over designed solution and will aim to contain any construction variations, which on past projects, has been mitigated to less than 1.5% where best practice is stated 3-4%.

This proposal covers the full detailed design and technical specifications of the proposed augmentation, as described in NSW Public Works' concept development report. We are committed to the management of risk for this scheme and our offer provides the following risk mitigation strategies:

- a transparent competitive pricing of this proposal demonstrated through comparative tender costs for the detailed design of other similar schemes (Dorrigo and Tumbarumba) as well as a benchmark range of detailed design costs to total construction costs
- a unique design approach to IDEA plants that is efficient, proven, robust and sustainable and which provides high effluent quality and improved operational management
- a design optimisation process that seeks to balance capital cost and process performance whilst mitigating any commercial risk, for example, minimising the potential for overdesign.

The design will be based on NSW Public Works' concept development report (No. WSP 14066) and will allow Lithgow City Council to procure the plant augmentation via a construct only contract arrangement. As such, the proposed works will be fully designed and documented based on the concept. Proprietary equipment, such as pumps and aeration systems, will be performance specified.

The team assembled for this project has over 180 years extensive experience and technical expertise and current resource capabilities to deliver this project. This is demonstrated by NSW Public Works' performance to date including the successful completion of the Phase 1 concept design, as well as our successful delivery of 170 IDEA plants within NSW ranging from 500 EP (Nimmitabel) to 80,000 EP (West Camden).

NSW Public Works has recently delivered a number of sewage treatment plant designs similar to the proposed Portland STP, including schemes at Tumbarumba; Taralga and Dorrigo. Our team will present themselves with the highest level of professionalism and a strong commitment to effective stakeholder liaison, work safety and adherence to Lithgow City Council's protocols to ensure the best possible outcomes.

The continued and innovative development of IDEA technology by NSW Public Works provides a low cost efficient, wastewater treatment process. We are constantly revising and improving the solution. In the case of the recent Tumbarumba design, improvements were made to optimise the flow through the UV system to deliver cost savings in operation. NSW Public Works has recently delivered the completed detailed design of the Tumbarumba STP.

In addition NSW Public Works provides a complete range of services from investigation, planning, flow monitoring, characterisation, survey, geotechnical, environmental, civil, mechanical, electrical, operations to project management services. These additional services a can be made available for the project to ensure its success.

NSW Public Works operates a Quality Management System that is certified by NCS International to AS/NZS ISO 9001:2008. NSW Public Works operates within the Office of Finance and Services OHS Policy and related OHS Management System (OHSMS). The Secretary and the senior management team are committed to ensuring the health, safety and welfare of all employees and workplace visitors, including customers, agency staff and contractors.

We look forward to working together with Lithgow City Council to successfully deliver the new Portland STP.

Contents

Executive Summary	iii
Contents	
1 Introduction	1
1.1 Overview	1
1.2 Project background	1
1.3 Previous Expertise	1
1.4 Extensive In-house Service Lines within NSW Public Works	2
1.5 NSW Public Works Project Delivery Model	2
1.6 Government to Government Relationships and Affiliations	2
1.7 Understanding & Experience of GC21 Conditions of Contract	2
1.8 Best Practice Performance	3
2 Scope of Work and Methodology	4
2.1 Design Management	5
2.2 Site Inspection and Meetings	5
2.3 Risk Management Workshop	5
2.4 Detail Design	5
2.4.1 Civil/Process Design	6
2.4.2 Mechanical Design	6
2.4.3 Electrical Design	6
2.4.4 Power Supply Upgrade Design	6
2.4.5 Telemetry Works	6
2.4.6 PLC and SCADA	6
2.5 Project Management	7
2.6 Pre-Tender Estimate	7
2.7 Strategy to Reduce Risks	8
3 Deliverables	8
4 Project Team	9
5 Exclusions	10
6 Program	11
7 Fees	12
8 Quality and Safety	13
8.1 Quality Management System	13
8.2 Work Health & Safety (WHS)	13
8.3 NSW Public Works Safety Management System	13
Appendix A - NSW Public Works' Conditions of Engagement (PWF-0601)	

I Introduction

1.1 Overview

Lithgow City Council requested a proposal for providing detailed design and documentation services for the augmentation of the Portland Sewage Treatment Plant (SIP). NSW Public Works appreciates the opportunity to partner with Lithgow City Council and contribute to the successful delivery of the Portland SIP augmentation.

This proposal covers the full detailed design and technical documentation of the proposed Portland SIP Augmentation, as described in NSW Public Works' concept development Report No **WSP 14066**.

1.2 Project background

The new SIP is to be constructed immediately south of the existing SIP. The existing SIP will be decommissioned and removed following commissioning of the new plant.

The detailed design will be based on NSW Public Works' concept development report (No. WSP 14066) and will allow Lithgow City Council to procure the plant augmentation via a construct only contract arrangement. As such, the proposed works will be fully designed and documented based on the concept. Proprietary equipment, such as pumps and aeration systems, will be performance specified.

The new plant will have a capacity of 3,500 EP. The new system will provide tertiary treated effluent and the quality will comparably be much improved compared to the quality of the existing system. The new treatment plant will comprise of:

- Raw sewage lift pump station with emergency storage
- An inlet works with a mechanical screening system
- One IDEA reactor
- Secondary treated effluent balance tank
- Two sludge storage tanks
- UV disinfection system
- Alum and liquid caustic storage and dosing facilities (for phosphorus removal and pH correction, respectively)
- Dewatered sludge hard stand
- The new treatment plant will have a general arrangement and compact layout which will minimise footprint, similar to Tumbarumba, Dorrigo, Taralga and Geurie STP's.

1.3 Previous Expertise

NSW Public Works has delivered numerous regional sewerage schemes throughout NSW for Local Government Authorities under the Office of Water's Country Towns Water Supply and Sewerage programme and Local Council funding agreements. NSW Public Works has also designed the latest augmentations of Council's Lithgow and Wallerawang STPs. NSW Public Works has recently delivered a number of similar sewage treatment plant designs to the proposed Portland SIP at Tumbarumba, Taralga, Dorrigo, Bargo, Buxton and Douglas Park.

1.4 Extensive In-house Service Lines within NSW Public Works.

NSW Public Works can provide Lithgow City Council (LCC) with the following in-house services:

- Project Management, Construction Management, Safety and Environmental Management. These activities would be managed by NSW Public Works' Western Regional Office
- NSW Public Works concept development and full design capability including intellectual property gained from recent development of the Tumbarumba STP and Dorrigo WwTP (and previously the Geurie WwTP and Taralga WwTP)
- Survey and Spatial Services
- Geotechnical Services
- Community Consultation
- Estimating/Quantity Surveying; and
- Procurement teams.

1.5 NSW Public Works Project Delivery Model

NSW Public Works understands that provision of the following service lines would be of high value to Council in progressing the following pre-construction activities:

- Project initiation and planning
- Feasibility analysis
- Stakeholder management
- Design management
- Cost planning (estimating)
- Strategic procurement advice; and
- Risk management.

1.6 Government to Government Relationships and Affiliations

NSW Public Works has a number of inter-government Agency relationships in place that assist our clients to manage complex projects. These include:

- WorkCover NSW (formal Agency Agreement in-place)
- EPA/OEH (formal Agency Agreement being pursued)
- National Parks & Wildlife Service (NPWS).

1.7 Understanding & Experience of GC21 Conditions of Contract

The GC21 Contract framework (Editions 1 & 2) has been developed by NSW Public Works and key Construction Authorities on behalf of the NSW Government to attempt to eliminate the adversarial atmosphere that was prevalent in the construction industry in the late 1990's.

The key aims of the Contract conditions are:

- To encourage the parties and others concerned with the Works to work co-operatively towards a successful Contract and project;
- To promote a culture of co-operation and teamwork for management of the Contract, and
- All inclusive request for tender.

1.8 Best Practice Performance

NSW Public Works strives to maintain the delivery of projects on time, within budget, with high client satisfaction level and an excellent safety management record.

NSW Public Works is required to report independently to NSW Treasury on its performance against established benchmarks. Individual and independent client project surveys and Performance Reports demonstrate that Project Management services delivered by NSW Public Works consistently score above 90% for on time and on budget delivery and average overall client satisfaction levels have scored above 80% over the last 5 years.

NSW Public Works has delivered value to Council in respect of other recent projects:

- Braidwood Sewage Treatment Plant - successfully completed project (\$7.3M) handed over to Council in August 2010 on time and budget with variations only in the order of \$45k or 0.6% of contract value;
- Bungendore Sewage Treatment Plant — successfully completed project (\$6.8M); handed over to Council in 2012 on time and on budget; achieved negative variations (i.e. saving to Council); savings against budget allowed discretionary additional works (amenities building and fencing) to be included in the project.

2 Scope of Work and Methodology

Our joint aim is to deliver the "value for money" infrastructure which provides process robustness and future flexibility to meet EPA and regulatory requirements for the community and reuse customers. Providing a comprehensive response to RFT documents will enable Council to control and optimise the infrastructure and the development of a detailed design package that will ensure a competitive cost of construction and minimal variations.

We are familiar with the publication *Getting it Right the First Time*, Engineers Australia 2005, and note that 60-90% of variations are to poor project design documentation. We will work with Council to achieve the best balance between process risk and capital cost which will minimise the potential for an over designed solution and will aim to contain any construction variations, which on past projects has been mitigated to less than 1.5% (excluding unknown site conditions).

This section details the scope of works and methodology to undertake the design and documentation of the Portland STP. The scope of the design and documentation is based on our understanding of infrastructure requirements for the STP augmentation.

NSW Public Works proposes the following scope of works:

- Process, civil, mechanical and electrical design, drawings and technical documentation and schedules for the augmentation works defined in concept Report No. WSP 14066, dated March 2015, which includes the following:
 - a raw sewage lift pump station which will incorporate emergency storage equivalent to 3hrs
 - an inlet works incorporating facilities for flow reception, mechanical fine screening, screenings removal, grit removal and flow measurement
 - an above ground IDEA reactor for secondary treatment, fitted with a surface aeration system and a central trough decanter
 - an above ground balance tank for attenuation of IDEA reactor decanted effluent flows
 - two sludge tanks for storage of waste activated sludge
 - a chemical (alum) dosing facility for the reduction of phosphorus
 - a chemical (caustic soda) dosing facility for pH correction
 - an medium pressure UV disinfection system
 - on-site reuse effluent storage and reticulation system incorporating a tablet chlorinator
 - a site amenities building incorporating a laboratory/office, storeroom, lunch room and electrical switch room
 - a dewatered sludge hard stand
 - pipework for the transport of sewage, effluent, sludge, supernatant and chemicals
 - electrical services, including power supply distribution, SCADA and telemetry systems
 - on-site emergency power generator
 - ancillary works associated with site services, including potable water supply, on-site reclaimed water service, drainage, lighting, fencing and site landscaping; and
 - site access roads and car parking areas;

- Preparation of preconstruction (pre-tender cost) estimate
- Two design review meetings at 50% and 90% design completion (held in McKell Building, Sydney)
- Facilitation of CHAIR/HAZOP workshops.

The Project Management role will be undertaken by NSW Public Works Riverina —Western Regional Office.

The scope of works and associated methodology are described in detail hereunder.

2.1 Design Management

Activities relating to design and documentation will be managed and undertaken by NSW Public Works, who will liaise with relevant stakeholders.

These will include:

- Management of and reporting on activities/tasks including QA, monthly progress/status monitoring/ reporting and fortnightly teleconferences
- Peer review by Robert Mitchell, Principal Engineer — Water and Wastewater Technologies.

2.2 Site Inspection and Meetings

We propose an initial site inspection attended by our civil and electrical designers to confirm the location of the infrastructure as well as Council's operational requirements. We propose holding design meetings at our offices in Sydney at the 50% and 90% design review stages.

We have also allowed for a one day CHAIR/HAZOP workshop at a facility to be provided by Council. The workshop will be attended by our process, civil, mechanical and electrical engineers.

Fortnightly telephone conferences meetings for one hour each has been allowed for with the Project Planning Team.

2.3 Risk Management Workshop

A Hazardous Operability Study (HAZOP) of the proposed STP will be undertaken based on the Concept drawings. The workshop shall investigate aspects of the design as presented in the P&ID, to ensure that all pipelines, pumps, valves, tanks, and controls are adequately designed for safe and robust operation of the system.

The HAZOP shall be conducted according to AS IEC 61882-2003 Hazard and Operability Studies — Application Guide. This workshop will consider safety design requirements.

The workshop will be facilitated by NSW Public Works.

2.4 Detail Design

Following acceptance by Council of the outcomes of the HAZOP workshops, we will prepare a design adequate enough to proceed with the obtaining of competitive tenders from the market for the construction of the STP. This will include input from key civil/structural, process, mechanical and electrical designs.

2.4.1 Civil/Process Design

Civil design will comprise reviewing the Outline Concept Report including hydraulics, treatment unit sizing, configuration and assessing other related information to prepare design drawings and documentation.

Civil drawings will include:

- GENERAL - General notes, flow schematic, design criteria, hydraulic profile, F&I diagrams, layout plan, roadwork and drainage layout, roadwork & finished surfaces, pipework layout; hydraulic profile
- ID EAT - General arrangement, inlet pipework details, decanter pipework details
- AMENITIES BUILDING - General arrangement, sections and details
- CHEMICAL STORAGE AND DOSING FACILITIES — general arrangement.

2.4.2 Mechanical Design

- Technical performance documentation of all mechanical equipment; and
- Design and technical documentation of effluent decanting system.

2.4.3 Electrical Design

Design and technical documentation of electrical services and related components (ie. Switchgear and Control Assemblies, power supply distribution and controls); and

2.4.4 Power Supply Upgrade Design

Power for the STP will be obtained from the high voltage line to the site that serves the existing STP. The capacity of the existing pole-mounted substation to meet the plant power demand will be confirmed by NSW Public Works assessment.

We propose, as an optional item, to engage an accredited Level 3 provider to carry out the investigation, design of power supply upgrade works and will incorporate the contract.

The fee is based on a new transformer being a pole-mounted unit to replace the existing unit.

The optional fee to carry out the power supply upgrade design is \$13,600 (excluding GST).

2.4.5 Telemetry Works

Suitable arrangement will be provided for remote monitoring of the STP via a telemetry system. We have allowed for providing:

- Schematic diagram for connection/communication between Telemetry RTU and plant PLC/SCADA system;
- Schematic diagram for connection between telemetry RTU and on-site radio antenna; and
- Technical specification for above.

2.4.6 PLC and SCADA

We propose that a PLC and SCADA based automatic control system be incorporated into the STP design. As such, our fee includes preparation of:

- Network connection diagram;
- Control circuit diagrams; and
- Technical specification and schedules for the above.

We propose that post design PLC and SCADA programming/configuration be undertaken by our System Integrator, Dakshina Silva, under the supervision of our Process Engineer, Jose Pante under a separate engagement during construction of augmentation works. Programming and configuration will be based on a functional description which will be developed at that time.

2.5 Project Management

NSW Public Works Riverina -Western Regional Office will continue to manage the project for Council in the manner adopted throughout the concept phase. The following activities will be undertaken:

- Manage and provide a continuation of the Project Teams rigid adherence to the project governance and delivery model established in the Investigation and Concept Design Stage.
- Facilitate fortnightly teleconferences with Project Planning Team including agenda distribution & summary of actions.
- Preparation of monthly Project Reports for Council tracking progress and informing Council of important issues and risks. These reports will be presented in a manner for Council's use at Council meetings or within their monthly project funding claim to Infrastructure Nsw.
- Regular coordination and dialogue with Council's client representative and design team with regard to design, commercial, budget and technical matters.
- Facilitation with stakeholders including EPA, Nsw Office of Water and suppliers supporting of Council's project progress.
- Preparation and facilitation of a workshops with Council operational staff and end users to share information about the proposed design and to receive design feedback from an operational view point.
- Council lead and facilitation at 1 No CHAZOP (Control system hazard and operability) / HAZOP (Hazard and operability) workshops
- Council lead and facilitation at 4 No meetings with Council staff or with Council to present project information and to discuss project detail.
- Preparation and update of Project Program and Project Risk Management Plan.
- Preparation of total Project Budget and monitor status.
- Review on behalf of Principal the technical documents for conformity and consistency.
- Preparation of Commercial Conditions of Contract including Conditions of Tendering, Tender Schedules, Preliminaries, General Conditions of Contract.
- Preparation of Procurement Strategy in conjunction with Lithgow City Council.
- Preparation of Tender Evaluation Plan linking returnable schedules to assessment criteria, tender methodology and desired procurement objectives.

2.6 Pre-Tender Estimate

A pre-tender estimate will be completed and submitted at the end of the design. This will be based on recent tender prices and quotations obtained from equipment suppliers.

We are committed to the management of risk in designing this plant and is supported by the risk management workshop and the peer review of the technical design.

2.7 Strategy to Reduce Risks

Project Risks

We are committed to the management of risk for this project and our offer provides Council with the following risk mitigation strategies:

- A transparent competitive pricing of this tender.
- An understanding of government processes and regulatory framework for the provision of utility services and recycled water. We are flexible in our approach and acknowledge the complex nature of the project. We will aim to support and inform Council for the duration of the project.
- An efficient, proven, robust and sustainable design, optimised with ongoing research and development (CRC for WMPC and NSW Office of Water), which provides high effluent quality and improved operational management and long-term efficiency. This has been validated through independent value management exercises.

Plant Design Risks

We are committed to the management of risk in designing this plant and is supported by the risk management workshop and the peer review of the technical design.

3 Deliverables

Projects deliverables will be the provision of:

- Documentation (technical specifications, commercial clauses, tender schedules) and drawings (digital copy):
 - 50% completion for review – 1 electronic copy (PDF/MSWord files)
 - 90% completion for review – 1 electronic copy (PDF/MSWord files)
 - 100% completion – 1 copy on CD/s.
- Provision of pre-tender estimate (priced tender schedule).
- Provision of documentation of safety in design report.

4 Project Team

The project team has unrivalled experience in the design, procurement and construction of water and wastewater projects throughout NSW.

We have assembled a highly experienced project team with over 20 years to carry out the works, both technical specialists from our head office (McKell Building) and project and procurement management specialists from our regional office in Bathurst.

The has over 180 years extensive experience and technical expertise and current resource capabilities to deliver this project. This is demonstrated by NSW Public Works' performance to date including the successful completion of the Phase 1 concept design, as well as our successful delivery of 170 IDEA plants within NSW ranging from 500 EP (Nimmitabel) to 80,000 EP. NSW Public Works has recently delivered a number of sewage treatment plant designs similar to the proposed Portland STP, including schemes at Tumberumba; Taralga and Dorrigo. Our team will present themselves with the highest level of professionalism and a strong commitment to effective stakeholder liaison, work safety and adherence to Lithgow City Council's protocols to ensure the best possible outcomes.

In addition to the key personnel nominated in the table below, NSW Public Works has a large resource pool with similar experience and skills.

Name	Position	Role
Althea Povey	General Manager — Water and Wastewater Technologies	NSW Public Works Executive — ensure governance, project and client needs are delivered on time and on budget. These services will not be charged for and are not included in the Fees.
Robert Mitchell	Principal Engineer - Water and Wastewater Technologies	Project Director, providing overall direction, peer review, process design verification
Jose Pante	Senior Process Engineer and Design Manager	Design management, process design and verification.
Leonie Freeth	Project Manager	Fulfilling project management and stakeholder activities in support of Council's representative.
Dayan Gunasekera	Senior Civil Engineer Team Leader — Civil, Water and Wastewater	Management, review and verification - civil design and documentation
Abdur Razzak	Senior Electrical Engineer Team Leader— Electrical, Water and Wastewater	Management, review and verification - electrical, SCADA and telemetry design and documentation
Kandiah Tharumalingham	Senior Mechanical Engineer	Mechanical design and documentation
Clarissa Phillips	CADD Manager	CADD management and verification
Kevin Oats	Senior Electrical Technical	Electrical design and documentation
Manickam Sivachandran	Civil Engineer	Civil design and documentation

5 Exclusions

The following exclusions apply and are subject to a variation of our quoted fees:

- Programming of hardware of SCADA system
- Post design functional description, PLC programming
- Environmental impact assessment (A Review of Environmental Factors (REF) has already been prepared as part of the concept design
- Additional site meetings/inspections; and
- Post design activities (tender reviews, construction advice, commissioning, O & M Manuals, OEMP, decommissioning of the existing STP).

6 Program

The programme to be completed is based on the following milestones:

TASK	Completion (weeks from date of engagement)
Site inspection by civil and electrical engineers	1
Issue 50% design drawings and documentation	5
Council review	6
50% design review meeting post council's comments	7
Issue 90% design drawings and documentation	11
Council review	12
90% design meeting post council's comments*	13
Issue Final design drawings and documentation	16

7 Fees

Our fee to undertake the scope of work included in this proposal is for a lump sum fee of **\$365,700** (excluding GST). A breakdown of this fee is provided in the table below.

Our aim is to deliver a "value for money" plant which provides process robustness and future flexibility to meet EPA requirements for the community. We will provide a comprehensive design and associated tender documentation to enable Council to obtain a competitive construction price as well as contain the costs of construction through minimal variations.

Item		Fee Amount
1	Design management	\$13,000
2	Site inspections and meetings	\$23,000
3	Civil/Process Design and peer review	\$91,000
4	Mechanical Design and peer review	\$35,000
5	Electrical Design and peer review	\$44,400
6	Telemetry Design and peer review	\$6,000
7	Drafting	\$91,000
8	CHAIR and HAZOP	\$12,500
9	Pre-tender Cost Estimate	\$7,500
10	Disbursements	\$2,800
11	Project & Governance Management inclusive of attendance meetings / workshops.	\$39,500
	Sub-total	\$365,700
	GST	\$36,570
	Total Fee (in. GST)	\$402,270
	Optional Work	
	<i>Power Supply Upgrade Design and Investigation (refer: Design Proposal section 2.5.4)</i>	\$13,600

8 Quality and Safety

8.1 Quality Management System

NSW Public Works operates a Quality Management System that is certified by NCS International to AS/NZS ISO 9001:2008.

The scope of NSW Public Works' certification includes the provision of:

- total asset, project, construction, contract and risk management services
- architectural, engineering and related consulting services
- water, environmental and data services
- specialist heritage conservation services.

These services are associated with the planning, investigation, design, documentation, development, procurement, construction, commissioning, asset management and maintenance of natural and built assets and infrastructure for the State of NSW and other clients.

Within this system, a Project Quality Plan (PQP) is established and maintained for each project which describes the specific structure and quality control system for that commission. The PQP is maintained by the Project Manager and includes project specific procedures and quality/ performance milestones that are audited and verified over the course of the project.

8.2 Work Health & Safety (WHS)

NSW Public Works operates within the Office of Finance and Services WHS Policy and related OHS Management System (OHSMS). The Secretary and the senior management team are committed to ensuring the health, safety and welfare of all employees and workplace visitors, including customers, agency staff and contractors. NSW Public Works recognises that achieving a safe and healthy workplace relies on implementing a quality OHSMS that is aimed at both preventing injuries and illnesses from occurring, and actively supporting injury management and a timely and sustainable early return to work for injured or ill workers.

NSW Public Works' compliance with relevant OHS legislation, standards, codes of practice and guidelines is supported by the OHSMS, OHS Policy and related policies and procedures, including the Injury Management Policy; the OHS responsibilities Procedure; and the OHS Consultation Procedure.

8.3 NSW Public Works Safety Management System

NSW Public Works operates a management system that is certified by NCS International to comply with AS/NZS 4801:2001 (Occupational health and safety management systems). Certification is for the 'provision of total asset, project, construction, contract and risk management and environmental services associated with the procurement, design and development, construction and maintenance of the State's natural and built assets'.

The scope of certification applies to all offices and projects managed throughout NSW.

Certification is for the period from 19 December 2012 until 31 December 2015.

NSW Public Works is also accredited to the NSW Government OHS Management System Guidelines 4th Edition.

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Appendix A - NSW Public Works' Conditions of Engagement (PWF-0601)

CONDITIONS OF ENGAGEMENT

1. PREAMBLE

1.1 If any provision in these Conditions of Engagement conflicts with a provision in the Proposal to which they apply, the provision in the Proposal will apply to the extent of the conflict.

2. SERVICES WE WILL PROVIDE

2.1 We will provide the Services in accordance with the terms set out in the Agreement, none of which may be changed without the prior written consent of both parties.

2.2 We will, subject to matters beyond our reasonable control, provide the Services with the skill and care generally exercised by competent persons performing services of a similar nature at the time the Services are carried out.

2.3 We will provide the Services in accordance with the Timetable unless the provisions of Clause 9 apply.

3. YOUR OBLIGATIONS

3.1 You and your Associates will co-operate with us and not delay or vary the Services without adjusting the Timetable and the Fee as required under Clauses 9 and 10.

3.2 You will only communicate with us about the Services through the NSW Public Works Representative nominated at item 3 in Schedule 1.

3.3 To help us understand your requirements for the Services, you will:

- a. inform us of your specific requirements;
- b. answer any questions and provide any information we ask of you, including providing information specified in the Proposal by the specified time; and
- c. provide written comments on any Contract Material, if we request you to do so.

3.4 We assume that any information you or your Associates provide to us for the purpose of carrying out the Services is complete and accurate and will not check it unless doing so is part of the Services. We do not accept any Liability in connection with any information you provide to us.

3.5 You agree to indemnify us in the event that our use of information you provide infringes the intellectual property rights of a Third Party.

4. CONFIDENTIALITY

4.1 All information that either of us provides to the other is confidential and must not be disclosed to any other person, unless the disclosure is authorised under this Agreement or required by law.

4.2 You authorise us to disclose to our Associates any information you provide for the purpose of carrying out the Services.

4.3 You agree that we can publish promotional and technical information relating to the Services and the Project unless you advise us otherwise in writing when we enter into the Agreement.

5. INTELLECTUAL PROPERTY RIGHTS

5.1 Intellectual Property Rights in all Contract Material shall be vested in us.

5.2 We grant you an irrevocable, non-exclusive, royalty-free and non-transferable licence to use the Contract Material for the Project. However, you must not use, adapt, publish or otherwise exploit any of the Contract Material for any other purpose or allow others to do so without our prior written consent.

6. CHANGES TO THE CONTRACT MATERIAL

6.1 We authorise you and your Associates to make minor changes to the Contract Material:

- a. to suit site conditions encountered in completing the Project, providing such changes do not affect the design intent; and
- b. to produce work-as-executed drawings.

6.2 If you or your Associates change the Contract Material whether pursuant to clause 6.1 or otherwise, you agree to release and indemnify us against any and all claims, proceedings, demands, losses, damages, costs or expenses, by you or any Third Party resulting from such changes; and

6.3 Any change made by you to the Contract Material will be annotated to indicate where and when changes were made and by whom.

7. LIABILITY AND INDEMNITY

7.1 You agree that, except where the law does not permit such limitation, our Liability to you is limited (in the aggregate) to the lesser of:

- a. \$5 million; or
- b. ten times the Fee payable at the Date of Agreement (the "cap")

and you release us from any further Liability.

7.2 You agree to indemnify us and our Associates against any claim made against us by any of your Associates for any loss or damages which are greater than the cap. Further, you agree that our Liability to you is reduced to the extent that an act or omission by you or any of your Associates contributed to the injury, damage or loss.

7.3 The Services and the Contract Material are provided for your exclusive benefit. We accept no Liability to any Third Party in respect of any claim made in connection with the Services, and you agree to indemnify us against any such claim.

7.4 We are not liable to you or any Third Party in respect of any Consequential Loss, however it arises.

7.5 On the date that is three years after the date we send you our final payment claim under the Agreement, you release us and our Associates from all Liability.

8. INSURANCE

8.1 We will maintain self-insurance arrangements with the NSW Treasury Managed Fund in relation to professional indemnity and public liability. We will give you confirmation of such self-insurance arrangements on request, at any time before we complete the Services.

9. DELAYS TO THE SERVICES

9.1 If we are, or will be, delayed in carrying out the Services:

- a. we will give you reasonable notice after becoming aware of the delay;
- b. we will advise the effect on the Timetable;
- c. you will extend the time(s) for carrying out the Services provided for in the Timetable by the extent of the delay; and
- d. you will reimburse us, as a Variation, for any additional costs and expenses we incur as a result of any delay that is not a result of our breach of the Agreement.

10. VARIATIONS TO THE SERVICES

Variations proposed by you

10.1 If you propose a Variation, you will advise us in writing what is required and request a written quotation from us.

10.2 We will provide a written quotation setting out the effects of the proposed Variation on the Fee, the Timetable and any other relevant matters, for your consideration and acceptance.

10.3 We will not commence any Variation proposed by you until we receive your written instruction to do so (which may be before you receive or accept our written quotation).

Unavoidable Variations

10.4 If we become aware of any circumstances, including those listed at item 4 in Schedule 1, which have caused, or may cause, a Variation, we will notify you in writing as soon as practicable, setting out the circumstances and the likely effect on the provision of the Services, the Fee and the Timetable.

10.5 Unless we ask for confirmation under Clause 10.6, we will continue to carry out the Services, including any unavoidable Variation, until we receive instructions to the contrary from you in writing.

10.6 In some circumstances we may ask you to confirm in writing that you will pay for a notified unavoidable Variation. If we do so, you agree that we are not required to carry out that Variation work until we receive your written confirmation and that, if this delays the Services, the provisions of Clause 9 will apply.

Adjustments for Variations

10.7 You will pay us the additional costs and expenses we incur in connection with any Variation instructed by you under Clause 10.3 or notified by us under Clause 10.4. Payment will be made on the basis of:

- a. an agreed lump sum adjustment to the Fee; or
- b. in accordance with Clause 11.4 (e).

10.8 If a Variation delays the Services, you will extend the Timetable in accordance with Clause 9.

11. PAYMENT

11.1 You will pay the Fee, other amounts payable under the Agreement and applicable tax in accordance with this Clause.

11.2 Where the Fee was based on a nominated percentage of the estimated construction cost of the Project and the pre-tender estimate or accepted tendered price for the Project exceeds the estimate by more than 10%, the Fee payable will be the Fee set out in the Proposal plus an amount calculated by applying the nominated percentage to the difference between the estimated construction cost and the tendered price. If the pre-tender estimate or accepted tendered price for the Project is less than the estimated construction cost when the Services commenced, the Fee will not be adjusted.

11.3 Unless otherwise agreed, we will submit a monthly payment claim for amounts due under the Agreement up to the date of that payment claim, less amounts previously paid.

11.4 The amounts due under the Agreement will be calculated as follows:

- a. Where the Fee is a lump sum: based on the percentage of the Services carried out;
- b. Where the Fee is to be paid on an Hourly Rates basis: based on the hours worked by our personnel multiplied by the Hourly Rates;
- c. For Disbursements: as set out at item 1 in Schedule 1;
- d. For Variations for which a lump sum Fee adjustment was agreed: based on the percentage of the Variation work carried out; and
- e. For all other Variations:
 - (i) an amount based on the hours worked by our personnel multiplied by the Hourly Rates, plus
 - (ii) any amounts due to our subcontractors or sub-consultants, plus a 12.5% margin, plus
 - (iii) the costs we incurred for Disbursements of the kinds listed in paragraphs (a), (b) and (c) in item 1 of Schedule 1; plus
 - (iv) costs and expenses we incurred due to delays.

11.5 Within 20 Business Days after you receive our payment claim you will pay the amounts due under the Agreement.

11.6 All amounts in the Agreement and other documents we give you in relation to amounts payable are exclusive of GST or other applicable tax unless expressly included.

11.7 If you fail to pay any amount due under the Agreement in full within 10 Business Days after the agreed time for payment:

- a. you will pay interest at the rate of 7% per annum on all overdue amounts, until the amount is paid in full; and
- b. we may keep any Contract Material prepared in connection with the Agreement and:
 - (i) suspend carrying out the Services until the amount is paid in full and the provisions of Clause 9 will apply; or
 - (ii) end the Agreement by giving you written notice under Clause 14.

12. CIRCUMSTANCES BEYOND OUR CONTROL

12.1 We are not liable for any loss or damage caused by any failure or delay in performance of the Agreement resulting from any cause beyond our reasonable control including, but not limited to: acts of God, acts or omissions by you or your Associates, adverse weather conditions and industrial disputes.

13. DISPUTE

13.1 If a difference or dispute arises between the parties in connection with any matter under this Agreement, either party may notify the other in writing, providing details of the dispute.

13.2 The parties will continue to perform the Agreement notwithstanding the existence of a dispute.

13.3 Within 14 days after receipt of a notice of dispute, senior representatives of the parties will confer at least once to try to resolve the dispute or agree on methods of doing so.

13.4 If the dispute has not been resolved, or a method of resolution agreed on, within 42 days after receipt of a notice of dispute, then before either party has recourse to litigation, the party must submit the dispute to an independent expert for determination.

13.5 The expert determination will be conducted in accordance with the procedure in Schedule 2.

13.6 Nothing in this Agreement is intended to stop either party from instituting proceedings to enforce payment due under the Agreement or to seek injunctive or declaratory relief.

14. ENDING THE AGREEMENT

14.1 Either party may end the Agreement at any time by giving the other party at least 10 Business Days notice.

14.2 If the Agreement is ended, we will send you a payment claim for Services carried out up to the date the Agreement is ended and you will pay us all amounts owing under the Agreement plus expenses incurred by us as a result of ending the Agreement.

14.3 The Clauses in these Conditions of Engagement headed "Confidentiality", "Intellectual Property", "Liability", "Variation", "Payment", "Dispute", "Ending the Agreement" and "General Matters" continue to operate after this Agreement is ended.

15. GENERAL MATTERS

15.1 The only duties, obligations and responsibilities we have in connection with the Agreement are those expressly set out in the Agreement.

15.2 The Agreement will be governed by and interpreted in accordance with the laws in force in the State of New South Wales, Australia.

15.3 The parties submit to the exclusive jurisdiction of the courts of the State of New South Wales, Australia.

15.4 Neither party may transfer the Agreement or any right or obligation under the Agreement without the other party's prior written consent.

15.5 You authorise us to destroy all Contract Material and other documents we hold in connection with the Agreement seven (7) years after the date we send you our final payment claim under the Agreement.

16. DEFINITIONS

Unless the context otherwise requires, in these Conditions of Engagement:

"Agreement" means either:

- (a) the Agreement executed by the parties in connection with the Services; or
- (b) if the Agreement is made by a Letter of Award, it means the contract formed by the Agreement Documents, which supersede all understandings, representations and communications made between the parties in connection with the Agreement before the Date of Agreement.

"Agreement Documents" include:

- (a) the Proposal;
- (b) these Conditions of Engagement; and
- (c) the Letter of Award and any other documents listed therein.

"Associates" means the relevant party's employees, personnel and agents. Our Associates include our subcontractors and sub-consultants who are involved in carrying out the Services. Your Associates include your contractors and consultants who are involved in carrying out the Project.

"Business Day" means any day other than a Saturday, Sunday, public holiday or 27, 28, 29, 30 or 31 December.

"Consequential Loss" includes loss of revenue, loss of profit, loss of custom, loss of goodwill, loss of overhead recovery, loss of business opportunity, loss of the use of property, loss of contract, loss of production, loss of financing charges or cost recovery, loss of the use of money and payment of liquidated sums or damages under any other Agreement.

"Contract Material" means all material that is produced by us or on our behalf in carrying out the Services, including but not limited to documents (including drawings, reports, specifications and bills of quantities), calculations, equipment, information and data stored in hard copy or electronic format.

"Date of Agreement" means the date of execution of the Agreement or the date of the Letter of Award, as applicable.

"Disbursements" means costs and expenses we incur in carrying out the Services that are not included in our Fee. These are set out at item 1 in Schedule 1.

"Fee" means either:

- (a) the lump sum amount set out in the Agreement; or
- (b) an amount calculated on the basis of hours worked multiplied by the Hourly Rates.

The Fee is adjusted in accordance with the Agreement.

"Hourly Rates" means:

- (a) the relevant Hourly Rate(s) set out in the Proposal; or
- (b) if relevant Hourly Rate(s) are not set out in the Proposal, the rate(s) that NSW Public Works normally charges for the relevant personnel, at the time the Services are carried out.

"Intellectual Property Right" means any statutory and other proprietary right in respect of inventions, innovations, patents, utility models, designs, circuit layouts, mask rights, copyright (including future copyright), confidential information, trade secrets, know-how, trademarks and any other right in respect of intellectual property.

"Latent Condition" means an aspect of the Services or the Project, including physical conditions on the Project site or its surroundings, which differs materially from what could reasonably have been anticipated by us at the time we prepared the Proposal, including conditions that were known by you and not disclosed to us.

"Letter of Award" means written notification that you accept the Proposal.

"Liability" means legal liability for injury, loss or damage arising in connection with or for breach of the Agreement, however such liability arises.

"NSW Public Works Representative" means the person nominated in item 3 in Schedule 1.

"Project" means the project(s) that the Services relate to.

"Proposal" means the proposal (or if more than one, the final proposal) we gave you in relation to the Services.

"Services" means the services we carry out in connection with the Agreement, including any Variations. Refer to item 2 in Schedule 1.

"Third Party" means a person who is not a party to the Agreement, but does not include our Associates.

"Timetable" means any schedule included in the Agreement Documents that sets out when the Services are to be carried out.

"Variation" means any change to the scope or timing of the Services set out in the Agreement. A Variation may be caused by any of the circumstances listed at item 4 in Schedule 1.

"We", "us" and/or "our" means NSW Public Works and all its branches and divisions, on behalf of the NSW Department of Finance and Services.

"You" and/or "your" means the client(s) addressed in the Proposal

Schedule 1 — Agreement Information

ItemNo	
1	<p style="text-align: right;"><i>Mentioned in Clauses 11.4 & 16</i></p> <p>Disbursements are costs and expenses identified as Disbursements in the Proposal and costs and expenses for any of the following, unless the Proposal specifically states that they are included in the Fee:</p> <ul style="list-style-type: none"> (a) fees, charges, levies and taxes payable to authorities; (b) travel and accommodation associated with attendance at meetings, site inspections, audits etc; (c) preparation of archived material, or transfer or translation of computer files; and (d) products and services provided by subcontractors or sub-consultants, such as: site investigations; BOA inspections; hazardous materials or geotechnical studies; condition surveys; cadastral or infrastructure surveys; production of measured drawings of existing infrastructure; printing multiple copies of reports; and printing or production of artist's impressions/ perspectives / 3D CAD modelling, videos or other presentation material. <p>Notes: Unless the Proposal specifically states otherwise:</p> <ol style="list-style-type: none"> 1. The costs of word processing, phone, fax and routine photocopying are not Disbursements. 2. For Disbursements listed in (a), (b) and (c) above, you will pay us the actual costs we incur. 3. For products and services provided by subcontractors and sub-consultants (as set out in item (d) above), you will pay us the costs we incur plus a 12.5% margin.
2	<p style="text-align: right;"><i>Mentioned in Clauses 2 & 16</i></p> <p>The Services are described in the Proposal, subject to the following:</p> <ol style="list-style-type: none"> 1. Unless specifically stated in the Proposal, the Services do NOT include advice during the tendering period or construction phase of the Project.
3	<p style="text-align: right;"><i>Mentioned in Clauses 3.2 & 16</i></p> <p>The NSW Public Works Representative is :» [If not nominated here, we will advise the NSW Public Works Representative at your request.]</p>
4	<p style="text-align: right;"><i>Mentioned in Clauses 10, 11 & 16</i></p> <p>A Variation occurs when:</p> <ol style="list-style-type: none"> 1. There is a change to the Services because: <ul style="list-style-type: none"> (a) you request additional or reduced Services, for example due to changes in the budget; (b) there are changes to the scope or timing of the Project; (c) Latent Conditions are encountered; (d) information provided by you or your Associates is incomplete, inaccurate or contains discrepancies; (e) you request re-work, except if due to our failure to provide Services complying with the Agreement; (f) there is a change to legislative requirements affecting the Services, Project or amounts payable; or (g) we are required to provide unexpected additional resources to manage the construction work due to poor work quality or an under-performing contractor; 2. Part or all of the Services are delayed by a cause (including suspension, acceleration or deceleration instructed by you or interference by you or your Associates) other than our breach of the Agreement; 3. we are required to carry out work to enable safe access in order to carry out the Services; 4. we incur costs in resolving a dispute with a contractor or consultant involved in the Project; or 5. during or after completion of the Services, we or any of our employees are required to give evidence before, or provide any information to, a court or other competent authority.

Schedule 2 — Procedure for Expert Determination

1. If a dispute is to be submitted to an expert for determination, as provided for in Clause 13.4 of the Conditions of Engagement, the parties are to attempt to agree on an expert.
2. If the parties fail to agree upon an expert within 28 days, either may request the Chief Executive Officer of the Australian Commercial Disputes Centre Ltd Sydney to nominate an expert, who is not to be:
 - (a) an employee of the either of the parties;
 - (b) a person who has been connected with the Agreement; or
 - (c) a person upon whose appointment the parties have previously failed to agree.
3. Once the expert has been agreed or nominated, either party may appoint the expert in writing on behalf of both parties. The letter of appointment is to be provided to the other party and to set out:
 - (a) the dispute being referred to the expert for determination;
 - (b) the expert's fees;
 - (c) the procedures detailed in this Procedure for Expert Determination;
 - (d) the arrangements for each party to lodge \$10,000 as initial security for the expert's fees; and
 - (e) any other matters relevant to the appointment.
4. The parties are to share equally the cost of appointing the expert and the expert's fees and out-of-pocket expenses, including any security required for the expert's fees. Each party is to otherwise bear its own costs in relation to the determination process.
5. If a party defaults in providing the initial security within 28 days after the expert is appointed, the other party may provide the security in full and the defaulting party's share is a debt due and payable to the paying party.
6. Any dispute will be deemed to be abandoned if an expert has not been appointed or the initial security has not been lodged in full within 6 months after the dispute is notified under Clause 13.1 of the Conditions of Engagement:
7. The parties are to make written submissions to the expert, copied to the other party, as follows:
 - (a) Within 7 days after the appointment of the expert, the notifying party is to make its submission on the matter in dispute.
 - (b) Within 14 days after receiving a copy of that submission, the other party is to make its submission in response, if any, which may include cross-claims.
 - (c) If a cross-claim is made, the notifying party is to make its submission on the cross claim within 14 days after receiving a copy of the submission from the other party.
 - (d) The expert may request further information from either party and that party must respond within 14 days after receiving the request.
 - (e) The expert must ignore any submission not made within the times stated in this clause and make a determination on the submissions or information provided within time, unless the parties agree otherwise in writing.
8. The expert must determine whether the claimed event, act or omission did occur and, if so:
 - (a) when it occurred;
 - (b) what term of the Agreement or other obligation in law, if any, requires one party to pay the other money or otherwise act in respect of it; and
 - (c) the merits in law of any defence or cross-claim raised by the other party.
9. The expert is then to determine the amount, if any, which one party is legally bound to pay the other on account of the event, act or omission. The expert must also determine any other question(s) referred by the parties in the submissions.
10. In making the determination, the expert acts as an expert and not as an arbitrator and is:
 - (a) not liable for acts, omissions or negligence;
 - (b) to make the determination on the basis of the Agreement and written submissions from the parties without formalities such as a hearing; and
 - (c) required within 56 days after appointment to give the determination in writing, with brief reasons, to each party.
11. If the expert determines that one party is to pay the other an amount exceeding \$100,000 (excluding interest) and within 14 days after receiving the determination, either party gives written notice to the other that it is dissatisfied, the determination is of no effect and either party may commence litigation.

.2 Unless a party decides to exercise a right to commence litigation, the parties are to treat each determination of the expert as final and binding and give effect to it. If the expert determines one party is to pay the other money, the payment is to be made within 20 Business Days after the expert determination is received.



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