PART 2: AMENDED PRICING DATA

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C2.1 Pricing instructions: Option A

1. The *conditions of contract*

1.1. How the contract prices work and assesses it for progress payments

Clause 11 in NEC3 Engineering and Construction Contract, June 2005, (with amendments June 2006 and April 2013) (ECC) Option A states:

Identified and defined terms

11

11.2 (20) The **Activity Schedule** is the *activity schedule* unless later changed in accordance with this contract.

(22) Defined Cost is the cost of the components in the Shorter Schedule of Cost Components whether work is subcontracted or not excluding the cost of preparing quotations for compensation events.

(27) The Price for Work Done to Date is the total of the Prices for

- each group of completed activities and
- each completed activity which is not in a group

A completed activity is one which is without Defects which would either delay or be covered by immediately following work.

(30) The Prices are the lump sums for each of the activities on the Pricing Schedule unless later changed in accordance with this contract.

1.2 Measurement and Payment

1.2.1 The **Activity Schedule** provides the basis of all valuations of the Price for Work Done to Date, payments in multiple currencies, price adjustments for inflation and general progress monitoring.

1.2.2 The amount due at each assessment date is based on **completed activities and/or milestones** as indicated on the Pricing Schedule.

1.2.3 The Pricing Schedule work breakdown structure provided by the *Contractor* is based on the Pricing Schedule provided by the *Employer*. The activities listed by the *Employer* are the minimum activities acceptable and identify the specific activities which are required to achieve Completion. The Pricing schedule work breakdown structure is compiled to the satisfaction of the *Project Manager* with any additions and/or amendments deemed necessary.

1.2.4 The *Contractor's* detailed Pricing Schedule summates back to the Pricing Schedule provided by the *Employer* and is in sufficient detail to monitor completion of activities related to assessing the amount due:

1.2.5 The amount due is the price Work Done to Date plus other amounts to be paid to the contractor less amounts to be paid by or retained from the contractor. Any tax which the law requires the Employer to pay to the Contractor included in the amount due.

2. Function of the Activity Schedule

Clause 54.1 in Option A states: "Information in the Activity Schedule is not Works Information or Site Information". This confirms that specifications and descriptions of the work or any constraints on how it is to be done are not included in the Activity Schedule but in the Works Information. This is further confirmed by Clause 20.1 which states, "The Contractor Provides the Works in accordance with the Works Information". Hence the Contractor does not Provide the Works in accordance with the Activity Schedule. The Activity Schedule is only a pricing document.

C2.2 Pricing Schedule – Activity Schedule

Item	Description	Unit	Quantity	Rate	Amount
	SECTION 1 **PRELIMINARY AND GENERAL** PREAMBLES Fixed preliminary items Fixed preliminary items will be valuated and paid on a proven cost basis up to the total value Time related preliminary items Time related preliminary items will be paid on the proportion of: Value of the price of work done to date per the Project Manager's assessment (excluding activities related to materials, escalation, and compensation events) over the contract value excluding preliminaries costs **FIXED-CHARGE ITEMS** **Contractual requirements**				
1	Permits and Site Access	Sum	1		
2	Establishment of Facilities on the Site	Sum	1		
3	Supply and install electrical connection on site camp	Sum	1		

Item	Description	Unit	Quantity	Rate	Amount
4	Supply and install a water connection to site camp	Sum	1		
5	Removal of site establishment.	Sum	1		
6	Rehabilitation of site	Sum	1		
7	Cost for compliance to Environmental Management Plan	Sum	1		
8	Tools and Equipment	Sum	1		
9	Cost for compliance to construction regulation	Sum	1		
10	All other contractual obligations	Sum	1		
11	Cost compliance to Health & safety and Quality regulation.	Sum	1		
	TIME-RELATED ITEMS				
12	Company and head office overhead costs for duration of construction.	Months	3		
13	On site staff	Months	3		
14	Supervision for the duration of the project.	Months	3		
15	Office for site employees	Months	3		
16	Lockable site office for the use of Employer's staff (minimum size 3m x 5m) including the following services: Daily cleaning, 230V AC power, telecommunication facilities, office furniture (minimum of 2).	Months	3		

Item	Description	Unit	Quantity	Rate	Amount
17	Ablution and latrine facilities	Months	3		
18	Provision of water and electricity	Months	3		
19	On site security to protect the contractor's assets	Months	3		
20	Cost for compliance to Health and Safety regulation	Months	3		
21	Cost for compliance to Environmental Management Plan	Months	3		
22	Cost for compliance to Quality Management Plan	Months	3		
23	Provision of Waste bins	Months	3		
24	Tools, equipment and machinery	Months	3		
Total of Section 1 Carried Forward to Final Summary					

Item	Description	Unit	Quantity	Rate	Amount
	SECTION 2: PUMPS				
1	Manufacture, supply and install New RIO MCC distribution panel. MCC cubicle as per design made of SS316 1mm thick. 1000mm W x 1800mm H and 450mm D with hinged panel entry door. Panel to have additional Marshalling side panel for new cables. All buckets will have the following:	ea.	1		
	1st Tier will house 3 separates of 300mm x 300mm bucket for drainer pump 1 & 2 and the 3rd will house the seepage pump.	ea.	1		
	Local stop start push button to be provided on front. MPB handle; driver, Shaft 400mm; shaft alignment ring; shaft support, ABB aux contact 1SBN010140R1022; Start 1SFA619199R1107 CP9-1107 Pushbutton; Stop CP9-1087 1SFA619199R1087 CP9-1087 Pushbutton. Seepage pump isolator ABB 1sam350000r1009 and drainer pump Main isolator ABB 1sam350000r1015 (2 off); 10 of suitable sized terminal connectors mounted on 200mm long din rail.				
	2nd Tier will house HMI (6AV2124-0QC02-0AX1) with ABB MPET4-20R-12 Emergency stop-1SFA611523R2091; UPS as specified on item 39. Measurement of bucket is + 700mm Lx 450mm H				

Item	Description	Unit	Quantity	Rate	Amount
	3rd tier will house the relocated RIO backplane. 1000mm L x 1000mmH. The main pump1 and main pump 2 start and stop will be housed in the 300mmx 300mm bucket. The following junction box schematics will be shared which reflect the above requirements as described in #1				
2	Junction Box 2 (Seepage pump) - Provide SS 316 enclosure 400(H) x 295 (W) x 195(D). Local stop start push button to be provided on front. Designed into new RIO	ea.	2		
3	Junction Box 3 (Seepage pump)- Provide SS 316 enclosure 400(H) x 295(W) x 195(D). Local stop start push button to be provided on front. Designed into new RIO	ea.	2		
4	Junction Box 4 (Main pump) - Provide SS 316 enclosure 800(H) x 600(W) x 245(D). Fitted with ABB isolator OT630E03 - 630A and motor aux termination temp and other. Required	ea.	2		
5	Junction Box 5 (Additional)- The OEM distribution does not align to the Client requirements. The Requirement is to provide SS 316 enclosure 800(H) x 600(W) x 245 (D) to terminate all additional termination from the field as excluded from Client requirement or design. Optional if new RIO cannot sustain all C&I cabling.	ea.	2		

Item	Description	Unit	Quantity	Rate	Amount
	All JB paneling to be marine coated electrical orange.				
6	Cabling from JB to RIO- find (attachment Control cable Schedule (all cables will run from relocated JB`s) Junction Box 1- Provide WeidmullerA2C 4 terminal connectors- 100 terminated to remote I/O (RIO): 24 pair screened, 1.5mmsq length of 100meter 8 pair screened, 1.5mmsq length of 100meter 64 pair screened, 1.5mmsq length of 100meter 8 pair screened, 1.5mmsq length of 100meter 2 pair screened, 1.5mmsq length of 100meter 8 pair screened, 1.5mmsq length of 100meter 2 pair screened, 1.5mmsq length of 100meter 4 pair screened, 1.5mmsq length of 100meter 4 core SWA 95mmsq ECC length of 500meter 4 core SWA 10mm sq ECC length of 200 meter 4 core SWA 16 mm sq ECC length of 500 meter. NOTE: ALL CABLING WILL BE COPPER BRAIDED CABLE	ea.	1		

Item	Description	Unit	Quantity	Rate	Amount
7	Cabling from JB2 to RIO- find attachment Control cable Schedule (all cables will run from relocated JB`s) Junction Box 2- Provide WeidmullerA2C 4 terminal connectors- 100 terminated to remote I/O (RIO): 16 pair screened, 1.5mmsq length of 100meter 8 pair screened, 1.5mmsq length of 100meter 2 pair screened, 1.5mmsq length of 100meter 8 pair screened, 1.5mmsq length of 100meter 2 pair screened, 1.5mmsq length of 100meter 8 pair screened, 1.5mmsq length of 100meter 2 pair screened, 1.5mmsq length of 100meter 4 pair screened, 1.5mmsq length of 100meter NOTE: ALL CABLING WILL BE COPPER BRAIDED CABLE	ea.	1		
8	Cable replacement – refer to Control cable schedule. Cable JB1 to field instrumentation as per list attached. All cable to run from and to relocated JB seepage pump, Drainer pump and Main pump.	Prov sum	1		

Item	Description	Unit	Quantity	Rate	Amount
	Cable to and from pumphouse base may be joint and rerouted to RIO. Safely break out 3 sqm of brick wall behind RIO JB and reinstate on completion of works.				
9	Cable replacement – refer to Control cable schedule. Cable JB2 to field instrumentation as per list attached. All cable to run from and to relocated JB seepage pump, Drainer pump and Main pump. Cable to and from pumphouse base may be joint and rerouted to RIO.	Prov sum	1		
10	Supply, calibrate and install Endress+Hauser RIA15 communication unit	ea.	2		
11	Replace SK1121-1AB40 unit in RIO with wiring of 3 inputs and two outputs- Siemens Emergency relay	ea.	1		
12	Replace Drainer pump motor 15KW ABB motor IE2 M2BAX160MLB4 Marine type Motor coupling rubber to be replaced with new- sample available on removal. 400VAC, 50Hz, 1460rpm, 15KW, 20Hp, 29.5A, 0.81Cos, Eff 90.6, Duty S1 Install all RTD sensors and vibration sensors as per original.	ea.	2		

Item	Description	Unit	Quantity	Rate	Amount
13	Disconnect and remove existing ABB isolator in Main pump 1 & 2 JB and replace/install new: ABB OT630E03- 630A 50Hz (with aux switch)	ea.	3		
14	Note for all actuators-Mechanically remove and disconnect electrically Actuators in pump house and replace with: AUMA actuator SQ07.2F05-F07 Order nr 23104473. No 3422NS73069; t:32; s/90 degrees; T close/open :100-300Nm. Unit to be replaced with Profinet capability and integrated into PLC program.	ea.	2		
15	Mechanically remove and disconnect electrically Actuators in pump house and replace with: DREHMO Top motor/TENV actuator Motor Type DIM 120 B3-80. Motor nr 5045909, Motor type TM1.07003; 400V; 3.1A; 1.5KW; 2710rpm. Unit to be replaced with Profinet capability and integrated into PLC program. Cable termination to be IP68.	ea.	2		
16	Remove mechanically and electrically Flow Switch Endress+Hauser DTT31 and install new. Cable neoprene/similar termination to be IP68.	ea.	2		

Item	Description	Unit	Quantity	Rate	Amount
17	Remove mechanically and electrically Flow Switch Endress+Hauser T150 and install new. Cable neoprene/similar termination to be IP68.	ea.	2		
18	Remove mechanically and electrically Flow Switch Endress+Hauser Niv tester FTW325-A2A1A and install new. neoprene/similar Cable termination to be IP68.	ea.	2		
19	Remove mechanically and electrically Water pilot FMX21-3M5V8/0 with 30m neoprene/similar cable and install new. Cable termination to be IP68.	ea.	2		
20	Remove mechanically and electrically Liquid float FTS20 with 30m neoprene/similar cable and install new. Cable termination to be IP68.	ea.	4		
21	Remove mechanically and electrically Liquipoint FTW32 - A1D5AA0A with 30m neoprene/similar cable and install new. Cable termination to be IP68.	ea.	3		
22	Remove mechanically and electrically Pressure Transmitter Cerabar PMC11 PMC11-4RV3/0 with 30m neoprene/similar cable and install new. Cable termination to be IP68.	ea.	5		

Item	Description	Unit	Quantity	Rate	Amount
23	Supply and fit HMI (6AV2124-0QC02-0AX1) on new RIO panel.	ea.	1		
24	Supply and install mechanically Grindex Minette Inox (SS) 2.6KW pump with 30 meter leading cable (confirm requirement for saltwater conditions/environment).	ea.	1		
25	Provide Experienced Siemens Certified System integrator familiar with equipment and software to commission any equipment requiring calibration or reinitiation into 1500 PLC program or 3rd party software.	Prov sum	1		
26	Supply and install fiber optic 12 core cable length of 400meters from MCC room to penstock valve RTU. Terminate both end in fibre distribution box and connect to SFP to ethernet converter. This is networked to existing Siemens switch at S7-1500 PLC and RTU at penstock valve control.	ea.	1		
27	Requirement- All pumphouse instrumentation and equipment- i.e flow, actuator and pressure cable termination will be terminated to allow for the highest IP (min IP68) rating. The cables will run from the relocated JB/RIO to the sensors.	ea	20		

Item	Description	Unit	Quantity	Rate	Amount
28	Requirement- The requirement to replace the current type pumphouse actuator analog feedback with Profinet requires that a TCP/IP CAT6 cable be installed and connected to the Profinet type actuator. This then requires the actuator HW config and status and feedback to be included and commissioned on the S7-1500 PLC	ea.	20		
29	During commissioning all hardware and software are to be compared and any differences in schematics are to be corrected. The client has found misalignment. 10 days on site	hr	80		
30	Commission SMS unit with Client APN unit and access.	ea.	1		
31	Provide all 'as built', 'red line', and other drawings. This includes all relevant changes approved by the Client	ea.	1		
32	CCTV- EZVIZ H90 Dual 2K high-resolution camera to be mounted and connected from the Pumphouse to the Control room. Outdoor Security Camera with Night Vision Connectivity (Compatible with Mobile)	ea.	3		
33	Simocode with current monitoring sized for 15KW motor and 3KW motor (3). This then requires the Simocode HW config status and feedback to be included and commissioned on the S7-1500 PLC. Refer to drawing MCC pg. 9,	ea.	5		

Item	Description	Unit	Quantity	Rate	Amount
	11 & 13 for seepage, and 2x drainer pump. 3UF7011-1AB00-0 3UF7111-1AA01-0				
34	Supply and deliver Sewer Sealing, Testing Bladder with ½ inch By-pass(21TIDKABH5001000) (KABH500-100) DN 500-100(20inch-40 inch) 1-0.5Bar with a compatible compressor	ea.	1		
35	Supply, deliver and install mechanically 800mm ND Butterfly valve- The valve body should be SANS 936 SG50 equivalent to Meehanite with aluminum bronze. With M24 bolts galvanized. The valve must be manufactured according to the Classification Society (See attached annexure of the SAMSA-recognized organization). Bolts and sealant to be provided by service provider during installation.	ea.	2		
36	**Supply and install mechanically & electrically Seepage pump: Flygt 2720 2.2KW** · 21.6m3/hr. (6l/s) @8m total Dynamic head · Nominal voltage of 400V/230V · IP 68 Enclosure class · Impeller- high chromium cast iron / Stainless steel 316. · Pump shaft- Stainless steel 316	ea.	1		

Item	Description	Unit	Quantity	Rate	Amount
	· Casing – Aluminum or better to suit · Auxiliaries-Stainless steel 316 or better to suit · Supplied with suitable sized flexible cable of 30 meter				
37	Remove existing floor covering and replace with suitable or same covering.	m2	25		
38	Remove and install new pumphouse lighting BekaSchreder VLN LED N1 144LED NW-46W-7760lm 220-240V 50/60Hz IP65 4 foot	ea.	8		
39	Replace UPS 1600 controller and battery pack 2 off (Main PLC cabinet and RIO cabinet) 6EP4136-3AC00-2YA0 6EP4133-0GA00-0AY0 6EP4136-3AC00-2YA0 6EP4135-0GL00-0AY0 Alternative- 3KW inverter and battery (PLC control) Alternative- 5KW inverter and battery (Operators cabin)	No Ea Ea Ea Ea Ea ea	 1 1 1 1 1 1		
40	Supply, mechanically remove and fit new non-return valve for seepage pump. DN80, PN25, stainless steel	ea.	1		

Item	Description	Unit	Quantity	Rate	Amount
41	Supply and install 20KW 3 Phase Hybrid Inverter. With battery solution for 1 hr. full load- TBA due to limited space. Installation to be according to SANS10142-1 and Generative equipment or alternative supply.	ea.	1		
42	Electrically include and replace CTRR-DD-VF/VS/VD-01 TO 04 WITH motor protection, CLASS 10 Circuit breaker 3RV2011-1JA25 and Simocode monitoring unit. 3UF7011-1AB00-0 3UF7111-1AA01-0 Reference Drawing MCC Actuated valve pg. 7.	No	10		
43	**Main Pump repairs(Provide OEM warranty on repairs)** Certified rigger to be provided Remove round steel cover plate from main dewatering pump 1 & 2. With approval via TNPA to VA Waterfront, remove the restaurant floor cover plates. Access the pumphouse. Use existing hoist in restaurant to safely hoist main pump from enclosure. Place pump for inspection if space allow. If space does not allow, remove pump completely from enclosure unto load certified trolley and transfer to works area. Inspect pump and cable prior to any work required. Remove and relocate pump to work area for strip and bake if water ingress is confirmed. *2 of MP, 2 of MP Vlv, 2 of DP*	ea	6		

Item	Description	Unit	Quantity	Rate	Amount
	Minimum requirements on Main pump: provide a report before any of the below commences:				
	Strip, wash and bake motor. Replace mechanical seals and all the seals and gasket. Replace bearings and wear rings Refurbish pump casing Assembling after test is positive and pump tested. Replace the existing cable with a longer cable that allows it to be connected in new JB next to RIO.	ea	1		
	Reinstallation of Main pumps: The return of the main pumps incorporate the reverse of the removal process.	ea	1		
44.	All components removed to be replaced to provide a sealed enclosure after installing main pump. P2 refurbished but sealing incomplete	ea	2		
45	Provide Schneider SI to inspect and test 320KW drive- 5 days on site	hr	40		
46.	Supply, install, commission new 320KW drive. Optional Siemens.	ea	1		
47	Cable racking 600mm	m	50		
48	Provide Diving Services As and When required. Refer*_* item 43	ea	8		
49	Provide Licensed Siemens:				

Item	Description	Unit	Quantity	Rate	Amount
	SIMATIC HMI;WinCC RT Professional (512/1024). SIMATIC HMI;WinCC Professional (512/1024). SIMATIC STEP 7;STEP 7 Professional combo V20. Simocode ES Professional Combo V20.	ea ea ea ea	1 1 1 1		
50	Siemens PLC&I/O Cards 6ES7521-IBH00-0AB0 6ES7522-IBH01-0AB0 6ES7513-IAL02-0AB0 6GK7542-5DX00-0XE0 SCALANCE 6GK5206-2BS00-2AC2 7KM1020-0BA01-1DA0	 ea ea ea ea ea ea	 10 4 1 1 1 1		
51	Damaged equipment incl. cabling will be disposed of as per Transnet disposal procedure. Service provider to transport material and equipment to designated laydown location within port <10KM NOTE: 1. At time of scope, the specification i.e. Siemens components order numbers may have changed but a replacement will be specified at time of enquiry at OEM	ea	1		
52	Drainer pump repairs(PROVIDE OEM WARRENTY) OEM is **WILO Vertical Turbine pump CNE 2AC 1-STAGE PUMP**	ea	1		

Item	Description	Unit	Quantity	Rate	Amount
	• Strip and overhaul the pump. • Replace the couplings • Replace seals • Replace gland packing • Manufacture a new shaft • Replace O-rings • Assemble and balance the pump • Install and commission				
Total of Section 2 Carried Forward to Final Summary					

SECTION NO.	FINAL SUMMARY	AMOUNT
1	PRELIMINARIES & GENERAL	
2	PUMPS	
TOTAL EXCLUDING VAT CARRIED TO FORM OF OFFER AND ACCEPTANCE		

Compiled by:

Apelele Tyali
Technical Ship Repair Manager
TNPA Port of Cape Town
Date: 19 November 2025

Recommended by:

Sikhokhele Mngoma
Acting Ship Repair Manager
TNPA Port of Cape Town
Date: