

C2.3 BILLS OF QUANTITIES					
Project title:	WATERPROOF AND INSTALL SUBMERSIBLE SUMP PUMPS IN ALL THIRTEEN (13) LIFT PITS				
Tender no:	ZNB 5896/2024-H	Project Code:	0222741		
Item No	Description	Unit	Quantity	Rate	Amount
A	<u>BILL No. 1</u>				
1.	<u>PRELIMINARIES</u>				
1.1	Preliminaries & General	Item	1		
	Carried to Summary				
B	<u>BILL No. 2</u>				
2.	<u>ALTERATIONS</u>				
2.1	<u>SUPPLEMENTARY PREAMBLES</u>				
2.1.1	<u>View site</u>				
2.1.1.1	Before <u>submitting his tender</u> the contractor shall visit the site and satisfy himself as to the nature and extent of the work to be done and the value of the materials contained in the buildings or portions of the buildings to be demolished. No claim for any variations of the contract sum in respect of the nature and extent of the work or of inferior or damaged materials will be entertained	Item			
2.1.2	<u>Explosives</u>				
2.1.2.1	No explosives whatsoever may be used for demolition purposes unless otherwise stated				
2.1.3	<u>General</u>				
2.1.3.1	The contractor shall carry out the whole of the works with as little mess and noise as possible and with a minimum of disturbance to adjoining premises and their tenants. He shall provide proper protection and provide, erect and remove when directed, any temporary tarpaulins that may be necessary during the progress of the works, all to the satisfaction of the principal agent				
2.2	<u>CONFINED SPACE</u>				
	Contractor to make adequate provision for mandatory equipment that is prescribed by the OHS Act 85 for working in CONFINED SPACES -				
2.2.1	The key elements of a safe system of work for a confined space: - Competence, training, supervision and suitability. - Permit-to-work procedure. - Gas purging and ventilation. - Dangerous residues. - Testing and monitoring of the atmosphere. - Mechanical, electrical and process isolation. - Respiratory protective equipment.	Item	1		
	Carried to Summary				

3.	<u>REMOVAL OF EXISTING WORK</u>					
3.1	<u>SUMP PUMP FLOORS</u>					
3.1.1	<u>Removing existing screed</u>					
3.1.2	Remove existing floor screed in all 13xlift shaft floors in such a way to construct/cast new screed	m²	90			
3.1.3	Allow provisional sum for minor Concrete works on all 13xlift shaft Concrete floors with a view to reinstate to it's original condition	Item	13	R	20 000,00	R 20 000,00
3.1.4	Allow provisional sum to alter all 13x sumps in all lift shafts in such a way that the selected sump pump is installed with ease and the top of the pump is flush with the concrete floor	Item	13	R	20 000,00	R 20 000,00
3.1.5	Cart-away from site all existing debris and removed floor screed in all 13xlift shaft floors	m²	90			
3.1.6	Construct/cast new 20mm Thick screed on all 13xlift shaft floors in patches with rough finishing in order to ensure maximum adhesion of the prescribed waterproofing	m²	90			
3.2	<u>SUMP PUMP WALLS</u>					
3.2.1	<u>Rehabilitation of all lift shaft partitioning Brick walls</u>					
3.2.2	Allow provisional sum for minor brickwork on all partitioning walls to lift shafts with a view to reinstate to it's original condition	Item	1	R	20 000,00	R 20 000,00
3.2.3	<u>Rehabilitation of all lift shaft partitioning Concrete walls</u>					
3.2.4	Allow provisional sum for minor Concrete works on all partitioning walls to lift shafts with a view to reinstate to it's original condition	Item	1	R	20 000,00	R 20 000,00
3.2.5	<u>Removal of Efflorescence on existing walls</u>					
3.2.6	Removal of efflorescence on existing concrete wall using water pressure cleaning system with a cleaning compound and steel brushes and remove all dirt and loose particles, in order to achieve maximum adhesion for waterproofing purposes.	m²	130			
3.3	<u>WHEEL CHAIR RAMPS ON MAIN 4 CORE LIFTS</u>					
3.3.1	Construct wheel chair ramps (approximately: 2m wide x 1m long x 0,2m high) only on the main 4 core lifts in all 15 floors	Item	52			
	Carried to Summary					

Item No	Description	Unit	Quantity	Rate	Amount
C	BILL NO. 3				
4.	<u>WATERPROOFING</u>				
4.1	<u>PREAMBLES</u>				
4.2	<u>SUPPLEMENTARY PREAMBLES</u>				
4.2.1	Waterproofing Product Specification Derbigum GC (A tougher, heavier duty version of Derbigum Black), Med Grey: RAL 7037 Ensure that all works are carried out through competent supervision. A competent person should be present at all times during the activities. Ensure that the appropriate ppe is used during the waterproofing application of all lift pits. Ensure that all products/materials/etc are non-flammable given the torch supplication that will be adopted in all lift pits. Derbigum waterproofing is to be laid in strict accordance with Derbigum's Code of Practice by an Approved Derbigum Contractor				
4.2.2	<u>Application</u>				
4.2.3	Waterproofing of all 13xlift shafts shall be laid under a ten (10) year guarantee, for both product and application.	Item	1		
4.2.4	Make provision for artificial lighting (LED flood lights) during application of product to ensure that all works done in confined spaces have adequate lighting	Item	1		
4.2.5	Make provision to remove stagnant water in all 13xlift shaft pits using a suitable de-watering pump to ensure all lift pits are free from water and are continuously kept dry during the entire construction period	Item	1		
4.2.6	Make provision for mechanical ventilation (extractor fans) during application of product to ensure confined spaces are free from toxic fumes	Item	1		
4.2.10	Derbigum waterproofing is to be laid in strict accordance with Derbigum's Code of Practice by an Approved Derbigum Contractor				
4.2.11	Preparation of substrata: Screeded roof surfaces shall be firm, dry and clean. Corners shall be coved or arris rounded. All surfaces to receive Derbigum are to be fully primed with a solvent based bitumen primer				
4.3	<u>WATERPROOFING TO ROOFS, BASEMENTS, ETC</u>				
4.3.1	Apply 4mm "Derbigum " polyester elastomeric waterproof sheeting (4mm "Abedex") laid 'torched' in long lengths with lapped sides and ends in strict accordance with manufacturers instructions and applied by the approved installer. The installer to attend compulsory site inspection. The contractor cannot change the installer approved at tender, unless prior approval is received from the Engineer/Client (DOH).				
4.3.2	On concrete floors	m²	81,25		
4.3.3	On concrete walls	m²	130		
4.3.4	<u>Two coats bitumen emulsion waterproof coating</u>				
4.3.5	Primer and two coats heavy duty bitumen emulsion waterproof coating				
4.3.6	On concrete floors	m²	81,25		
4.3.7	On concrete walls	m²	130		
	Carried to summary page				

Item No	Description	Unit	Quantity	Rate	Amount
D	<u>BILL No 4</u>				
5	<u>PLUMBING AND DRAINAGE</u>				
5.1	<u>SUPPLEMENTARY PREAMBLES</u>				
5.1.1	<u>uPVC pipes and fittings</u> Sewer and drainage pipes and fittings shall be jointed and sealed with butyl rubber rings				
5.1.2	<u>uPVC pressure pipes and fittings</u> Pipes of 50mm diameter and smaller shall be plain ended with solvent welded uPVC loose and fittings	Item	1	R 50 000,00	R 50 000,00
5.1.3	<u>Reducing fittings</u> Where fittings have reducing ends or branches they are described as "reducing" and only the largest end or size is given. Should the contractor wish to use other and bushes or reducers he may do so on the that no claim in this regard will be entertained				
6	<u>STORMWATER DRAINAGE</u>				
6.1	<u>The following inspection chambers, catchpits, etc which are given in numbers may also, according to the standard System, be measured in detail.</u>				
6.2	<u>PRESSURE TESTS OF EXISTING PIPES</u>				
6.2.1	Pressure test all 13xsump pump delivery lines, with a view to replace/repair sections where needed	Item	13		
6.2.2	Ensure all 13xsump pump delivery lines are not connected to the existing wastewater lines (i.e. all sump pump delivery lines should be independant from wastewater and should terminate at the closest storm water drain	Item	13		
6.2.3	Supply, install and commission 15xSubmersible sump pumps (Install 13xSubmersible sump pumps and 2xSubmersible sump pumps to be kept as spares)	Item	15		
6.2.4	50mm 90 degrees PVC elbow fitting to sump pumps	No	13		
	Carried to summary page				

Item No	Description	Unit	Quantity	Rate	Amount
E	BILL NO. 4				
5.	<u>MECHANICAL WORKS</u>				
4.1	<u>PREAMBLES</u>				
4.2	<u>SUPPLEMENTARY PREAMBLES</u>				
	Supply and Install				
	Supply, deliver and install 15xSubmersible sump pumps (2 shall be kept as spares) including all auxiliary i.e. elbow connector, couplings and fittings etc. Pump should have the following characteristics				
	Operating Range: From 0 to 32m3/h with head up to 14 metres.				
	Pumped Liquid: Underground water in general, non aggressive				
	Free Passage: 50mm				
	Liquid temperature range: From 0 degrees to +35 degrees for domestic use				
	From 0 degrees to +50 degrees for other use				
4.2.1	Maximum ambient temperature for operation with motor above water: +40 degrees	No	13		
	Maximum immersion depth: 7 metres				
	Motor protection class: IP 68				
	Insulation Class: F				
	Standard Voltage: 220-240V -50Hz single phase.				
	380-415V - 50Hz three-phase				
	Power cable: 10 metre H07RN-F, with plug for the single-phase version.				
	Installation: Fixed or portable, vertical position				
	Applications: Stainless steel submersible centrifugal pump with microcast steel liquid vortex impeller, suitable for draining water in general containing solid matter with size up to 50mm				
	Carried to summary page				

Item	Description	Unit	Quantity	Rate	Amount
F	<u>BILL No. 6</u>				
6	<u>ELECTRICAL WORKS</u>				
6.1	PREAMBLES				
6.2	<u>SUMP PUMP CONTROL AND MONITORING SYSTEM</u>				
	Design, supply, install sump pump control and monitoring system				
	The controller is solid state with a NEMA 4x enclosure rating which allows it to be mounted in the elevator pit. The controller is equipped with a high liquid audible alarm and available with a dry N. O. or N. C. contact for remote monitoring.				
6.2.1	Under normal conditions (water in sump pit) the pump relay will initiate the pump to turn on when the water level rises to approximately 200mm; it will pump until the water level lowers to approximately 100mm.	No	1		
	The monitoring and control panel indicate the following: The pump alarm indicator (red) will light when there is a pump fault The pump on indicator (green) will light when the pump is running The high level alarm indicator will light when the water level in the is too high The alarm reset button is used to reset the control panel when a fault is indicated				
6.2.2	Labelling of control and monitoring panel	No	1		
6.2.3	Control cable	No	1		
6.2.4	Power cable to form DB to the sump pumps	No	1		
6.2.5	Provide electrical certificate of compliance for all the installations (as per this Scope of Works)	No	1		
	Carried to summary page				

Item	Description	Unit	Quantity	Rate	Amount
G	<u>BILL No. 7</u>				
7	<u>3-YR ROUTINE MAINTENANCE CONTRACT</u>				
	Routine Maintenance for year 1 Conduct a comprehensive three (3) year Routine Maintenance for both the Mechanical and Electrical infrastructure installed under this contract				
	1) Waterproofing and civil modifications <u>Minimum level of Manpower required</u> 1xArtisan: Bricklaying & Plastering 2xGeneral Worker <u>Scope of Works</u> <ul style="list-style-type: none"> • Clean all 13xlift pits • Inspect integrity of waterproofing on all 13xlift pits • Produce and submit a report <u>Frequency of interventions</u> Once a year				
7.1	2) Plumbing works <u>Minimum level of Manpower required</u> 1xArtisan: Plumber 2xGeneral Worker <u>Scope of Works</u> <ul style="list-style-type: none"> • Inspect integrity of all 13xsump pump delivery lines • Repair/replace sections where leaks are observed • Clean all 13xlift pits delivery lines • Check for any loose connections • Produce and submit a report <u>Frequency of interventions</u> Twice a year	No	1		
	3) Submersible sump pumps <u>Minimum level of Manpower required</u> 1xArtisan: Fitter & turner 2xGeneral Worker <u>Scope of Works</u> <ul style="list-style-type: none"> • Inspect, service & clean all 13xsump pumps • Clean all 13xsumps & sieves • Check for any loose connections • Produce and submit a report <u>Frequency of interventions</u> Twice a year				
	4) Electrical panel <u>Minimum level of Manpower required</u> 1xArtisan: Electrical 1xGeneral Worker <u>Scope of Works</u> <ul style="list-style-type: none"> • Inspect & clean (inside and outside) electrical panel • Check for any loose connections • Test all systems • Produce and submit a report <u>Frequency of interventions</u> Once a year				
7.2	Routine Maintenance for year 2 Conduct a comprehensive three (3) year Routine Maintenance for both the Mechanical and Electrical infrastructure installed under this contract Scope of work, level of manpower and frequency shall remain the same as in Yr 1 above	No	1		
7.3	Routine Maintenance for year 3 Conduct a comprehensive three (3) year Routine Maintenance for both the Mechanical and Electrical infrastructure installed under this contract Scope of work, level of manpower and frequency shall remain the same as in Yr 1 above	No	1		
	Carried to Summary				

Item	Description	Amount
A	<u>BILL No. 1:</u> PRELIMINARIES & GENERAL	R
B	<u>BILL No. 2:</u> ALTERATIONS	R
C	<u>BILL No. 3:</u> WATERPROOFING	R
D	<u>BILL No 4:</u> PLUMBING AND DRAINAGE	R
E	<u>BILL No. 5:</u> MECHANICAL WORKS	R
F	<u>BILL No. 6:</u> ELECTRICAL WORKS	R
G	<u>BILL No. 7:</u> 3-YEAR ROUTINE MAINTENANCE	R
	Sub total	R
	VAT at 15%	R
	TOTAL	R

IMPORTANT NOTE

All rates applicable for all works in confined spaces must include the mandatory minimum safety equipment as prescribed by OH&S Act 85 of 1993.