

Mechanical: Technical Data Sheets

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Notes:

1. The Standard and Detail Specifications and the Drawings shall be read with the Technical Data Schedules.
2. Not all detail is repeated in the tables that follow. Omission of any requirement contained in the standard or detail specifications does not cancel any such requirement.
3. The Technical Data Schedules shall be fully completed by the Tenderer at the time of tendering and shall form part of his tender.
4. All completed Schedules shall be supported by the manufacturer's brochures and pamphlets, which shall be submitted separately with the tender.
5. **The onus is on the Tenderer to ensure that information submitted in these Technical Data Sheets conforms to the requirements of the Project Specifications. Once the Contract has been awarded and it is found that the information submitted does not comply with the Project Specifications, the Employer's Agent may require that the Contractor upgrade the offered equipment to comply with the requirements of the Project Specifications. Any costs associated with the upgrading of the plant shall be to the Contractors account.**

TECHNICAL DATA SCHEDULE 1: GENERATOR SET FOR PS 34 SCREW PUMP STATION

1	ENGINE	
1.1	Country of origin:	
1.2	Manufacturer:	
1.3	Type and Model:	
1.4	Rated output (continuous) at rated speed in kW at sea level and 20°C ambient temperature:	
1.5	Percentage loss in output due to site conditions, temperature and altitude:	
1.6	Strokes per working cycle (2 or 4):	
1.7	COMPRESSION RATIO:	
1.8	CYCLIC IRREGULARITY AT ENGINE SHAFT:	
1.9	Fuel consumption of the complete generator set at site (in litre/hour) with a generator output of: a) Full load B) 75% LOAD c) 50% load	
1.10	FUEL INJECTION SYSTEM MANUFACTURER:	
1.11	Is an oil cooler provided?	
1.12	Are thermostatically-controlled bypass valves provided?	
1.13	IS AN OIL PRE-PRESSURISING PUMP PROVIDED?	
1.14	Is a turbocharger fitted?	
1.15	Type of governor:	
1.16	Does the governor comply with the specification?	

1.17	MASS OF ENGINE (KG):	
1.18	Are power curves attached?	
1.19	Heat rejection from engine maximum output:	
1.20	The maximum step load that can be applied to the engine and still meet specified output parameters:	
1.21	Total air quantity required for engine aspiration, engine cooling and alternator cooling:	
2	ALTERNATOR	
2.1	Country of Origin:	
2.2	Manufacturer:	
2.3	TYPE AND MODEL:	
2.4	Type of enclosure:	
2.5	Nominal speed at an output frequency of 50 Hz (rpm):	
2.6	Rated voltage:	
2.7	Output voltage at no load and adjustability (e.g. 210/245 V):	
2.8	Rated output at sea level and power factor of 0.85 lagging (kVA) at rated voltage and class of insulation specified:	
2.9	PERCENTAGE OUTPUT LOSS DUE TO SITE CONDITIONS:	
2.10	Percentage efficiency at: a) Full load b) 75% load c) 50% load	
2.11	Transient voltage drop due to application of full load:	
2.12	Time for voltage restoration after application of full load:	

2.13	Reactance:	
2.14	Transient reactance:	
2.15	Are brushes used in the exciter?	
2.16	Are brushes used in the alternator?	
2.17	INSULATION CLASS OF STATOR WINDINGS:	
2.18	Insulation class of rotor windings:	
2.19	Generator short-circuit current:	
2.20	Dimensions of generator set (L x W x H) (mm):	
2.21	Heat rejection from alternator maximum output:	
3	CONTROL PANEL	
3.1	Manufacturer:	
3.2	Make and type of main circuit breaker:	
3.3	Have all instruments and protection relays as specified been provided?	
4	BATTERIES	
4.1	Country of origin:	
4.2	Manufacturer:	
4.3	Type of Battery: (Stationary / Vehicle / Plant)	
4.4	Is the ampere hour capacity sufficient to provide starting as specified?	
4.5	Is the battery manufacturer aware of and satisfied with the method of charging and the charging rate of the battery charger being supplied?	

5	FUEL SYSTEM	
5.1	Capacity of bulk fuel tank (litre):	
5.2	Capacity of running tank (litre):	
5.3	Dimensions of bulk fuel tank (L x W x H) (mm):	
5.4	Dimensions of running tank (L x W x H) (mm):	
6	INSTALLATION SPACE REQUIREMENTS	
6.1	MINIMUM SPACE REQUIREMENTS FOR INSTALLATION OF THE GENERATOR SET (L X W X H) (MM):	
6.2	Minimum space requirements for installation of the bulk fuel tank (L x W x H) (mm):	
7	LIST OF PROPOSED TOOLS AND SPARES (these are not to be included in the tender price but will be ordered at the discretion of the Employer)	
7.1	Description of proposed tools and spares	Cost (P)

NAME OF TENDERER:

SIGNATURE OF TENDERER:

TECHNICAL DATA SCHEDULE 2: ELECTRICAL EQUIPMENT AND TELEMETRY SYSTEMS

To be completed by the Tenderer and submitted as part of his tender. In the event of the tender being accepted this schedule of material offered shall be strictly adhered to.

Item	Description	Make	Supplier
1.	Motor Control Centre		
2.	Volt / ammeters		
3.	kWh meters		
4.	Thermistor relays		
5.	Submersible pump seal monitor relay		
6.	Timers		
7.	Relays		
8.	Push buttons		
9.	Selector switch		
10.	Two pump flip flop relay		
11.	Three pump flip relay		
12.	Contactors		
13.	Generator / normal power change over contactors.		
14.	Overloads		
15.	Isolators		
16.	Earth Leakage Units		
17.	Circuit Breakers		

18.	Over / Under Voltage Relay		
19.	Phase Failure Relay		
20.	Main incomer surge Arresters		
21.	Marshalling & field surge arresters		
22.	Inductive Proximity Switches (Speed switch)		
23.	Data cable (SCADA to Telemetry)		
24.	Instrument cable (Ultrasonic to Telemetry / MCC)		
25.	PVC/SWA/PVC cable.		
26.	Cable glands.		
27.	Cable ladder.		
28.	Local motor emergency stop stations.		
29.	Telemetry outstations		
30.	Telemetry base station.		
31.	Multi-port serial card for existing PC.		
32.	Ultra sonic level detector		
33.	Sensor head selector switch.		
34.	Junction boxes (Prately)		
35.	Field equipment boxes (FEB).		
36.	13A single phase SSO		

37.	16A single phase SSO		
38.	30A single phase SSO		
39.	32A three phase 5 pin welding socket		
40.	Luminaires		
41.	Photo cell		
42.	Extraction fan		
43.	Standby generator set		
44.	Sump pump		
45.	Piping for sump pump		

NAME OF TENDERER:

SIGNATURE OF TENDERER:

TECHNICAL DATA SCHEDULE 3: SCREW PUMPS PS 34 SCREW PUMP STATION

To be completed by the Tenderer and submitted as part of his tender. In the event of the tender being accepted this schedule of material offered shall be strictly adhered to.

MOTOR		
1.	Manufacturer	
2.	Model	
3.	Type	
4.	Country of manufacture	
5.	Frame size	
6.	Insulation class	
7.	Enclosure rating (IP)	
8.	Mass (motor only)	
9.	Continuous maximum power rating (kW)	
10.	Rotational speed at rated output (rpm)	
11.	Rated voltage (V)	
12.	Start-up current demand (A)	
13.	Full load current (A)	
14.	Guaranteed efficiency at Full load 75% load 50% load 25% load	
15.	Power factor at Full load	

	75% load 50% load 25% load	
16.	Starting torque with full voltage applied to stator terminals	
17.	Starting torque with reduced voltage applied to stator terminals	
18.	Method of impregnating stator windings before installation in slots	
19.	Method of impregnating stator windings after assembly of stator	
20.	Method of construction of rotor end rings and conductors	
21.	Method of cooling motor.	
22.	Drive end bearing type	
23.	Non-drive end bearing type	
24.	Construction of motor terminals	
25.	Insulation used for motor terminals	
26.	Details of cable box	
27.	Type of thermal protection fitted	
28.	Type, rating and operating voltage of anti-condensation heaters (if required)	
SPEED REDUCER:		
29.	Name of manufacturer	
30.	Place of manufacture	
31.	Year of manufacture	
32.	Model	

33.	AGMA rating	
34.	Thermal rating	
35.	Maximum torque capacity	
36.	Power service factor	
37.	Efficiency at:	
38.	Motor rated output	
39.	75% motor rated output	
40.	50% motor rated output	
41.	Material of casting	
42.	Method of lubrication	
43.	Mass of speed reducer and motor (kg)	
SCREWS		
44.	Name of manufacturer	
45.	Place of manufacture	
46.	Year of manufacture	
47.	Speed of rotation (r.p.m.)	
48.	Diameter of screw	
49.	Length of screw	
50.	Inclination of screw	

51.	Drive of lubricant pump for lower bearing	
52.	Plate thickness of:	
52.1.	Centre tube	
52.2.	End plate to centre tube	
52.3.	Flights	
53.	Number of starts to flight	
54.	Mass of screw	
55.	Mass of screw and liquid	
56.	Additional wear strip (Y/N)	
57.	Steel trough required (Y/N)	
58.	Drive assembly	
59.	Screw fabrication	
60.	Side profiles	
61.	Drive baseplate	
62.	Guards	
63.	Cover plate	
64.	Top shaft	

65.	Design stress in tube	
66.	Power at screw shaft (maximum)	
67.	Pitch of flights	
68.	Upper bearings size	
69.	Bottom bearing size	
70.	Bottom bearing housing	
71.	Bottom bearing design lifespan	
72.	Bottom shaft	
73.	Bottom bearing bush	
74.	Top bearing housing	
75.	Flexible coupling type size	
76.	Maximum deflection of screw under operating conditions	
77.	Tolerance on screw o.d.	
78.	Tolerance on screw pitch	
79.	Tolerance on screw concentricity	

NAME OF TENDERER:

SIGNATURE OF TENDERER:

TECHNICAL DATA SCHEDULE 4: SLUICE GATES IN THE SUMP OF PS 34 (4 OFF)

To be completed by the Tenderer and submitted as part of his tender. In the event of the tender being accepted this schedule of material offered shall be strictly adhered to.

Item	Description	Make
1.	Name of manufacturer	
2.	Place of manufacture	
3.	Type	
4.	General Arrangement	
5.	Size of clear opening (w x h mm)	
6.	Invert to platform (mm)	
7.	Unbalanced operating head (mm)	
8.	Seating	
9.	Spindle type	
10.	Spindle diameter (mm)	
11.	No. of spindle supports	
12.	Operating gear	
13.	Operating gear support	
14.	Handwheel/crank diameter (mm)	
15.	Gate plate thickness (mm)	
16.	Rib thickness (mm)	
17.	Gate mass (kg)	
18.	Total mass (kg)	

19.	Materials of Construction	
20.	Gate and frame	
21.	Wedges	
22.	Sealing faces	
23.	Gate guides	
24.	Spindle	
25.	Spindle support brackets	
26.	Spindle support bushes	
27.	Pedestal	
28.	Handwheel	
29.	Assembly and foundation bolts	

NAME OF TENDERER:

SIGNATURE OF TENDERER:

TECHNICAL DATA SCHEDULE 4: SLUICE GATES ON THE UPPER LEVEL OF PS 34 (3 OFF)

To be completed by the Tenderer and submitted as part of his tender. In the event of the tender being accepted this schedule of material offered shall be strictly adhered to.

Item	Description	Make
1.	Name of manufacturer	
2.	Place of manufacture	
3.	Type	
4.	General Arrangement	
5.	Size of clear opening (w x h mm)	
6.	Invert to platform (mm)	
7.	Unbalanced operating head (mm)	
8.	Seating	
9.	Spindle type	
10.	Spindle diameter (mm)	
11.	No. of spindle supports	
12.	Operating gear	
13.	Operating gear support	
14.	Handwheel/crank diameter (mm)	
15.	Gate plate thickness (mm)	
16.	Rib thickness (mm)	
17.	Gate mass (kg)	

18.	Total mass (kg)	
19.	Materials of Construction	
20.	Gate and frame	
21.	Wedges	
22.	Sealing faces	
23.	Gate guides	
24.	Spindle	
25.	Spindle support brackets	
26.	Spindle support bushes	
27.	Pedestal	
28.	Handwheel	
29.	Assembly and foundation bolts	

NAME OF TENDERER:

SIGNATURE OF TENDERER: