

PRICE SCHEDULE 1: PROCESS PLANT INTERGRATION

A. SUPPLY AND DELIVERY OF EQUIPMENT

Item No.	Description	System Spec. Clause	Make	Model Number	Qty (A)	U O M	Rate (B)	Total A*B	Notes
1. MECHANICAL AND PROCESS EQUIPMENT/INSTRUMENTATION									
1.1. EXISTING GAC PLANT (Refer to P&ID no.4492-024):									
1.1.1.	Manual PVC ball valve (water from Zeolite columns to UV Plant) (DN 50)				2	Items			
1.1.2.	Manual ball valve (water from GAC columns to Zeolite columns) (DN 50)				1	Items			
1.2. NEW ZEOLITE PLANT (Refer to P&ID no.4492-026)									
1.2.1.	Natural zeolite pressure vessels				3	Items			
1.2.2.	Manual PVC ball valve (Zeolite columns inlet) (DN 50)				9	Items			
1.2.3.	Manual PVC ball valve (Zeolite columns outlet) (DN 50)				12	Items			
1.2.4.	Manual PVC ball valve (GAC columns treated water sample valve) (DN 50)				1	Items			
1.2.5.	Manual PVC ball valve (Zeolite columns sample valve) (DN 50)				3	Items			
1.2.6.	Manual ball PVC valve (Zeolite columns backwash feed water) (DN 50)				1	Item			
1.2.7.	Manual PVC ball valve (Zeolite columns air scouring valve) (DN 50)				1	Item			
1.2.8.	Zeolite column pressure safety valve				3	Items			

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1.2.9.	Zeolite column air release valve				3	Items				
1.2.10.	Pressure Indicator (Zeolite columns inlet)				3	Items				
1.2.11.	Pressure Indicator (Zeolite columns outlet)				3	Items				
1.2.12.	Natural Zeolite (for 3 columns)				1	Sum				
1.3. BRINE MIXING & CIRCULATION SYSTEM (Refer to P&ID no.4492-026)										
1.3.1.	Brine storage tanks (for fresh and spent brine)				2	Items				
1.3.2.	Brine recirculation pumps				2	Items				
1.3.3.	Tank inlet PVC ball valves (DN 50)				2	Items				
1.3.4.	Tank outlet PVC ball valves (DN 50)				2	Items				
1.3.5.	Tank drain PVC ball valves (DN 50)				2	Items				
1.3.6.	Brine recirculation pump PVC isolation ball valve (DN 50)				4	Items				
1.3.7.	Tank water inlet PVC ball valve (for brine preparation) (DN 50)				2	Items				
1.3.8.	Tank water supply isolation PVC ball valve (for brine preparation) (DN 50)				1	Items				
1.3.9.	Zeolite columns isolation PVC ball valve (DN 50) – for both inlet and outlet				6	Items				
1.3.10.	Brine mixing circulation PVC ball valve (DN 50)				1	Items				
1.3.11.	Cat & Mouse level indicator				2	Items				



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1.4.	FILTER PUMPS									
1.4.1.	Filter Pumps				2	Items				
1.4.2.	Piping and fittings				1	Sum				
1.5. PIPING (Refer to P&ID no.4492-024):										
1.5.1.	63 OD HDPE piping and fittings, CL12				1	Sum				
1.5.2.	Pipe supports and clamps				1	Sum				
1.6. OTHER:										
1.6.1.	Access steelwork				1	Sum				
1.6.2.	Design, installation, commissioning and performance testing of the complete installation				1	Sum				
1.7. SPARES:										
1.7.1.	PVC ball valves (DN 50)				5	Items				
2. AUTOMATION AND CONTROL EQUIPMENT										

Item No.	Description	System Spec. Clause	Make	Model Number	Qty (A)	U O M	Rate (B)		Total A*B Notes	
2.1.	Supply, install and commission one (1) online Ammonia analyzer				1	each				
2.2.	Supply, install and commission one (1) panel to house the analyzer				1	each				
2.3.	Supply, install and commission one (1) Remote IO PLC system				1	each				
2.4.	Supply, install and commission one (1) set of din rail mount UPS system with batteries				1	each				
2.5.	Supply, install and commission two (2) Managed Industrial Ethernet switches				2	each				
2.6.	Supply, install and commission one (1) data logger				1	each				
2.7.	Supply, install and commission one (1) panel to house the Remote IO, Din Rail UPS and Industrial Ethernet switch				1	each				
2.8.	Supply, install and commission complete cabling and wiring				1	Sum				
2.9.	Supply, install and commission full length ruggedized Fiber Optic patch lead				1	Sum				
3. ELECTRICAL EQUIPMENT										
3.1.	Design Items				1	Sum				
3.1.1.	400 Volt pump control panel				1	Sum				

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3.3.1.	400 Volt pump control panel									
3.3.1.1.	Supply and Manufacture				1	Sum				
3.3.1.2.	FAT testing				1	Sum				
3.3.1.3.	Deliver and offload				1	Sum				
3.3.1.4.	Install, commission and putting into service				1	Sum				
3.3.2.	Circuit breaker and jumpers for pump panel power supply to be installed in existing 400V panel									
3.3.2.1.	Supply				1	Sum				
3.3.2.2.	Deliver and offload				1	Sum				
3.3.2.3.	Install, commission and putting into service				1	Sum				
3.3.3.	5kVA Transformer based, True online, double conversion, pure sinewave UPS unit complete with batteries									
3.3.3.1.	Supply and Manufacture				1	Sum				
3.3.3.2.	FAT testing				1	Sum				
3.3.3.3.	Deliver and offload				1	Sum				

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8.3.3.4.	Install, commission and putting into service				1	Sum				
3.3.4.	Circuit breaker and jumpers for UPS unit power supply to be installed in existing 400V panel									
3.3.4.1.	Supply				1	Sum				
3.3.4.2.	Deliver and offload				1	Sum				
3.3.4.3.	Install, commission and putting into service				1	Sum				
3.3.5.	1200mm IP65 Yellow LED Lighting. Complete replacement at existing structure and installation at new structure.									
3.3.5.1.	Supply				1	Sum				
3.3.5.2.	Deliver and offload				1	Sum				
8.3.5.3.	Install, commission and putting into service				1	Sum				
3.3.6.	Power, Control and Earth Cabling									
3.3.6.1.	Supply				1	Sum				



RW10415257

**DESIGN, MANUFACTURE, SUPPLY, DELIVERY, INSTALLATION, COMMISSIONING AND PUTTING INTO SERVICE
OF A NATURAL ZEOLITE COLUMNS AT BARRAGE WATER TREATMENT PLANT**

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Item No.	Description	System Spec. Clause	Make	Model Number	Qty (A)	U O M	Rate (B)		Total A*B Notes	
3.3.9.1	Supply of all As-Built (Supplied and generated) general arrangement and schematic drawings in electronic and hard copy formats, all test certificates and maintenance and operating manuals for all equipment supplied				1	Sum				
3.3.9.2	Provide for soil resistivity testing to assist with the designs of the earthing, lightning protection and earthing where required.				1	Sum				
3.3.9.3	Provide COC's for the full completed installation for all distribution boards and panels				1	Sum				
3.3.9.4	Provide for the test certificate for the lightning protection installation.				1	Sum				
3.3.9.5	Quality Assurance documentation for all items of equipment under the contract				1	Sum				
3.3.9.6	Complete decommissioning, removal and disposal of any redundant electrical equipment and installations.				1	Sum				



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Item No.	Description	System Spec. Clause	Make	Model Number	Qty (A)	U O M	Rate (B)	Total A*B Notes
All other Automation Equipment not stated above which may be required to complete the Installation (including risk mitigation and safety) (detail below)								
All other Electrical Equipment not stated above which may be required to complete the Installation (including risk mitigation and safety) (detail below)								

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4. CIVIL & ARCHITECTURE

4.1.	CLEAR AND GRUB (SANS 2001-BS1)									
4.1.1.	Clear Surface for Zeolite Station Concrete Plint				1	SUM				
4.1.2.	Relocate existing compressor per RW directive				1	SUM				
4.1.3.	Relocate existing fence per project specifications				1	SUM				

4.2.	EARTHWORKS (SANS 2001-BE1)									
4.2.1	Excavate 600mm Below NGL and import G7 material – compact with 10 passes of a vibrating roller (at least 900 kg mass)				1	SUM				
4.3	CONCRETE (SANS 2001-CC1)									
4.3.1	Concrete for plinth				1	SUM				
4.3.2	Mesh Ref 193 to top of Concrete Plinth				1	SUM				
4.3.2	Half Round Drain				1	SUM				
4.4	STRUCTURAL STEEL (SANS 2001-CS1) and CORROSION PROTECTION TO SANS 1200 HC (include all items – bolts, plates, welding, and galvanisation)									
4.4.1	Canopy Structural Steel				1	SUM				
4.4.2	Staircase				1	SUM				
4.4.3	Rails				1	SUM				
4.4.4	Walkway Platform				1	SUM				
4.4.5	Fascia				1	SUM				
4.4.6	Gutter and Downpipe				1	SUM				

4.5	PAINT									
4.5.1	Paint Canopy to Match Existing				1	SUM				
4.6	SERVICES									
4.6.1	Hand Excavate to Expose and Protect or Relocate Existing Services as directed by RW				1	SUM				
All other Civil & Architectural work not stated above which may be required to complete the Installation (including risk mitigation and safety) (detail below)										

Notes

1. The items included in this Bill of Quantities are a guideline to the Contractor. It is the Contractor's responsibility to thoroughly go through this entire document, drawings, and the attached System Specification for this contract and ensure that any items not included but that are required to achieve the functional requirements of this contract are included under appropriate items in the Price Schedule.
2. All estimates for piping, fittings, valves and other equipment are based on the provided functional design, should the Contractor wish to provide an alternative design, it shall be the Contractors responsibility to re-evaluate pipe lengths and number of equipment required. All deviations are to be stated in the Contractors tender and accounted for in the returned BOQ.
3. Rand Water will only be liable to pay for the equipment/components/cable lengths that become part of the final installation.
4. The System Specification Clause column is provided to make it easier for the Contractor to quickly locate some of the major clauses pertaining to that equipment/works within the System Specifications document. It is still the responsibility of the Contractor to thoroughly read through the entire System Specification document (including the entire Tender Document, Drawings, Applicable Standards and Site Information) identify other applicable clauses pertaining to an equipment/works that have not been stated in the System Specification Clause column.
5. Detailed BOQ for all Lump Sum Items shall be supplied with the Tender.