

CONTRACT NO : RFP169/2024
CONSTRUCTION OF PHASE 1 ROOIWAL WWTW

PART 2: ELECTRICAL AND MECHANICAL BOQ NORTH AND WEST WORKS

CITY OF TSHWANE
CONTRACT NO : RFP169/2024
CONSTRUCTION OF PHASE 1 ROOIWAL WWTW
ELECTRICAL AND MECHANICAL FINAL SUMMARY

ITEM	DESCRIPTION	AMOUNT
1	PRELIMINARY AND GENERAL	
2	ELECTRICAL WORKS	
3	MECHANICAL WORKS	
	SUBTOTAL	
	ADD CONTINGENCY 10% This sum will be under the sole control of the Engineer and may be deducted in part or full.	
	EPWP TRAINING Contractor to Allow for EPWP Training	R2 000 000,00
	SUBTOTAL Excl VAT	
	ADD VAT (15%)	
TOTAL CARRIED TO FORM OF OFFER		

CITY OF TSHWANE
CONTRACT NO : RFP169/2024
CONSTRUCTION OF PHASE 1 ROOIWAL WWTW
ELECTRICAL AND MECHANICAL SECTION: P&GS

ITEM	DESCRIPTION	UNIT	QTY	PRICES	
				UNIT	RATES
	The supply, installation, testing, commissioning and a 52 week defects liability period in accordance with this bill of material, Local Supply Authority's by-laws & regulations, National Building Regulations, detailed electrical specification, SANS 10142-1: 2003 (Code of Practice), Occupational Health and Safety Act, General Conditions of Contract and drawings listed in the detailed specification.				
1	Schedule No 1 Preliminary and General Fixed charge items				
1,1	Site establishment Allow for site establishment, and for storage of plant, materials and equipment including protection thereof.	Item	1		
1,2	Site disestablishment Allow for the demolishing and removal of the site camp upon completion of the contract.	Item	1		
1,3	Commissioning and testing Supply all test equipment and labour for testing and commissioning of the final installation.	Item	1		
1,4	Guarantee Allow for a guarantee period of 12 months against defect in equipment, material and workmanship, but wear and tear and normal maintenance excluded.	Item	1		
1,5	Additional fixed charge items Any additional item(s) that the tenderer may wish to detail and price.	Item	1		
1,6	AS BUILT DRAWINGS The marking - up of "As Built" drawings during the contract to ensure that accurate "As Built" drawings are submitted to the Engineer at the end of the contract.	Sum	1		
1,7	Training of Staff	Sum	1		
1,8	OPERATING & MAINTENANCE MANUALS Compilation of an O & M manual	Sum	1		
1,9	Environmental Specialist to be appointed by the project	Prov Sum	1	1 500 000,00	
1,10	.14 Provisional sum for salary of CLO and travel assistance of Project Steering Committee Members appointed by Employer	Prov Sum	1	300 000,00	
1,10	Profit and attendance on item 1.10	%		300 000,00	
1,11	Occupational Health and Safety:				
1.11.1	General safety obligations				
1.11.1	Mandatory Signage / Road signs	Sum			
1.11.2	Safety Poster including Acts & Regulations	Sum			
TOTAL CARRIED FORWARD					

CITY OF TSHWANE
CONTRACT NO : RFP169/2024
CONSTRUCTION OF PHASE 1 ROOIWAL WWTW
ELECTRICAL AND MECHANICAL SECTION: P&GS

				PRICES	
ITEM	DESCRIPTION	UNIT	QTY	UNIT	RATES
BROUGHT FORWARD					
1.11.3	Safety office / shed or container	Month			
1.11.4	Allowance for toilets (Gender specific)	Each			
1.11.5	Lay down & storage areas	Sum			
1.11.6	Employee eating area	Sum			
1.11.7	Hand washing & sanitizing stations	Sum			
1,12	Safety Planning				
1.12.1	Safety file and Risk Assessment	Sum			
1.12.2	Health and safety plan	Sum			
1.12.6	Medical assessment of employees (Entrance & Exit) & Vaccines for for employees working within sewer	Sum			
1.12.7	Fall Protection Plan	Sum			
1.12.8	Traffic Management Plan	Sum			
1.13	Safety Personnel				
1.13.2	Construction safety officer (Full time)	Month			
1,14	OHS Training				
1.14.1	Safety Representative Training	Each			
1.14.2	First Aid Training	Each			
1.14.3	Construction vehicle operators	Each			
1.14.4	Working at Heights training	Each			
1.14.5	Fire fighting training	Each			
TOTAL CARRIED FORWARD					

CITY OF TSHWANE
CONTRACT NO : RFP169/2024
CONSTRUCTION OF PHASE 1 ROOIWAL WWTW
ELECTRICAL AND MECHANICAL SECTION: P&GS

				PRICES	
ITEM	DESCRIPTION	UNIT	QTY	UNIT	RATES
BROUGHT FORWARD					
1.15	Personal Protective Equipment (PPE)				
1.15.1	Work overalls - Reflective Conti suits (Min 2 pairs each)	Each			
1.15.2	Safety Shoes	Each			
1.15.3	Gum Boots	Each			
1.15.4	Hardhats	Each			
1.15.5	Reflective vests	Each			
1.15.6	Ear Plugs (100's)	Box			
1.15.7	Ear Muffs	Each			
1.15.8	Full body Safety Harness (Double lanyard)	Each			
1.15.9	Life Lines	Each			
1.15.10	Dust / Cloth Masks (100s)	Box			
1.15.11	Eye protection (Safety Glasses)	Each			
1.15.12	Hand Protection (Gloves) 100pcs	Bulk			
1.15.13	Barricade Netting (1 x 50m)	Sum			
1.15.14	Edge protection material & equipment	Sum			
1.15.15	Fire Extinguishers (9kg)	Each			
1.15.16	First Aid box (GR3 kit). Including refill kits required.	Each			
1.15.17	Spill kit (120litre)	Each			
1.15.18	Lock out items (locks, tags,safes, etc..)	Sum			
1.15.19	Emergency air siren	Each			
1.15.20	Rescue equipment	Sum			
1,16	Contractor to allow for CIDB Built Programme	Prov Sum	1	5,00%	
1,17	Profit and attendance on item 1.16	%	0,1		
TOTAL CARRIED FORWARD TO FINAL SUMMARY PAGE					

CITY OF TSHWANE

CONTRACT NO : RFP169/2024

ELECTRICAL & ELECTRONICS SECTION

SCHEDULE	DESCRIPTION	TOTAL	TOTAL
		LABOUR	MATERIAL
Schedule 1:	North Inlet PST Works		
Schedule 2:	North Inlet Incinerator Building		
Schedule 3:	North Reactors & SSTs		
Schedule 4:	North Chlorine & Final Effluent Dam		
Schedule 5:	West Works		
Schedule 6:	WAS & Dewatering Works		
Schedule 7:	IT Networks (Fibre)		
Total Labour and Material			
<u>Provisional sums</u>			
	PLC programming and HMI / SCADA configuration	R 850 000,00	R 850 000,00
	Lightning Protection System	R 1 200 000,00	R 1 200 000,00
	MVB Equipment & Switchgear Repair & Upgrade	R 3 200 000,00	R 3 200 000,00
	Rerfubishment of 16 X Highmast Light Structures & Kiosks	R 2 320 000,00	R 2 320 000,00
	East & West Balancing Tanks Electrical Works	R 1 800 000,00	R 1 800 000,00
VAT			
TOTAL CARRIED FORWARD TO FINAL SUMMARY PAGE			

CITY OF TSHWANE
CONTRACT NO : RFP169/2024

ELECTRICAL SECTION: NORTH WORKS - INLET PST

ITEM	DESCRIPTION	UNIT	QTY	UNIT LABOUR	RATES MATERIAL	TOTAL LABOUR	TOTAL MATERIAL
2	Schedule No 1 NORTH WORKS - INLET WORKS						
2,1	250A, 30kA three pole circuit breaker complete to be installed into existing Balancing Tank M/S.	No	1				
2,2	Design , Manufacture, supply, off loading, installation & Commissioning of new PST MCC as shown in the specifications and drawings. The MCC comprises of the following Equip.	No	1				
a	1 x 250A 15kA three phase circuit breaker.						
b	2 x 60A three phase circuit breaker (Local DB & PST DB)						
c	14 x DOL starter drives (6 x PST Drives, 6 x Grit Classifiers & 2 x Washer Presses)						
d	3 x 10A single pole circuit breakers (lights & PLC)						
e	1 x single phase contactor (lights)						
f	1 x 2A single pole circuit breaker (contactor / photo cell).						
g	1 x 30mA single phase 60A earth leakage unit (plugs).						
h	2 x 20A single pole circuit breakers (plugs)						
i	4 x surge arrestors (main).						
j	1 x 3 phase voltage selector switch						
k	1 x volt meter						
l	3 x 250 / 5 A CT's						
m	3 x maximum demand amp meters						
n	1 x 300mA 3 phase 30A earth leakage unit (welding socket)						
o	1 X 3 Phase Power Meter						
TOTAL CARRIED FORWARD							

CITY OF TSHWANE
CONTRACT NO : RFP169/2024

ELECTRICAL SECTION: NORTH WORKS - INLET PST

ITEM	DESCRIPTION	UNIT	QTY	UNIT LABOUR	RATES MATERIAL	TOTAL LABOUR	TOTAL MATERIAL
BROUGHT FORWARD							
2,3	LV CABLE PVC/SWA/PVC copper conductor cables strapped to cable ladders. (trenches, sleeves and cable terminations measured elsewhere):						
a	120mm2 x 4 core (MCC supply)	m	60				
b	95mm2 Kwenā earthing conductor	m	60				
c	16mm2 x 4 core (PST DB)	m	20				
d	4mm2 x 4 core (PST Drive cable)	m	350				
e	4mm2 x 4 core (Grit Classifier cable)	m	420				
e	6mm2 x 4 core (welding socket)	m	170				
f	1.5mm2 x 3 core (emergency stop cable)	m	120				
3,4	LV CABLE TERMINATION: PVC/SWA/PVC Exe corrosion guard cable glands (IP68) complete including conductor & earth termination, lugs, tapes, drilling etc						
a	120mm2 x 4 core (MCC supply)	No	2				
b	95mm2 Kwenā earthing conductor	No	2				
c	16mm2 x 4 core (PST DB)	No	2				
d	4mm2 x 4 core (PST Drive cable)	No	12				
e	4mm2 x 4 core (Grit Classifier cable)	No	12				
e	6mm2 x 4 core (welding socket)	No	8				
f	1.5mm2 x 3 core (emergency stop cable)	No	10				
3,5	CABLE EXCAVATION:						
a	Pickable material	m ³	100				
b	Soft Rock	m ³	52				
c	Hard Rock	m ³	50				
d	Backfilling & Compaction	m ³	202				
3,6	CABLE ROUTE MARKERS: The supply and installation of concrete cable route markers	No	10				
TOTAL CARRIED FORWARD							

CITY OF TSHWANE
CONTRACT NO : RFP169/2024

ELECTRICAL SECTION: NORTH WORKS - INLET PST

ITEM	DESCRIPTION	UNIT	QTY	UNIT LABOUR	RATES MATERIAL	TOTAL LABOUR	TOTAL MATERIAL
BROUGHT FORWARD							
3,7	CABLE LADDER AND TRAY: OL55 duplex coating (exterior polyester) 3CR12 cable ladder including all accessories mounted to concrete slabs / walls.						
a	100mm cable ladder	m	15				
b	100mm 90° bends	No	2				
c	T - Bends	No	10				
c	100mm duplex coating 3CR12 cable tray.	m	90				
3,8	LOCAL EMERGENCY STOP STATIONS:						
a	Surface mounted IP65 emergency stop push buttons.	No	18				
b	Stainless Steel support stands Emergency Stop/Start Buttons	No	18				
3,9	Surface mounted 35A, 5 pin 3 phase welding socket including male plug, IP65. (Wall Mounted)	No	15				
LIGHTING AND SMALL POWER							
3,1	GALVANISED CONDUIT:						
a	Surface mounted 20mm galvanised conduit including couplings, galvanised saddles and all accessories.	m	80				
c	Surface mounted round galvanised 20mm conduit boxes including galvanised cover plate.	No	16				
3,11	PHOTO CELL:						
a	Royce Thompson photo cell including conduit box.	No	1				
TOTAL CARRIED FORWARD							

CITY OF TSHWANE CONTRACT NO : RFP169/2024							
ELECTRICAL SECTION: NORTH WORKS - INLET PST							
ITEM	DESCRIPTION	UNIT	QTY	UNIT LABOUR	RATES MATERIAL	TOTAL LABOUR	TOTAL MATERIAL
BROUGHT FORWARD							
a	1.5mm2	m	0				
b	2.5mm2	m	100				
c	4.0mm2	m	150				
d	6.0mm2	m	40				
3,13	EARTH WIRING BCEW drawn into galvanised conduit:						
a	1.5mm2	m	0				
b	2.5mm2	m	40				
c	4.0mm2	m	50				
d	6.0mm2	m	20				
3,14	LUMINAIRES To be mounted to suspended ceilings and to brick walls:						
a	2 x 36W IP65 vapour proof LED luminaire complete Driver.	No	4				
b	2 x 36W IP65 vapour proof LED Emergency Maintained luminaire complete Driver.	No	2				
c	2 x 18W LED compact Outdoor bulkhead luminaire complete with Driver	No	2				
d	2 x 100W LED Floodlight with Driver Mounted on a 5.7m Stainless Steel Mast	No	3				
3,16	SOCKET OUTLETS Industrial surface mounted 16A single switched socket outlets.	No	1				
TOTAL CARRIED FORWARD TO SUMMARY							

CITY OF TSHWANE
CONTRACT NO : RFP169/2024

ELECTRICAL SECTION: NORTH WORKS - INLET INCINERATOR BUILDING

ITEM	DESCRIPTION	UNIT	QTY	UNIT LABOUR	RATES MATERIAL	TOTAL LABOUR	TOTAL MATERIAL
1	Schedule No 1 NORTH WORKS - INLET WORKS						
1,1	Decommission and Deliver to Tshwane Stores old RMU, Transformer & Kiosk. Rehabilitate the grounds	No	1				
1,2	Refurbish existing MCC by Repalcing Aux. Equipment (New Power Meter, Ammeters, Voltemeters, Hour Meters) and rewire existing MCC as shown in the specifications and drawings(Single Line Diagrams). The refurbishment works are stated in the Scope of Works Document.	No	1				
3,3	Generator and ATS						
a	500kVA Generator Set Complete with ATS, ,PIlnth and 48 hour Diesel Backup Tank	m	1				
3,3	LV CABLE PVC/SWA/PVC copper conductor cables strapped to cable ladders. (trenches, sleeves and cable terminations measured elsewhere):						
a	16mm2 x 4 core (Incinerator Blg. DB)	m	45				
b	4mm2 x 4 core	m	0				
c	6mm2 x 4 core (welding socket)	m	80				
d	1.5mm2 x 3 core (emergency stop cable)	m	90				
TOTAL CARRIED FORWARD							

CITY OF TSHWANE
CONTRACT NO : RFP169/2024

ELECTRICAL SECTION: NORTH WORKS - INLET INCINERATOR BUILDING

ITEM	DESCRIPTION			UNIT	RATES	TOTAL	TOTAL
		UNIT	QTY	LABOUR	MATERIAL	LABOUR	MATERIAL
BROUGHT FORWARD							
3,4	LV CABLE TERMINATION: PVC/SWA/PVC Exe corrosion guard cable glands (IP68) complete including conductor & earth termination, lugs, tapes, drilling etc						
a	16mm2 x 4 core (IncineratorDB)	No	2				
b	4mm2 x 4 core	No	0				
c	6mm2 x 4 core (welding socket)	No	8				
d	1.5mm2 x 3 core (emergency stop cable)	No	8				
3,5	CABLE EXCAVATION:						
a	Pickable material	m ³	10				
b	Soft Rock	m ³	5				
c	Hard Rock	m ³	5				
d	Backfilling & Compaction	m ³	20				
3,6	CABLE ROUTE MARKERS: The supply and installation of concrete cable route markers	No	4				
3,7	CABLE LADDER AND TRAY: OL55 duplex coating (exterior polyester) 3CR12 cable ladder including all accessories mounted to concrete slabs / walls.						
a	100mm cable ladder	m	0				
b	100mm 90° bends	No	1				
c	T - Bends	No	0				
c	100mm duplex coating 3CR12 cable tray.	m	40				
3,8	LOCAL EMERGENCY STOP STATIONS:						
a	Surface mounted IP65 emergency stop push buttons.	No	5				
b	Stainless Steel support stands Emergency Stop/Start Buttons	No	5				
TOTAL CARRIED FORWARD							

CITY OF TSHWANE
CONTRACT NO : RFP169/2024

ELECTRICAL SECTION: NORTH WORKS - INLET INCINERATOR BUILDING

ITEM	DESCRIPTION	UNIT	QTY	UNIT LABOUR	RATES MATERIAL	TOTAL LABOUR	TOTAL MATERIAL
BROUGHT FORWARD							
3,9	Surface mounted 35A, 5 pin 3 phase welding socket including male plug, IP65. (Wall Mounted/Station Mounted)	No	4				
5,15	DIFFERENTIAL ULTRASONIC LEVEL DETECTOR: (Inlet Works in & Outflow)						
a	FDU92 level sensor including 20m of cable.	No	2				
b	304 stainless steel support bracket for the sensor head.	No	2				
c	FMU90 ultrasonic level transmitter.	No	2				
d	Programming of the ultrasonic level transmitter.	No	2				
e	FEB for the transmitter including terminals, surge arrestors, circuit breaker & stainless steel pedestal.	No	2				
LIGHTING AND SMALL POWER							
3,1	GALVANISED CONDUIT: Surface mounted 20mm galvanised conduit including couplings, galvanised saddles and all accessories.	m	120				
c	Surface mounted round galvanised 20mm conduit boxes including galvanised cover plate.	No	42				
3,11	PHOTO CELL: Royce Thompson photo cell including conduit box.	No	1				
a							
TOTAL CARRIED FORWARD							

CITY OF TSHWANE
CONTRACT NO : RFP169/2024

ELECTRICAL SECTION: NORTH WORKS - INLET INCINERATOR BUILDING

ITEM	DESCRIPTION	UNIT	QTY	UNIT LABOUR	RATES MATERIAL	TOTAL LABOUR	TOTAL MATERIAL
BROUGHT FORWARD							
3,12	WIRING PVC insulated copper conductors drawn into galvanised conduit:						
a	1.5mm2	m	0				
b	2.5mm2	m	360				
c	4.0mm2	m	400				
d	6.0mm2	m	240				
3,13	EARTH WIRING BCEW drawn into galvanised conduit:						
a	1.5mm2	m	0				
b	2.5mm2	m	120				
c	4.0mm2	m	140				
d	6.0mm2	m	80				
3,14	LUMINAIRES To be mounted to suspended ceilings and to brick walls:						
a	2 x 36W IP65 vapour proof LED luminaire complete Driver.	No	4				
b	2 x 36W IP65 vapour proof LED Emergency Maintained luminaire complete Driver.	No	2				
c	2 x 18W LED compact Outdoor bulkhead luminaire complete with Driver	No	4				
d	2 x 50W LED Floodlight with Driver Mounted on a 3.5m Stainless Steel Mast	No	6				
3,15	LIGHT SWITCHES Industrial surface mounted 16A single lever one way switch.	No	2				
3,16	SOCKET OUTLETS Industrial surface mounted 16A single switched socket outlets.	No	1				
TOTAL CARRIED FORWARD TO SUMMARY							

CITY OF TSHWANE
CONTRACT NO : RFP169/2024

ELECTRICAL SECTION: NORTH WORKS - REACTORS & SSTs

ITEM	DESCRIPTION	UNIT	QTY	UNIT LABOUR	RATES MATERIAL	TOTAL LABOUR	TOTAL MATERIAL
2	Schedule No 1 NORTH WORKS - INLET WORKS						
2,1	300A, 30kA three pole circuit breaker complete to be installed in existing Blower House M/S DB to Return Screw P/S 1 to 3	No	3				
2,2	Design , Manufacture, supply, off loading, installation & Commissioning of new Reactor 1 & 2 Return Cycle Pumps MCC as shown in the specifications and drawings. The MCC(Located in Hums P/S No.1) comprises of the Equip as per SLD RWWTW-E-BNR-01.	No	1				
2,2	Design , Manufacture, supply, off loading, installation & Commissioning of new Reactor 3 Return Cycle Pumps MCC as shown in the specifications and drawings. The MCC(Located in Hums P/S No.1) comprises of the Equip as per SLD RWWTW-E-BNR-02.	No	1				
1,2	Refurbish existing MCC by Repalcing Aux. Equipment (New Power Meter, Ammeters, Voltemeters, Hour Meters) and rewire existing MCCs(Return Scree P/S 1 to 3) as shown in the specifications and drawings(Single Line Diagrams). The refurbishment works are stated in the Scope of Works Document.	No	3				
TOTAL CARRIED FORWARD							

CITY OF TSHWANE
CONTRACT NO : RFP169/2024

ELECTRICAL SECTION: NORTH WORKS - REACTORS & SSTs

ITEM	DESCRIPTION			UNIT	RATES	TOTAL	TOTAL
		UNIT	QTY	LABOUR	MATERIAL	LABOUR	MATERIAL
BROUGHT FORWARD							
2,3	LV CABLE PVC/SWA/PVC copper conductor cables strapped to cable ladders. (trenches, sleeves and cable terminations measured elsewhere):						
a	300mm2 x 4/C/AL/PVC/SWA/PVC (MCC supply)[Return Screw P/Stations Cable]	m	600				
b	150mm2 Kwena earthing conductor	m	600				
a	185mm2 x 4/C/AL/PVC/SWA/PVC (MCC supply) [Humus p/s Cable for Internal Screw Pumps MCCs]	m	410				
b	95mm2 Kwena earthing conductor	m	410				
c	16mm2 x 4 core (Local DB Cable)	m	100				
d	10mm2 x 4 core (Internal Recycl Pumps cable)	m	2050				
e	4mm2 x 4 core (cable)	m	0				
e	6mm2 x 4 core (welding socket)	m	390				
f	1.5mm2 x 3 core (emergency stop cable)	m	2000				
TOTAL CARRIED FORWARD							

CITY OF TSHWANE
CONTRACT NO : RFP169/2024

ELECTRICAL SECTION: NORTH WORKS - REACTORS & SSTs

ITEM	DESCRIPTION	UNIT	QTY	UNIT LABOUR	RATES MATERIAL	TOTAL LABOUR	TOTAL MATERIAL
BROUGHT FORWARD							
3,4	LV CABLE TERMINATION: PVC/SWA/PVC Exe corrosion guard cable glands (IP68) complete including conductor & earth termination, lugs, tapes, drilling etc 300mm2 x						
a	4/C/AL/PVC/SWA/PVC (MCC supply)[Return Screw P/Stations Cable]	No	6				
b	150mm2 Kwena earthing conductor	No	6				
	185mm2 x	No	4				
	4/C/AL/PVC/SWA/PVC (MCC supply) [Humus p/s Cable for Internal Screw Pumps MCCs	No	4				
c	95mm2 Kwena earthing conductor	No	4				
d	16mm2 x 4 core (Local DB Cable)	No	10				
e	10mm2 x 4 core (Internal Recycl Pumps cable)	No	12				
e	4mm2 x 4 core (cable)	No	0				
e	6mm2 x 4 core (welding socket)	No	18				
f	1.5mm2 x 3 core (emergency stop cable)	No	36				
3,5	CABLE EXCAVATION:						
a	Pickable material	m ³	360				
b	Soft Rock	m ³	50				
c	Hard Rock	m ³	50				
d	Backfilling & Compaction	m ³	460				
3,6	CABLE ROUTE MARKERS: The supply and installation of concrete cable route markers	No	12				
3,7	CABLE LADDER AND TRAY: OL55 duplex coating (exterior polyester) 3CR12 cable ladder including all accessories mounted to concrete slabs / walls.						
a	100mm cable ladder	m	60				
b	100mm 90° bends	No	12				
c	T - Bends	No	12				
c	100mm duplex coating 3CR12 cable tray.	m	1100				
TOTAL CARRIED FORWARD							

CITY OF TSHWANE
CONTRACT NO : RFP169/2024

ELECTRICAL SECTION: NORTH WORKS - REACTORS & SSTs

ITEM	DESCRIPTION	UNIT	QTY	UNIT LABOUR	RATES MATERIAL	TOTAL LABOUR	TOTAL MATERIAL
BROUGHT FORWARD							
3,8	LOCAL EMERGENCY STOP STATIONS:						
a	Surface mounted IP65 emergency stop push buttons.	No	27				
b	Stainless Steel support stands Emergency Stop/Start Buttons	No	27				
3,9	Surface mounted 35A, 5 pin 3 phase welding socket including male plug, IP65. (Wall Mounted)	No	9				
LIGHTING AND SMALL POWER							
3,1	GALVANISED CONDUIT:						
a	Surface mounted 20mm galvanised conduit including couplings, galvanised saddles and all accessories.	m	360				
c	Surface mounted round galvanised 20mm conduit boxes including galvanised cover plate.	No	72				
3,11	PHOTO CELL:						
a	Royce Thompson photo cell including conduit box.	No	5				
3,12	WIRING PVC insulated copper conductors drawn into galvanised conduit:						
a	1.5mm2	m	0				
b	2.5mm2	m	400				
c	4.0mm2	m	600				
d	6.0mm2	m	160				
3,13	EARTH WIRING BCEW drawn into galvanised conduit:						
a	1.5mm2	m	0				
b	2.5mm2	m	140				
c	4.0mm2	m	200				
d	6.0mm2	m	60				
TOTAL CARRIED FORWARD							

CITY OF TSHWANE
CONTRACT NO : RFP169/2024

ELECTRICAL SECTION: NORTH WORKS - REACTORS & SSTs

ITEM	DESCRIPTION	UNIT	QTY	UNIT LABOUR	RATES MATERIAL	TOTAL LABOUR	TOTAL MATERIAL
BROUGHT FORWARD							
3,14	LUMINAIRES To be mounted to suspended ceilings and to brick walls:						
a	2 x 36W IP65 vapour proof LED luminaire complete Driver.	No	20				
b	2 x 36W IP65 vapour proof LED Emergency Maintained luminaire complete Driver.	No	10				
c	2 x 18W LED compact Outdoor bulkhead luminaire complete with Driver	No	12				
d	2 x 100W LED Floodlight with Driver Mounted on a 3.5m Stainless Steel Mast	No	9				
d	2 x 100W LED Floodlight with Driver Mounted on a 5.7m Stainless Steel Mast	No	60				
3,16	SOCKET OUTLETS Industrial surface mounted 16A single switched socket outlets.	No	5				
TOTAL CARRIED FORWARD TO SUMMARY							

CITY OF TSHWANE
CONTRACT NO : RFP169/2024

ELECTRICAL SECTION: NORTH WORKS - Chlorine & Final Effluent Dam

ITEM	DESCRIPTION	UNIT	QTY	UNIT LABOUR	RATES MATERIAL	TOTAL LABOUR	TOTAL MATERIAL
2	Schedule No 1 NORTH WORKS - INLET WORKS						
2,1	400A, 30kA three pole circuit breaker complete to be installed in existing Blower House M/S DB to Return Screw P/S 1 to 3	No	1				
2,2	Design , Manufacture, supply, off loading, installation & Commissioning of new Reactor 1 & 2 Return Cycle Pumps MCC as shown in the specifications and drawings. The MCC(Located in Hums P/S No.1) comprises of the Equip as per SLD RWWTW-E-BNR-01.	No	1				
2,3	LV CABLE PVC/SWA/PVC copper conductor cables strapped to cable ladders. (trenches, sleeves and cable terminations measured elsewhere):						
a	300mm ² x 4/C/AL/PVC/SWA/PVC (MCC supply) Cable	m	120				
b	150mm ² Kwena earthing conductor	m	120				
a	185mm ² x 4/C/AL/PVC/SWA/PVC	m	240				
b	95mm ² Kwena earthing conductor	m	240				
c	16mm ² x 4 core (Local DB Cable)	m	30				
d	10mm ² x 4 core	m	120				
e	4mm ² x 4 core (cable)	m	60				
e	6mm ² x 4 core (welding socket)	m	60				
f	1.5mm ² x 3 core (emergency stop cable)	m	400				
TOTAL CARRIED FORWARD							

CITY OF TSHWANE
CONTRACT NO : RFP169/2024

ELECTRICAL SECTION: NORTH WORKS - Chlorine & Final Effluent Dam

ITEM	DESCRIPTION	UNIT	QTY	UNIT LABOUR	RATES MATERIAL	TOTAL LABOUR	TOTAL MATERIAL
BROUGHT FORWARD							
3,4	LV CABLE TERMINATION: PVC/SWA/PVC Exe corrosion guard cable glands (IP68) complete including conductor & earth termination, lugs, tapes, drilling etc						
a	300mm2 x 4/C/AL/PVC/SWA/PVC	No	2				
b	150mm2 Kwena earthing conductor	No	2				
	185mm2 x 4/C/AL/PVC/SWA/PVC	No	8				
	95mm2 Kwena earthing conductor	No	8				
c	16mm2 x 4 core (Local DB Cable)	No	2				
d	10mm2 x 4 core	No	4				
e	4mm2 x 4 core (cable)	No	0				
e	6mm2 x 4 core (welding socket)	No	6				
f	1.5mm2 x 3 core (emergency stop cable)	No	12				
3,5	CABLE EXCAVATION:						
a	Pickable material	m ³	60				
b	Soft Rock	m ³	15				
c	Hard Rock	m ³	15				
d	Backfilling & Compaction	m ³	90				
3,6	CABLE ROUTE MARKERS: The supply and installation of concrete cable route markers	No	10				
3,7	CABLE LADDER AND TRAY: OL55 duplex coating (exterior polyester) 3CR12 cable ladder including all accessories mounted to concrete slabs / walls.						
a	100mm cable ladder	m	40				
b	100mm 90° bends	No	6				
c	T - Bends	No	6				
c	100mm duplex coating 3CR12 cable tray.	m	100				
3,8	LOCAL EMERGENCY STOP STATIONS:						
a	Surface mounted IP65 emergency stop push buttons.	No	8				
b	Stainless Steel support stands Emergency Stop/Start Buttons	No	8				
3,9	Surface mounted 35A, 5 pin 3 phase welding socket including male plug, IP65. (Wall Mounted)	No	3				
TOTAL CARRIED FORWARD							

CITY OF TSHWANE
CONTRACT NO : RFP169/2024

ELECTRICAL SECTION: NORTH WORKS - Chlorine & Final Effluent Dam

ITEM	DESCRIPTION	UNIT	QTY	UNIT LABOUR	RATES MATERIAL	TOTAL LABOUR	TOTAL MATERIAL
BROUGHT FORWARD							
3,1	LIGHTING AND SMALL POWER						
a	GALVANISED CONDUIT: Surface mounted 20mm galvanised conduit including couplings, galvanised saddles and all accessories.	m	100				
c	Surface mounted round galvanised 20mm conduit boxes including galvanised cover plate.	No	30				
3,11	PHOTO CELL:						
a	Royce Thompson photo cell including conduit box.	No	1				
3,12	WIRING PVC insulated copper conductors drawn into galvanised conduit:						
a	1.5mm2	m	0				
b	2.5mm2	m	300				
c	4.0mm2	m	400				
d	6.0mm2	m	100				
3,13	EARTH WIRING BCEW drawn into galvanised conduit:						
a	1.5mm2	m	0				
b	2.5mm2	m	100				
c	4.0mm2	m	130				
d	6.0mm2	m	40				
TOTAL CARRIED FORWARD							

CITY OF TSHWANE
CONTRACT NO : RFP169/2024

ELECTRICAL SECTION: NORTH WORKS - Chlorine & Final Effluent Dam

ITEM	DESCRIPTION	UNIT	QTY	UNIT LABOUR	RATES MATERIAL	TOTAL LABOUR	TOTAL MATERIAL
BROUGHT FORWARD							
3,14	LUMINAIRES To be mounted to suspended ceilings and to brick walls:						
a	2 x 36W IP65 vapour proof LED luminaire complete Driver.	No	6				
b	2 x 36W IP65 vapour proof LED Emergency Maintained luminaire complete Driver.	No	2				
c	2 x 18W LED compact Outdoor bulkhead luminaire complete with Driver	No	4				
d	2 x 100W LED Floodlight with Driver Mounted on a 3.5m Stainless Steel Mast	No	0				
d	2 x 100W LED Floodlight with Driver Mounted on a 5.7m Stainless Steel Mast	No	2				
3,16	SOCKET OUTLETS Industrial surface mounted 16A single switched socket outlets.	No	2				
TOTAL CARRIED FORWARD TO SUMMARY							

CITY OF TSHWANE
CONTRACT NO : RFP169/2024

ELECTRICAL SECTION: NORTH WORKS - WAS & DEWATERING WORKS

ITEM	DESCRIPTION	UNIT	QTY	UNIT LABOUR	RATES MATERIAL	TOTAL LABOUR	TOTAL MATERIAL
2	Schedule No 1 NORTH WORKS - INLET WORKS						
2,1	400A, 30kA three pole circuit breaker complete to be installed in existing Minisub	No	1				
2,2	Design , Manufacture, supply, off loading, installation & Commissioning of new Dewatering MCC as shown in the specifications and drawings.	No	1				
2,3	Refurbish existing MCC by Repalcing Aux. Equipment (New Power Meter, Ammeters, Voltmeters, Hour Meters) and rewire existing MCCs as shown in the specifications and drawings(Single Line Diagrams). The refurbishment works are stated in the Scope of Works Document for WAS and Aerobic Sludge P/S MCCs	No	2				
2,3	LV CABLE PVC/SWA/PVC copper conductor cables strapped to cable ladders. (trenches, sleeves and cable terminations measured elsewhere):						
a	300mm2 x 4/C/AL/PVC/SWA/PVC (MCC supply) Cable	m	0				
b	150mm2 Kwena earthing conductor	m	0				
a	185mm2 x 4/C/AL/PVC/SWA/PVC	m	100				
TOTAL CARRIED FORWARD							

CITY OF TSHWANE
CONTRACT NO : RFP169/2024

ELECTRICAL SECTION: NORTH WORKS - WAS & DEWATERING WORKS

ITEM	DESCRIPTION	UNIT	QTY	UNIT LABOUR	RATES MATERIAL	TOTAL LABOUR	TOTAL MATERIAL
BROUGHT FORWARD							
b	95mm2 Kwena earthing conductor	m	100				
c	16mm2 x 4 core (Local DB Cable)	m	60				
d	10mm2 x 4 core	m	200				
e	4mm2 x 4 core (cable)	m	120				
e	6mm2 x 4 core (welding socket)	m	120				
f	1.5mm2 x 3 core (emergency stop cable)	m	600				
3,4	LV CABLE TERMINATION: PVC/SWA/PVC Exe corrosion guard cable glands (IP68) complete including conductor & earth termination, lugs, tapes, drilling etc						
a	300mm2 x 4/C/AL/PVC/SWA/PVC	No	0				
b	150mm2 Kwena earthing conductor	No	0				
	185mm2 x 4/C/AL/PVC/SWA/PVC	No	2				
	95mm2 Kwena earthing conductor	No	2				
c	16mm2 x 4 core (Local DB Cable)	No	2				
d	10mm2 x 4 core	No	4				
e	4mm2 x 4 core (cable)	No	0				
e	6mm2 x 4 core (welding socket)	No	6				
f	1.5mm2 x 3 core (emergency stop cable)	No	12				
3,5	CABLE EXCAVATION:						
a	Pickable material	m ³	70				
b	Soft Rock	m ³	20				
c	Hard Rock	m ³	20				
d	Backfilling & Compaction	m ³	110				
3,6	CABLE ROUTE MARKERS: The supply and installation of concrete cable route markers	No	6				
TOTAL CARRIED FORWARD							

ELECTRICAL SECTION: NORTH WORKS - WAS & DEWATERING WORKS

ITEM	DESCRIPTION	UNIT	QTY	UNIT	RATES	TOTAL	TOTAL
		UNIT	QTY	LABOUR	MATERIAL	LABOUR	MATERIAL
BROUGHT FORWARD							
3,7	CABLE LADDER AND TRAY: OL55 duplex coating (exterior polyester) 3CR12 cable ladder including all accessories mounted to concrete slabs / walls.						
a	100mm cable ladder	m	30				
b	100mm 90° bends	No	4				
c	T - Bends	No	4				
c	100mm duplex coating 3CR12 cable tray.	m	80				
3,8	LOCAL EMERGENCY STOP STATIONS: Surface mounted IP65 emergency stop push buttons.	No	6				
b	Stainless Steel support stands Emergency Stop/Start Buttons	No	6				
3,9	Surface mounted 35A, 5 pin 3 phase welding socket including male plug, IP65. (Wall Mounted)	No	4				
LIGHTING AND SMALL POWER							
3,1	GALVANISED CONDUIT: Surface mounted 20mm galvanised conduit including couplings, galvanised saddles and all accessories.	m	60				
c	Surface mounted round galvanised 20mm conduit boxes including galvanised cover plate.	No	16				
3,11	PHOTO CELL:						
a	Royce Thompson photo cell including conduit box.	No	2				
TOTAL CARRIED FORWARD							

CITY OF TSHWANE
CONTRACT NO : RFP169/2024

ELECTRICAL SECTION: NORTH WORKS - WAS & DEWATERING WORKS

ITEM	DESCRIPTION	UNIT	QTY	UNIT LABOUR	RATES MATERIAL	TOTAL LABOUR	TOTAL MATERIAL
BROUGHT FORWARD							
3,12	WIRING PVC insulated copper conductors drawn into galvanised conduit:						
a	1.5mm2	m	0				
b	2.5mm2	m	200				
c	4.0mm2	m	300				
d	6.0mm2	m	120				
3,13	EARTH WIRING BCEW drawn into galvanised conduit:						
a	1.5mm2	m	0				
b	2.5mm2	m	130				
c	4.0mm2	m	100				
d	6.0mm2	m	60				
3,14	LUMINAIRES To be mounted to suspended ceilings and to brick walls:						
a	2 x 36W IP65 vapour proof LED luminaire complete Driver.	No	6				
b	2 x 36W IP65 vapour proof LED Emergency Maintained luminaire complete Driver.	No	2				
c	2 x 18W LED compact Outdoor bulkhead luminaire complete with Driver	No	4				
d	2 x 100W LED Floodlight with Driver Mounted on a 3.5m Stainless Steel Mast	No	0				
d	2 x 100W LED Floodlight with Driver Mounted on a 5.7m Stainless Steel Mast	No	4				
3,16	SOCKET OUTLETS Industrial surface mounted 16A single switched socket outlets.	No	4				
TOTAL CARRIED FORWARD TO SUMMARY							

CITY OF TSHWANE
CONTRACT NO : RFP169/2024

ELECTRICAL SECTION: NORTH WORKS - WEST WORKS

ITEM	DESCRIPTION	UNIT	QTY	UNIT LABOUR	RATES MATERIAL	TOTAL LABOUR	TOTAL MATERIAL
2	Schedule No 1 NORTH WORKS - INLET WORKS						
2,1	Design , Manufacture, supply, off loading, installation & Commissioning of new West Works MCC as shown in the specifications and drawings.	No	1				
2,3	LV CABLE PVC/SWA/PVC copper conductor cables strapped to cable ladders. (trenches, sleeves and cable terminations measured elsewhere):						
a	300mm2 x 4/C/AL/PVC/SWA/PVC (MCC supply) Cable	m	200				
b	150mm2 Kwena earthing conductor	m	200				
a	185mm2 x 4/C/AL/PVC/SWA/PVC	m	100				
b	95mm2 Kwena earthing conductor	m	100				
c	16mm2 x 4 core (Local DB Cable)	m	30				
d	10mm2 x 4 core	m	500				
e	4mm2 x 4 core cable	m	600				
e	6mm2 x 4 core (welding socket)	m	300				
f	1.5mm2 x 3 core (emergency stop cable)	m	300				
3,4	LV CABLE TERMINATION: PVC/SWA/PVC Exe corrosion guard cable glands (IP68) complete including conductor & earth termination, lugs, tapes, drilling etc						
a	300mm2 x 4/C/AL/PVC/SWA/PVC	No	2				
b	150mm2 Kwena earthing conductor	No	2				
	185mm2 x 4/C/AL/PVC/SWA/PVC	No	4				
	95mm2 Kwena earthing conductor	No	4				
TOTAL CARRIED FORWARD							

CITY OF TSHWANE
CONTRACT NO : RFP169/2024

ELECTRICAL SECTION: NORTH WORKS - WEST WORKS

ITEM	DESCRIPTION	UNIT	QTY	UNIT LABOUR	RATES MATERIAL	TOTAL LABOUR	TOTAL MATERIAL
BROUGHT FORWARD							
c	16mm2 x 4 core	No	19				
d	10mm2 x 4 core	No	10				
e	4mm2 x 4 core (cable)	No	12				
e	6mm2 x 4 core	No	6				
f	1.5mm2 x 3 core (emergency stop cable)	No	20				
3,5	CABLE EXCAVATION:						
a	Pickable material	m ³	100				
b	Soft Rock	m ³	20				
c	Hard Rock	m ³	20				
d	Backfilling & Compaction	m ³	140				
3,6	CABLE ROUTE MARKERS: The supply and installation of concrete cable route markers	No	10				
3,7	CABLE LADDER AND TRAY: OL55 duplex coating (exterior polyester) 3CR12 cable ladder including all accessories mounted to concrete slabs / walls.						
a	100mm cable ladder	m	100				
b	100mm 90° bends	No	10				
c	T - Bends	No	8				
c	100mm duplex coating 3CR12 cable tray.	m	600				
3,8	LOCAL EMERGENCY STOP STATIONS:						
a	Surface mounted IP65 emergency stop push buttons.	No	10				
b	Stainless Steel support stands Emergency Stop/Start Buttons	No	10				
3,9	Surface mounted 35A, 5 pin 3 phase welding socket including male plug, IP65. (Wall Mounted)	No	4				
3,1	LIGHTING AND SMALL POWER						
a	GALVANISED CONDUIT: Surface mounted 20mm galvanised conduit including couplings, galvanised saddles and all accessories.	m	200				
c	Surface mounted round galvanised 20mm conduit boxes including galvanised cover plate.	No	50				
TOTAL CARRIED FORWARD							

CITY OF TSHWANE
CONTRACT NO : RFP169/2024

ELECTRICAL SECTION: NORTH WORKS - WEST WORKS

ITEM	DESCRIPTION	UNIT	QTY	UNIT LABOUR	RATES MATERIAL	TOTAL LABOUR	TOTAL MATERIAL
BROUGHT FORWARD							
3,11	PHOTO CELL: Royce Thompson photo cell including conduit box.	No	2				
3,12	WIRING PVC insulated copper conductors drawn into galvanised conduit:						
a	1.5mm2	m	0				
b	2.5mm2	m	300				
c	4.0mm2	m	500				
d	6.0mm2	m	90				
3,13	EARTH WIRING BCEW drawn into galvanised conduit:						
a	1.5mm2	m	0				
b	2.5mm2	m	100				
c	4.0mm2	m	170				
d	6.0mm2	m	30				
3,14	LUMINAIRES To be mounted to suspended ceilings and to brick walls:						
a	2 x 36W IP65 vapour proof LED luminaire complete Driver.	No	6				
b	2 x 36W IP65 vapour proof LED Emergency Maintained luminaire complete Driver.	No	2				
c	2 x 18W LED compact Outdoor bulkhead luminaire complete with Driver	No	4				
d	2 x 100W LED Floodlight with Driver Mounted on a 3.5m Stainless Steel Mast	No	0				
d	2 x 100W LED Floodlight with Driver Mounted on a 5.7m Stainless Steel Mast	No	10				
3,16	SOCKET OUTLETS Industrial surface mounted 16A single switched socket outlets.	No	4				
TOTAL CARRIED FORWARD							

CITY OF TSHWANE
CONTRACT NO : RFP169/2024

ELECTRICAL SECTION: NORTH WORKS - WEST WORKS

ITEM	DESCRIPTION	UNIT	QTY	UNIT LABOUR	RATES MATERIAL	TOTAL LABOUR	TOTAL MATERIAL
BROUGHT FORWARD							
2.9.7	INSTRUMENTATION CABLES Dekoron or similar approved SW armoured electronic instrument cable strapped to cable ladder & laid in cable trench (type M872 individually & overall screened pairs) (cable ladder, trenching and cable terminations measured elsewhere):						
a	1mm2 x 1 pair	m	150				
b	1mm2 x 2 pair	m	150				
2.9.8	LV CABLE TERMINATION PVC/SWA/PVC Exe corrosion guard cable glands (IP68) complete including conductor & earth termination, lugs, heatshrink, drilling, etc:						
a	1mm2 x 1 pair	No	12				
b	1mm2 x 2 pair	No	12				
2.9.9	ULTRASONIC LEVEL DETECTOR:						
a	FDU92 level sensor including 20m of cable.	No	1				
b	304 stainless steel support bracket for the sensor head.	No	1				
c	FMU90 ultrasonic level transmitter.	No	1				
d	Programming of the ultrasonic level transmitter.	No	1				
e	FEB for the transmitter including terminals, surge arrestors, circuit breaker & stainless steel pedestal.	No	1				
2.9.11	ULTRASONIC OPEN CHANNEL FLOW METER:						
a	FDU92 flow sensor including 20m of cable.	No	1				
b	304 stainless steel support brackets for the sensor head.	No	1				
c	FMU90 ultrasonic flow transmitter.	No	1				
d	Programming of the ultrasonic flow transmitter.	No	1				
e	FEB for the transmitter including terminals, surge arrestors, circuit breaker & stainless steel pedestal.	No	1				
TOTAL CARRIED FORWARD TO SUMMARY							

CITY OF TSHWANE
CONTRACT NO : RFP169/2024

ELECTRICAL SECTION: IT NETWORKS

				PRICES			
ITEM	DESCRIPTION		EST	UNIT	RATES	TOTAL	TOTAL
		UNIT	QTY	LABOUR	MATERIAL	LABOUR	MATERIAL
6	Schedule No 6 IT / NETWORK:						
6,1	PVC/SWA/PVC 4 core multi mode fiber optic cable. To be installed in cable trench.	m	800				
6,2	CABLE EXCAVATION:						
a	Pickable material	m3	140				
b	Backfilling of cable trenches.	m3	80				
c	PVC warning tape	m	80				
d	Concrete cable route markers	No	22				
6,3	Splicing of fibre optic cores	No	12				
TOTAL CARRIED FORWARD TO SUMMARY						R -	R -

Mechanical Bill of Quantities
Mechanical Summary
Rooiwal Water Treatment Plant Contract No: RFP169/2024

Item	Description	Amount
1	Bill No 1-Rooiwall North Mechanical	
2	Bill No 2-Rooiwall West Mechanical	
	Total Carried forward to Main Summary Exclusive of VAT	

**Mechanical Bill of Quantities
North Water Treatment Works
Rooiwal Water Treatment Plant
Contract No:RFP169/2024**

Item	Description	Unit	Quantity	Rate	Total
1	<u>Inlet Water Treatment Works</u>				
1,01	Replace existing 2000mm x 3000 x 50mm spaced coarse grit screens with new Stainless steel Grade 316 or equivalently Aluminium Screens designed to match a channel throat.	ea	3		
1,02	Supply and Install mechanical rakes to match new coarse screens complete IP68 Rated Motor, gearbox and variable frequency control, and mechanical arms with capabilities of about 50kg of debris per cycle, with provision for remote monitoring and control.	ea	3		
1,03	Decommission existing conveyor Belt system including screening bin	ea	2		
1,04	Upgrade, supply, install and commission Heavy Duty conveyor belt system minimum 800mm wide and 10mm thick with anti static and high grip surface pattern or equivalently better. The system must be installed with oblique arranged conveyor rollers and idlers to give the Belt a U Shaped profile and must be complimented with custom Side guides for spillage control.Motor and drive must IP68 Rated to handle the environment with provision for incorporation to remote monitoring.The works must be programmed so that they do not interfere with the operations of the water treatment works.	ea	2		
1,05	Supply and install a new screening bin with heavy gauge steel, inspection hatches and a discharge mechanism suitable for heavy and wet debris.	ea	2		
1,06	Provision for supply and install Reciprocating scraping mechanism to match.	ea	2		
TOTAL CARRIED FORWARD					

BROUGHT FORWARD					
2	Grit Chambers				
2,01	Replace existing Degritter Pumps with Gorman Rupp Model T3A71S-BFM or equivalently approved complete with variable speed drives and remote monitoring capabilities.	ea	6		
2,02	Replace 200 dia flexible hoses for the Degritter Pumps x 15m.	ea	6		
2,03	Decommission and remove cast iron degritter pipework and fittings.	ea	1		
2,04	Replace 200 dia cast iron piping with heavy duty Heavy Duty PVC to handle degritting to the grit classifier complete with fittings(Valves),hangers and brackets.	sum	1		
2,05	Decommission and remove existing Grit Classifiers.	ea	2		
2,06	Replace and upgrade the grit classifier complete with variable drive, provision for remote monitoring and automation capabilities. This includes complete replacement of the screw conveyor and replacement of the grit bins.	ea	6		
2,07	Supply and Install new Hoist System for Degritter Pumps.	ea	6		
TOTAL CARRIED FORWARD					

BROUGHT FORWARD					
3	<u>Primary Settling Tanks</u>				
3,01	Replace 15kW Motors for Settling Tank Bridges include variable control .	ea	4		
3,02	Disassemble the main bridge structure, remove from PST, identify and replace the centre bearing, replace bridge drive gearbox and motor, replace the rolling whells, refurbish and repaint the main bridge structure, refurbish and repaint the handrailing, repaint, and reassemble into position, test and commission equipment.	ea	4		
3,03	Decommssioning and removal of existing desludging pumps.	ea	3		
3,04	Supply and install PST Desludging Pumps-Gorman Rupp T63AS self priming pumps complete with speed control and remote monitoring capabilities.	ea	3		
3,05	Valves and other fittings to accompany the desludging valves.	ea	3		
4	<u>Biological Reactors</u>				
4,01	Decommission existing Pumps.	ea	18		
4,02	Replace all internal return sludge pumps with Gorman Rupp T6A3S complete with variable speed control and remote monitoring capabilities.	ea	18		
4,03	Installation kit of the pumps inclusive of strainers and isolating valves and other accompanying fittings.	ea	18		
4,04	Remove and replace existing Submersible 10kw Mixers for Anaerobic Zone.	ea	12		
4,05	Remove and Replace existing submersible 10kw mixers for Anoxic Zone.	ea	12		
TOTAL CARRIED FORWARD					

BROUGHT FORWARD					
4,06	Comprehensive Refurbishment of the outlet sluice gates.	ea	18		
4,07	Refurbishment of the scum removers.	ea	18		
4,08	Replacement of the airflow meters for Anaerobic Zone.	ea	4		
4,09	Replacement of the Airflow meters for Anoxic Zone.	ea	4		
4,1	Replacement of air compression equipment preferably Atlas copco complete with desiccant dryers, compressed air receivers and control panels.	ea	2		
4,11	Provision for repairs to the compressed air line.	ea	1		
5 <u>Secondary Sedimentation Treatment</u>					
5,01	Remove existing Telescopic Handvalves.	ea	6		
5,02	Replace with Motorised or Actuated 400dia valve for return activated sludge equipped with electronic control for flow regulation and remote operation capabilities.	ea	6		
5,01	Total Refurbishment of all the SST /Clarifier Bridge. This includes removal and replacement of centre bearings, drives and motors and reinstate bridges to full functionality.	ea	18		
5,03	Replace manual 450 dia scour hand valves to the dissolved air flotation plant.	ea	6		
TOTAL CARRIED FORWARD					

BROUGHT FORWARD					
	<u>Waste Activated Sludge</u>				
6	<u>Pumpstation</u>				
	Total Refurbishment of the entire pumpstation including new piping, new sludge pumps, valves, flow meters, actuated sluice gates piping, electricals, controls and instrumentation as well as inclusion of remote monitoring and operation systems.				
6,01	Waste Activated Sludge Gorman Rupp Pumps or equivalently Better complete with Motor and control panelling with provision for remote monitoring and control.	ea	3		
6,02	Supply and Install of piping, gate valves, actuators, strainers, couplings and all accompanying pipe fittings.	lot	1		
6,03	Flowmeters complete with accompanying components.	ea	2		
	<u>Balancing Tank Pumpstation</u>				
7	Removal of all Endsuction Balancing Pumps.	ea	3		
7,01	Supply and installation of Gorman Rupp VS6A60 End suction Pumps including motors, variable speed control, panelling with provision for remote monitoring and control.	ea	3		
7,02	Supply and install flooding submissible emegency pump.	ea	1		
7,03	Piping ,fittings hangers and brackets to accompany installtion	sum	1		
	<u>Total carried forward to Mechanical Summary</u>				

**Mechanical Bill of Quantities
West Water Treatment Works
Rooiwal Water Treatment Plant
Contract Number : RFP169/2024**

Item	Description	Unit	Quantity	Rate	Total
1	<u>Farmers Pump Station</u>				
1,01	Decommission and remove pumps and equipment in the pump station	ea	3		
1,02	Supply ,install and commission Gorman Rupp VS6A60-BFM or equivalently better Centrifugal Complete with new baseplate, variable speed drive and control panel to run on a two duty one standby basis	ea	3		
1,03	Supply and Install piping,valves,flowmeters and accompanying fittings for the new Pumps	ea	3		
	Return Activated Sludge Internal				
2	<u>Recirculation Pumpstation</u>				
2,01	Decommission and remove pump and equipment in the pump station	ea	3		
2,02	Supply ,install and commission new Gorman Rupp T6A3S-BFM Pumps Complete with new variable speed drive and control panel programmed to run on a two duty one standby basis	ea	3		
2,03	Supply and Install piping,valves,flowmeters and accompanying fittings for the new Pumps	ea	3		
TOTAL CARRIED FORWARD					

BROUGHT FORWARD					
3	Waste Activated Sludge Pumpstation				
3,01	Decommission and remove pump and equipment in the pump station	ea	3		
3,02	Supply ,install and commision new Gorman Rupp T6A3S-BFM Pumps Complete with new variable speed drive and control panel programmed to run on a two duty one standby basis	ea	3		
3,03	Supply and Install piping,valves,flowmeters and accompanying fittings for the new Pumps	ea	3		
4	Anaerobic Digesters				
4,01	Replace all isolating valves 200NB Manual Valves at the 7 Anaerobic digesters	ea	42		
	<u>Total carried forward to Mechanical Summary</u>				