



PART C 2: Contract: Supply, Installation, Replacement & Maintenance Of Standby Generators and General Electrical Services

stainless steel, of the baffle or absorption type of a size construction such that sound level of 75 dB absolute is not exceeded within seven meters of the exhaust. The exhaust pipe shall be of stainless steel, insulated, and sufficient size to ensure that the backpressure is acceptable within the limits of the engine manufacturer. The exhaust system shall be offset from the center line of the plant to allow for hoists or cranes to remove the engine. Stainless steel nuts and bolts must be used in assembling the exhaust system. Flanged joints are required to aid dismantling. Exhaust piping over 100mm diameter must have a minimum thickness of 1,6mm.

Engine Fuelling – Engine fuelling shall be by means of an engine mounted pump with the governor controlled fuel injection pump(s) and injectors all arranged for easy access and maintenance. A fuel filter with replaceable elements shall be fitted between the lift pump and the injection pump, suitable for the full flow of fuel at a full load. The filter must take out particles down to 5 microns in size, or less, and be Donaldson or similar, equal and approved manufacture. A primary, heavy-duty filter/water separator shall be fitted before the lift pump in the fuel line from the tank. This water separator shall be of an approved manufacture, shall be suitable for 250 hour operation and to be easily maintained. Copper tubing shall be used from the sludge filter to the engine components, but steel tubing may be used on the overflow from the injectors to the fuel tank.

NOTE: Galvanized piping is not acceptable.

Starter Motor – Starting of the plant shall be by means of an engine mounted electric starter motor. The starter motor(s) shall be suitable sized to easily spin the plant under “cold start” winter. The starter motor(s) shall be 12 or 24 volts DC fitted with an approved device for positive engagement. The starter motor shall be controlled from the plant panel.

Battery – The battery shall be 12 volt low maintenance type suitably sized to start the engine. The battery shall be as close as is practical to the starter motor, but separate from any vibrating parts of the set. The battery discharge capacity with full cranking current for 60 seconds at a temperature of 5°C shall not fall below a cell voltage of 1, 5 volts. The voltage is considered the minimum to satisfactorily operate the 12 or 24 volts. DC control equipment on the control panel (i.e. after three starting attempts, each of 10 seconds, the panel control voltage shall not be below 20 volts DC). The battery cables must be run clear of all exhaust piping and other hot surfaces and must be fixed in position so as to ensure correct reconnection of the cables in the event of the battery being changed or removed. The cables must be liberally sized in order to minimize the voltage drop to the starter motor.

Protection Equipment on Engine – Alarm signal system in wall mounted or floor standing control board for indicating “shut down” of the following items:

- a) Fail to start/starter circuit lockout.

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PART C 2: Contract: Supply, Installation, Replacement & Maintenance Of Standby Generators and General Electrical Services

- b) High water temperature (sensed on engine side of the thermostat) or high head temperature in the case of air cooled engines.
 - c) Low oil pressure.
 - d) High oil temperature.
 - e) Low fuel pressure.
 - f) Engine over/under speed (sensed through alternator frequency).
- Gauges in the floor standing control pane showing:
- a) Lubricating oil pressure.
 - b) Engine water temperature.
- All necessary sensors for alarm circuits.
- All necessary fuel cut off solenoids.
- A manual shut off valve before the lift pump in the fuel line at the day tank.

Fuel Piping – The fuel lines shall all be medium class steel to S.A.N.S. 62-1:203 (but not galvanized) with appropriate bends to provide an expansion facility. Copper shall only be used from the primary filter to the engine pumps. All underground piping shall be fully wrapped with Denso tape (or similar, equal and approved equivalent). The tape wrapping shall have a minimum overlap of 15mm. A fusible link mounted directly above the set and connected to a dead weight operated fuel shut-off valve is required.

Fuel Pumps – A diesel fuel pump, suitably sized, shall be fitted on the day tank. This shall be a centrifugal pump complete with electric motor, starter, and isolator and float switch. Level control and float switches for control of the pump shall be mounted on the services tank. Float switches shall be "Remex" level controllers (or other approved). Three float switches will be required, one to operate the pump (on/off), one for a low level alarm and the other for an extra low level engine cut-out. A facility for running the pumps manually is required. In addition a float switch is required in the bulk tank wired to operate a low level alarm and to disable the electric fuel transfer pump(s). It must be possible to mute all alarms but the indicator light(s) must remain on until the tank(s) are re-filled at which time they should cancel automatically. The float switches shall be of such a type that they can be tested manually without opening the tank(s). They must further be installed in such a manner that they do not foul each other. In addition to the electric pump a manual hand pump shall be incorporated into the fuel line to be operated in the event of power failure. Each pump must have fuel isolating valves on either side of the pump to cater for servicing. A non-return valve is required after each of the electric and hand pumps to prevent short cycling.

112



20. ALTERNATOR

General – The alternator shall be suited for low speed operation, self-excited, brushless, 3 phase and/or single phase, complying with Part 99 of BS 5000. To be determined by site conditions and loads.

Rating – The rating shall be based on a power factor 0,8 shall be not less than the rating of the prime mover/engine. In addition to rating shall take into account the site location, height above sea level and the conditions of the engine room. The KVA rating shall also include for a 10% overload for one hour in any 12 hour period and shall be sustained at a temperature of 40°C.

Enclosure – The housing shall be closed, self-ventilated, drip proof enclosure with screened apertures. The enclosure will incorporate two bearings of the grease able, dust proof, ball or roller type.

Windings – Windings shall be tropically insulated, fully impregnated with oil resisting anti-track varnish. Stator windings shall have a minimum Class F insulation. Both the rotor and the armature shall be within the limits of Class B temperature rise according to BSS 4999, Part 32, 1972. The rotor windings shall be suitable braced, balanced and reinforced to allow for over speed of 20%. All magnetic poles shall be of the laminated type, reducing eddy currents.

Excitation and Regulation – Excitation shall be provided by means of the standard, rotating armature AC exciter mounted on the main shaft. The AC exciter shall be coupled to a full wave automatic voltage regular (AVR). The rotating silicon diodes shall have electrical protection against voltage spikes (selenium diodes or other approved means). The entire exciter shall be brushless, self-ventilating, solid state with AVR. The automatic voltage regulator must also be suitably protected should the frequency fall below 48 Hz. The self-regulation of the alternator and exciter shall not exceed plus or minus 2,5% of the nominal voltage at all loads with the power factor between unity and 0,8; and within be provided for a range of +5% to -5% of voltage.

Performance – The normal, nominal voltage shall be 400 volts/230 volts, 3 phase or single phase, 50 Hz alternating current, with full-load and a power factor of 0,8. The frequency shall be maintained to within 2% of the sated 50 Hz under steady load conditions. The generator shall have the following limits:

- (a) Voltage variation: -5% to +5% at 380 V.
- (b) Transient voltages: -20% to +15% returning within 30 cycles, line to line.
- (c) Unbalanced voltages: 2, 5% of arithmetic average.

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The alternator shall comply with the radio interference suppression requirements of BS 800 of 1997 and Telkom (latest regulations).

Wave Form – A good sinusoidal waveform free slot triple is essential. At no-load the waveform distortion shall be less than 2%. At full load unity and 0, 8 power factor (p .f) lag linear loads the total waveform distortion shall be less than 5% with no individual harmonic exceeding 3%. The maximum waveform distortion of the alternator voltage when supplying 70% non-linear load shall not exceed 15%.

21. CONTROL PANEL

The controller will provide a number of control and monitoring features with expansion capability, to meet remote communications. The controller will meet power measurement, including full power monitoring instrumentation and powerful auto-sync functions. The controller will interface to the engine governor and AVR. The controller will be fitted with a RS232 port in order to allow comprehensive remote control and monitoring. The controller will signal the contractor and SAPS representatives via the cell phone network using the GSM SMS messaging system to advice of system alarms.

Control – A programmable logic controller is required, with an event logging facility. Provides a record of the most recent fault conditions with control hours' time stamp. Up to 5 events are stored in the control non-volatile memory.

Sheet Metal Work – The control panel and components shall be of approved design, manufacture and construction and shall be complete in all respects with all necessary equipment, bars, connections, wiring and accessories. The panel shall be robustly constructed, shall be in accordance with standard accepted practice, comply with the relevant S.A.N.S. Code of Practice, and shall have an attractive appearance. The panel shall be totally enclosed, dust and moisture proof as well as rodent and insect proof.

Components – All components where possible shall bear the S.A.B.S. mark. Bus bars and connections shall be adequately tinned, shall conform the B.S. 159 – 1957 and be taped with distinctive phase colors for the full length. Bus bars and connections must be compatible with the fault rating of the switchgear. Adequately rated full length extendible copper earth bars shall be fitted. All components shall be suitably rated for their application and the switchgear shall be suitable for the site and location. Space shall be provided for the incoming and outgoing cable circuits. All cut edges and drilled holes of Bakelite or similar insulation board must be treated with electrical varnish. All equipment levers, handles, keys, etc. required for operation of the panel must be included together with suitable clips or trays to store these when not in use.

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PART C 2: Contract: Supply, Installation, Replacement & Maintenance Of Standby Generators and General Electrical Services

Guarantee – The whole of the panel and components shall be guaranteed for a period of 36 months from the date of hand-over to the SAPS.

Equipment – The following equipment shall be included in the panel (or similar approved). All fuses, circuit breakers, control and other equipment will be installed in compliance with the manufacturer's ratings, instructions and regulations (combined LCD digital display).

- (a) Timers for power return, mains return, etc.
- (b) Programmable logic controller and phase failure and phase reversal relay.
- (c) Illuminated re-settable fault indicators, coupled to a common continuously rated hooter or low current electronic type yodel alarm for: low oil pressure, high oil temperature, high water temperature, engine over speed, failure to start, alternator overload, low fuel level, extra low fuel level engine trip.
- (d) Mode selector switch for:
 - Off/Reset: Control system off and alarm condition reset.
 - Auto: Automatic starting and stopping of the set.
 - Manual: Starting and stopping activated manually (in this mode the load will not be transferred in the event of mains failure).
 - Test: The set will start automatically and the load will be taken by the alternator in the event of mains failure.
- (e) Battery charger.
- (f) By-pass mains selector.
- (g) Main isolator for outgoing circuit.
- (h) MCB's for: Battery charger, Jacket water heater, Fuel transfer pumps.
- (i) One surge arrestor (as per S.A.B.S. 171) per phase fitted to the main circuit breaker.
- (j) SMS Alert/Notification interface to allow for remote control via cell phone communication.

Sequence of Operation – The control panel shall be so designed to provide the following:

- A mains voltage/phase failure sensing relay which in the event of a mains failure the timing sequence shall be:
- A positive disconnection of the mains via the operation of the auto changeover switch – this shall also be effective in the event of single phasing or phase angle deviation.
- An immediate command to the engine to start.
- Once the engine is up to "speed", and the "mains" have not been restored, the changeover switch shall immediately close.
- In the event of the "mains" being restored after the start-up time of the engine, but before changeover to alternator supply, a timer shall hold the engine in the run position for

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PART C 2: Contract: Supply, Installation, Replacement & Maintenance Of Standby Generators and General Electrical Services

- approximately 1 minute before allowing the engine to "close down". Thereafter the engine close down shall proceed as described hereunder.
- Upon return of the "mains supply" when the alternator is on load a timer shall delay changeover for a further three minutes (to confirm continuity of supply). After changeover to "main supply", an adjustable timer (1 to 5 minutes) shall delay engine close down.
- Once the command to start has been given, three start attempts shall be allowed each of 10 seconds delay between each attempt. In the event of failure to start within 3 initial attempts, the starting system shall switch off and a L.V. alarm shall be initiated. Any further starting attempts may be only carried out when the plant is in the "manual" position.
- Fault reset after identification and rectification off same shall be by switching the selector to the "off" position and then back to the desired mode.

		Hooter or Siren	Visual Light Indicator	Lock Out	Fuel Solenoid Off
	Over speed	X	X	X	X
	Under speed or Overload	X	X	X	X
	High Temperature	X	X	X	X
	Low oil Pressure	X	X	X	X
	3 Start Failure	X	X	X	X
	Lower Fuel Alarm	X	X		
	Battery Charger Failure	X	X		
	Selector Switch not in Auto		X		
	Extra low Fuel Cut-out	X	X	X	

All the above shall have the necessary re-set buttons.

Battery Charger – The charger module shall be mains (230 V) operated unit to continuously trickle charge the engine starter battery. It must be of the automatic modulating type. A "loss of charge" alarm relay shall be provided to indicate failure of the charger. This should be a current monitor. The output voltage (27,6 volts DC or 13,8 volts if applicable) shall be via full wave rectification and be kept within 1% of the float charger voltage. The 230 volt input voltage may vary between 207/253 volts and the equipment, (transformer etc.) must be capable of handling this discrepancy. During the "cranking/start" period and during running of the diesel engine the battery charger shall be disconnected via a relay. Charging of the battery shall then be by means of engine mounted alternator.

The battery charger shall be fully incorporated into the main control panel.

116

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PART C 2: Contract: Supply, Installation, Replacement & Maintenance Of Standby Generators and General Electrical Services

Ventilation– The position of the battery charger must not be placed under any switch gears or relays to allow good ventilation.

22. QUALITY SPECIFICATIONS FOR MATERIALS AND EQUIPMENT

The latest edition, including all amendments up to date of tender of the following specifications, publication and codes of practice shall be read in conjunction with this specification and shall be deemed to form part thereof.

General	Distribution and meter boards	LV cables and conductors	Lighting system	Earthing and lightning protection system	Small power installation	
					Power outlets	Conduits, power skirting, cable trays and ducting
SABS 0142	SABS 152	SABS 0150	SABS 0114	SABS 03	SABS 152	SABS 763
SABS 0160	SABS 156	SABS 0198	SABS 163	SABS 0199	SABS 163	SABS 764
SABS 0400	SABS 171	SABS 1411	SABS 1012		SABS 164	SABS 950
SABS 1222	SABS 172	SABS 1507	SABS 1084		SABS 1084	SABS 1065
	SABS 173		SABS 1250		SABS 1239	SABS 1085
	SABS 763		SABS 1279			SABS 1197
	SABS 1092		SABS 1777			
	SABS 1180					

A. CONDUIT AND CONDUIT ACCESSORIES

GENERAL

This section covers the requirements for conduit and conduit accessories for general installations under normal environmental conditions. The type of conduit and accessories required for the service, i.e. whether the conduit and accessories shall be of the screwed type, plain-end type or of the non-metallic type and whether metallic conduit shall be black enameled or galvanized. Unless other methods of installation are specified for certain circuits, the installation shall be in conduit throughout. No open wiring in roof spaces or elsewhere will be permitted. The conduit and conduit accessories shall comply fully with the applicable SABS specifications as set out below and the conduit shall bear the mark of approval of the South African Bureau of Standards.

- (a) Screwed metallic conduit and accessories: SABS 1065 part 1 and 2.
- (b) Plain-end metallic conduit and accessories: SABS 1065 part 1 and 2.
- (c) Non-metallic conduit and accessories: SABS 950.

Bushes used for metallic conduit shall be brass and shall be provided in addition to lock nuts at all points where the conduit terminates at switchboards, switch-boxes, draw-boxes, etc. Only one manufacture of conduit and conduit accessories will be permitted throughout the installation. All

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metallic conduits shall be manufactured from mild steel with a minimum thickness of 1,2mm for plain-end conduit and 1,6mm in respect of screwed conduit.

SCREWED CONDUIT

Conduits shall comply with SABS 1065 and shall bear the SABS mark. All conduits shall be heavy gauge, welded or solid drawn, hot-dip galvanized or black enameled, screwed tube. Galvanized conduit shall be hot-dipped inside and outside in accordance with SABS 763. All conduit ends shall be reamed and threaded on both sides and delivered with a coupling at one end and a plastic cap on the other end.

METAL CONDUIT ACCESSORIES

All metal conduit accessories shall be of malleable cast iron or pressed steel with brass bushes in accordance with SABS 1065. Alloy or pressure cast metal accessories or zinc bas alloy fittings are not acceptable. All fittings whether galvanized or black enameled, shall be fitted with brass screws.

CIRCULAR TYPE BOXES

The boxes shall be of the long spout pattern, manufactured of malleable cast iron or pressed steel and stove enameled jet black or galvanized as required. The two cover fixing holes shall be diametrically opposite each other, drilled and tapped at 50mm centers. Junction, draw-in and inspection boxes shall be of adequate size and shall be supplied with heavy gauge metal cover plates. Boxes shall comply with SABS 1065.

SWITCH BOXES AND SOCKET OUTLET BOXES

All switch boxes and socket outlet boxes shall be manufactured of pressed galvanized steel of at least 1mm thickness. All boxes shall be fitted with the necessary lugs to suit standard flush mounted switches and socket outlets manufactured in accordance with SABS 518 and SABS 1085. Light switch boxes shall be 100 x 50 x 50mm with two 20mm knockouts on the sides, one 20mm knockout on the top, bottom, side and back. Socket outlet boxes shall be 100 x 50mm with two 20mm knockouts each on the top, bottom, sides and back. Switch and socket outlet cover plates shall comply with SABS 1084.

FLEXIBLE CONDUIT

Flexible steel conduit and adaptors shall comply with BS 731, part 1 where applicable. Flexible conduit shall be of galvanized steel construction and in damp areas of the plastic sheathed

118

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galvanized steel type. Flexible conduit shall only be used as specified and shall be installed in accordance with par. 5.4.4 of SABS 0142.

PLAIN-END METALLIC CONDUIT

As an alternative to the threaded conduit, plain-end (unthreaded) metallic conduit with accessories may be used under the conditions stated in this standard specification for "INSTALLATION AND TERMINATION OF CONDUITS AND CONDUIT ACCESSORIES". Unthreaded conduit shall be manufactured of mild steel with a minimum thickness of 1,2mm and shall comply with SABS 1007.

Bending and setting of conduit shall be done with the correct apparatus recommended by the manufacturer of the conduit. The Contractor or Supplier shall be responsible for obtaining the approval of local authorities for the use of this system. All conduit and accessories used in areas within 50 km of the coast shall be hot-dip galvanized to SABS 763. In inland areas electro-galvanized or cadmium-plated accessories will be accepted.

B. WIRING CHANNELS, UNDERFLOOR DUCTING AND POWER SKIRTING

WIRING CHANNELS

General

The channels shall be manufactured of rolled sheet steel.

The minimum thickness of the sheet steel shall be:

- (a) 1,6mm for ribbed channels with a maximum width of 42mm.
- (b) 2,5mm for un-ribbed channels with a maximum width of 42mm.
- (c) 1,2mm for channels with a width in excess of 42mm.

The channels shall be finished as follows:

- (a) In coastal areas (under all installation conditions)

Hot-dip galvanized to SABS 763 or epoxy powder coated.

- (b) Cast in concrete Pre-galvanized.
- (c) False ceiling voids Pre-galvanized.
- (d) Vertical building ducts Hot-dip galvanized to SABS 763 or epoxy powder coated.

119

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PART C 2: Contract: Supply, Installation, Replacement & Maintenance Of Standby Generators and General Electrical Services

(e) Surface mounted in plant rooms, substations, service tunnels, basements

Epoxy powder coated or electro-galvanized.

(f) Damp areas, exposed to weather underground runs in contact with earth

Hot-dip galvanized to SABS 763 or epoxy powder coated.

(g) Undercover industrial applications Hot-dip galvanized to SABS 763 or epoxy powder coated.

The above-mentioned finishes shall be applied unless specified to the contrary or approved by the Chief Engineer, SAPS. Hot-dip galvanized duct shall be cold galvanized at all joints and sections that have been cut and at places where the galvanizing has been damaged. Powder coated ducts shall likewise be touched up at joints, cuts and damaged portions using methods recommended by the manufacturer of the channels.

Cover Plates

All channels shall be supplied with cover plates. Channels up to 127mm width shall have snap-in cover plates of metal or PVC. For channels wider than 127mm only metal cover plates shall be used. The finish of steel cover plates shall be the same as the finish of the channels.

Accessories

All accessories i.e. hangers, brackets etc. shall be purpose made and in general have the same finish as the channels.

Wiring Supports

Wiring supports shall be provided in order to prevent the wires falling out when cover plates are removed.

UNDERFLOOR DUCTING

General

The ducting shall be manufactured of 2mm thick rolled sheet steel or rectangular tubing. Galvanized steel shall be used or shall be epoxy coated after manufacture.

Outlets

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Outlets shall be provided on a modular basis in the dueling to accommodate pedestal or recessed socket units. Tapped holes shall be provided to fix the pedestal units to the dueling. Draw boxes at junctions of perpendicular ducts shall have removable barriers for wiring and shall be provided with a heavy gauge cover plate.

Pedestals

Pedestals shall be manufactured of die-cast aluminum or pressed steel. The finish of pedestals shall be epoxy powder coating of an approved color.

C. CABLE TRAYS AND LADDERS

METAL CABLE TRAYS

Metal cable trays shall be manufactured from perforated rolled steel. Metal trays manufactured to the following standards shall be use:

- (a) Less than 150 mm wide 1, 2 mm minimum thickness with 12 mm minimum return.
- (b) 150 mm to 457 mm 1, 2 mm minimum thickness with 19 mm minimum return.
- (c) 460 mm to 610 mm (Heavy duty) 2, 5 mm minimum thickness with 76 mm return.

CABLE LADDERS

Metal cable ladders shall consist of a 76 mm high side rail of 2 mm minimum thickness. Cross pieces shall be spaced at maximum intervals of 250 mm. Where cables of 10 mm² or smaller are installed on cable ladders, the spacing of the cross pieces shall be 125 mm. Cables shall be clamped in position by means of purpose-made cable clamps that fit into the cross pieces. Cable ladders consisting of slotted metal rails which accommodate plastic or metal cable binding bands may be used in vertical cable runs against walls, etc. These cable-ladders will be considered in horizontal cable runs for small cables for communication and control wiring upon the prior approval of the SAPS.

Purpose made cable trays consisting of 6 mm angle iron and 6 x 40 mm minimum cross pieces are acceptable in industrial applications. Cross pieces shall be welded in pairs at 250 mm maximum **center-to-center** intervals. The pairs shall be spaced approx. 10 mm apart to allow cable clamps or metallic binding bands to affix the cables to the tray.

PLASTIC CABLE TRAYS

Rigid un-plasticized PVC cable trays complying with the following standards may be used if specified in the Detail Technical Specification:

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The up stands of trays listed in (a) and (b) shall not be perforated and the top of the up stand shall be smooth. The same cable tray type shall be used in long parallel tray runs.

Hot-dip galvanized trays and ladders shall be cold galvanized at all joints, sections that have been cut and at places where the galvanizing has been damaged. Powder coated or enamel painted trays and ladders shall likewise be touched up at joints, cuts and damaged portions using spray canisters recommended by the manufacturer of the trays and ladders.

ACCESSORIES

Horizontal and vertical bends, T-junctions and cross connections shall be supplied by the Contractor. The dimensions of these connections shall correspond to the dimensions of the linear sections to which they are connected. The radius of all bends shall be 1m minimum. The inside dimensions of horizontal angles or connections shall be large enough to ensure that time allowable bending radius of the cables is not exceeded. Sharp angles shall be 45° mitered.

D. PVC-INSULATED CABLES 600/1 000 V GRADE

GENERAL

This section covers the requirements for PVC-insulated cables for general installations under normal environmental conditions.

CONSTRUCTION

Cables shall be manufactured in accordance with SABS 150, shall come only from fresh stocks, and shall be constructed as follows:

- (a) Un-armored cables PVC-insulated/PVC-sheathed.
- (b) Armored cables PVC-insulated/~~PVC-bedded~~/ armored/black extruded PVC outer sheath.
- (c) Single core cables PVC-insulated/unsheathed.

The conductors shall be of high conductivity annealed stranded copper and the cores may be shaped or circular. The insulation shall be general purpose PVC 600/1 000V Grade.

The bedding shall consist of a continuous impermeable sheath of PVC extruded to fit the core or cores closely and in the case of multi-core cables, to fill the interstices between the cores. Where armoring is specified it shall consist of one layer of galvanized steel wire in the case of multi-core cables and nonmagnetic metallic wire in the case of single core cables. Aluminium strip or tape

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armoring is not acceptable. Where specified, an earth continuity conductor shall be provided in the armoring in accordance with SABS 150.

PVC-SHEATHED ALUMINIUM-COVERED CABLES

Aluminium-covered cables shall comprise of PVC-insulated copper conductors protected by an aluminium foil tape screen and a PVC sheath. Cable ends shall be made off with compression glands fitted with a neoprene ring to seal the end. Aluminium sheathed cable shall be installed on surface only using matching saddles installed at suitable intervals to prevent sagging. Where exposed to sunlight, the cable shall be a stabilized black outer sheath.

LENGTHS

The cable shall be manufactured and supplied in one length to the lengths specified unless these lengths exceed a standard drum length in which case a ruling shall be obtained from the SAPS.

TESTS

At the option of the SAPS acceptance tests shall be carried out on production runs of the cable in accordance with SABS 150.

PVC-SHEATHED ALUMINIUM-COVERED CABLES

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LENGTHS

TESTS

At the option of the SAPS acceptance test shall be carried out on production runs of the cable in accordance with SABS 150.

E. GLANDS FOR PVC-INSULATED CABLES

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Glands to be used for terminating PVC/PVC/SWA/PVC cables shall be of the adjustable type. Glands shall be suitable for general purpose 600/1 000 V Grade cable with steel armoring. The

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glands shall be made of nickel-plated or in coastal area bronze or brass. The glands shall consist of a barrel carrying a cone bush screwed into one end and a nickel-plated brass nipple carrying a nickel-plated brass or heavy galvanized steel locknut screwed into the other end. The galvanizing shall comply with SABS 763. Non-watertight glands must be easily converted to watertight glands by means of a **waterproofing** shroud and inner seal kit. On the cable entry side of the barrel a concave groove shall be provided to accommodate the top rim of the waterproofing shroud. The shrouds shall be made of non-deteriorating neoprene or other synthetic rubber, and shall be resistant to water, oil and sunlight. The shrouds shall fit tightly around the glands and cable.

Glands shall be provided with ISO threads and shall be suitable for the specified cable sizes.

Flameproof glands shall comply with SABS 808, Group 1, 2a and 2b. Suitable accessories shall be provided with glands to be used on ECC armored cables to facilitate a bolted lug connection of the earth continuity conductors. Grooves cut into the barrel or cone bush to accommodate the earth continuity conductors are not acceptable. For unarmored cables the cone bush and compression ring of the gland shall be replaced with a synthetic rubber compressions bush and ring to provide the required grip on the outer sheath of the cable.

F. CABLE TERMINATION AND JOINTS

HEAT-SHRINKABLE MATERIALS

General

Heat-shrinkable materials may only be used in exceptional circumstances with the written permission of the SAPS. The complete kit shall be packed in a container that is marked for the type of cable insulation and construction as well as the voltage range for which the materials are suitable. An illustrated set of instructions for the installation of the materials shall accompany every kit. The joints and terminations shall make minimal, if any, use of insulating or stress relieving tapes. The use of electrical stress control and insulating tubing that is heat-shrunk onto the termination or joint is preferred above other methods. The materials shall comply with VDE 0278 and the supplier shall be called upon to confirm this aspect before acceptance of the materials or installation. The heat-shrinkable and other materials used for the terminations and joints shall be of a high quality and shall retain their electrical and mechanical properties without deterioration.

G. CABLE END BOXES AND COMPOUND

CABLE END BOXES

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The cable end boxes shall be of the metal clad type suitable for indoor or outdoor use as required for the specific application. Only inverted type boxes shall be supplied for outdoor use. The insulators of the inverted type boxes are angled downwards. The boxes shall be equipped with armor clamps and brass or gunmetal conical wiping glands. All cable end boxes shall comply with BS 542. The cable boxes shall be suitable for filling with bituminous, cold filling compound or resin oil semi-fluid compound. The cable boxes for resin oil semi-fluid compound shall be equipped with a sight glass for compound level indication.

CABLE END BOX FILLING COMPOUND

The compound shall be suitable for filling metal clad cable end boxes. The compound shall comply with BS 1858, shall be non-hygroscopic and shall have a high dielectric strength and insulation resistance. The compound shall have good adhesive properties and shall not be susceptible to cracking.

The compound shall be suitable for use in high ambient temperatures and system voltages of up to 22kV nominal. The compound shall be suitable for filling metal clad cable end boxes with level indicators. The compound shall be non-hygroscopic and shall have a high dielectric strength and insulation resistance.

H. WIRING TERMINALS

Terminal bodies and screws shall be of non-corrosive metal, enclosed in fire resistant, molded plastic insulating bodies. Terminal bodies or screws shall not project beyond the insulating material and shall afford suitable protection against accidental contact by personnel and against short circuits and tracking.

The construction of the terminal block and mounting rail shall be such as to ensure a firm and positive location of the terminal blocks. It shall be possible to add additional terminal blocks within the terminal sequence without having to disconnect or dismantle the terminal strip. The terminal blocks shall be held in position by means of standard end clamps. It shall be possible to intermix terminals of various sized, i.e. for different sizes of conductors, whilst utilizing the same mounting rail. Where smaller terminal blocks occur adjacent to large terminal blocks, suitable shielding barriers shall be inserted to cover the terminals that might otherwise be exposed.

The terminal bodies and clamping screws shall be so constructed as to ensure that conductors are not nicked or severed when the clamping screws are tightened. Screws shall not come in direct contact with the conductors. Terminals shall be sized and rated to match the conductors that are connected to them. Each terminal block shall have provision for clip-in or labeling strips to be installed, together with protective, clear caps over the sheets.

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I. LIGHT SWITCHES

GENERAL

This section covers the requirements for switches for use in general installations under normal environmental conditions.

FLUSH AND SURFACE MOUNTED SWITCHES

All switches shall be suitable for mounting in 100 x 50 x 50mm boxes and shall comply with SABS 163 and shall bear the SABS mark. Switches shall be of tumbler operated micro-gap type rated at 16A, 220/250V. Switches shall have protected terminals for safe wiring. Contacts shall be of silver material. On multi-lever switches, it shall be possible to individually change any of its switches. The yoke strap shall be slotted to allow for easy alignment. The covers of surface mounted switches shall have toggle protectors.

WATERTIGHT SWITCHES

Watertight switches shall be of the micro-gap type suitable for surface mounting and shall bear the SABS mark of approval. The housing shall be of galvanized cast iron or die cast aluminum with watertight cover plate and toggle. The switch shall have a porcelain base and a quick acting spring mechanism and shall be rated at 16A, 220/250V. The ON/OFF position shall be clearly marked on the switch housing.

J. UNSWITCHED AND SWITCHED SOCKET-OUTLETS

GENERAL

This section covers the requirements for un-switched and switched socket-outlets for use in general installations under normal environmental conditions.

FLUSH AND SURFACE MOUNTED SWITCHED SOCKETS

All switched socket-outlets shall be suitable for mounting in 100 x 100 x 50mm or 100 x 50 x 50mm boxes, shall comply with SABS 164. Switches shall be of the tumbler operated micro-gap type rated at 16A, 220/250V. Terminals shall be enclosed for safe wiring. Safety shutters shall be provided on live and neutral openings. The yoke strap shall be slotted to allow for easy alignment. The covers of surface mounted switched sockets shall have toggle protectors.

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WATERTIGHT SWITCHED SOCKETS

The housing of watertight switched sockets shall be of galvanized cast iron or die cast aluminum with watertight machined joints. The switch shall have a porcelain base and a quick-acting spring mechanism and shall be rated at 16A 220/250V. The ON/OFF positions shall be clearly marked on the switch housing. The socket openings shall be rendered watertight by means of a gasket cover plate which is screwed onto the body of the unit. The cover plate shall be secured to the body of the unit by means of a chain.

UNSWITCHED SOCKET-OUTLETS

Un-switched socket-outlets shall only be used in the case of 5A, 230/250V, 3-pin socket-outlets intended for the connection of recessed light fittings installed in false ceilings. The socket-outlets shall have shuttered live and neutral openings. The socket-outlets shall be suitable for installation in pre-punched wiring channels, deep round conduit boxes, 100 x 100 x 50mm boxes.

K. LUMINAIRES FOR INTERIOR AND EXTERIOR APPLICATIONS

TUBULAR FLUORESCENT LAMP LUMINAIRES FOR INTERIOR APPLICATIONS

SCOPE

This specification covers the requirements for fluorescent luminaires using tubular fluorescent lamps for general indoor use. The types of luminaires covered are open-channel, industrial, decorative and recessed types and includes luminaires with one or more lamps with standard wattage ratings as specified in the project specification. Luminaires for use in special applications or atmospheres are not included in this specification.

GENERAL

To promote work creation in South Africa, the luminaire should preferably be manufactured within the Republic of South Africa and should have a local content of at least 50%. If the luminaire offered is of foreign origin, full specifications on technical performance and quality must be submitted and full reasons shall be given why the unit had to be imported. A sample luminaire shall be provided for evaluation and approval by the Electrical Engineer prior to installation. Luminaires, associated equipment and control gear shall be new and unused and shall be supplied complete with lamps, control gear. Diffusers, mounting brackets, etc., as shall be delivered to site in a protective covering.

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STANDARDS

The following standard specifications of the South African Bureau of Standards shall apply to this luminaire specification:

- SABS 1119: Interior luminaires for fluorescent lamps.
- SABS 1250: Capacitor for use with fluorescent and other discharge lamp ballasts.
- SABS 890: Ballasts for fluorescent lamps.
- SABS 1464: Safety of luminaires.
- SABS 1479: Glow starters for fluorescent lamps.
- SABS IEC 400: Lamp holders for tubular fluorescent lamps.
- SABS 1041: Tubular fluorescent lamps for general service.
- SABS 1247: Coatings applied by the powder-coating process.
- SABS 783: Baked enamels.
- SABS 0142: The wiring of Premises.
- Any standard referred to in the above specifications.

PHYSICAL AND ENVIRONMENTAL REQUIREMENTS

AREAS OF APPLICATION: The luminaires are intended for standard indoor use in buildings under the control of the South African Police Service.

FIXING: The luminaires shall be suitable for mounting in or against ceilings as described in the project specification.

ENVIRONMENTAL: Unless otherwise specified in the detail specification the luminaires shall be suitable for operation in ambient temperatures between -10°C and +25°C.

SAFETY: The luminaires shall bear the SABS 1464 safety mark.

NOISE: Noisy ballasts will not be accepted and shall be replaced at no cost to the SAPS. All ballasts shall comply with the requirements of the latest edition of SABS 890, Part 1.

GENERAL TECHNICAL REQUIREMENTS

Tubular fluorescent lamp luminaires shall comply fully with SABS 1119 and all amendments as well as the additional requirements of this **specification**. Luminaires shall bear the SABS mark, or at least have a SABS Certificate of Compliance. The SA Police Service reserves the right to have samples of luminaires offered tested by the SABS for compliance with SABS 1119. If a sample luminaire is found not to comply with SABS 1119 the cost of such tests shall be borne by the Bidder.

128

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CONSTRUCTION

A luminaire shall consist of a ventilated body manufactured of cold rolled sheet steel not less than 0,8mm thick, suitably braced or stiffened to prevent distortion. The body shall be of sufficient strength for the mounting of the entire luminaire. The luminaire shall be designed to accommodate the control gear, wiring, lamp-holders and, where applicable, the diffuser and reflectors. It shall be possible to reach the control gear without disconnecting wiring or removing the luminaire. Suitable knockouts shall be provided in the rear of the luminaire body for wire entry. All components, including screws, bolts and nuts utilized in the construction of the luminaire or fixing of its components, shall be corrosion proof. Cadmium plated or stainless steel materials are preferred.

INTERNAL WIRING

Luminaires shall be completely wired internally. Conductors shall be protected with grommets where they pass through holes in the body. The wiring shall be totally metal enclosed to prevent any possible contact with live components while changing lamps. The conductor insulation shall be rated to withstand the temperature inside the luminaire body without deterioration. The wiring shall terminate on a suitable terminal block having screw down plates bearing on the wires. Terminals where screws bear down directly on wires will not be acceptable. An earth terminal, welded to the luminaires body, shall be provided. To ensure good earth continuity the earth terminal shall not be spray painted. The earth conductor shall be connected to this terminal by means of a crimped lug.

LAMP HOLDERS

Lamp holder shall preferably be of the telescopic spring-loaded type. Where twist-lock type lamp holders are provided, the mounting of the holders shall be able to accommodate the tolerances experienced in the length of lamps and in the manufacture of luminaires.

CONTROL GEAR

The control gear, ballasts, capacitors and starters shall be designed and manufactured to suit the control circuitry adopted. All luminaires shall operate on a switch-start basis. Ballasts shall comply with SABS 890 and SABS 891, suitable for operation on 220V to 250V, 50Hz supplies. Ballasts shall further be suitable for the particular luminaires to ensure that the thermal limits specified in paragraph 3.5 of SABS 1119 are not exceeded. Starters shall comply with SABS 1479 or with BS 3772 if it is not covered by SABS 1479. Starters with metal cans shall contain integral earthing facilities to earth them upon insertion. Starters shall be accessible for the outside of the luminaires, and the replacement of the starter shall not necessitate the removal of lamps.

129

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LAMPS

Fluorescent lamps shall be suitable for control circuitry used. Lamps shall comply with SABS 1041. If no color is specified in the Detail Technical Specification, the light color shall correspond to color 2 (4 300K) of SABS 1041. Lamps of the same color shall be provided for an entire installation unless specified to the contrary. There shall be no visible flicker in the lamps and lamps shall readily strike when switched on. Faulty lamps or ballasts shall be replaced at no cost to the SAPS.

TECHNICAL INFORMATION

The Bidder shall include full technical particulars regarding the luminaires offered with the tender.

CHANNEL LUMINAIRE

Channel luminaires shall consist of a ventilated, enclosed channel body with one or more lamps as specified in the project specification. The channel body shall house the ballast, capacitor, terminals and internal wiring. Provision shall be made for the addition of reflector wings and/or diffusers. A knockout suitable for 20mm diameter conduit entry shall be provided at each end of the channel. The distance between the back of the luminaire and center for the knockout shall be approximately 25mm. The knockouts shall be positioned on the center line of the channel. The body channel shall incorporate a removable cover acting as a reflector, manufactured of cold rolled steel, not less than 0,8mm thick, designed and mounted to completely cover the interior of the body channel and its contents and extending over the full length of the luminaire up to the lamp holders. The reflector shall be firmly held in position with a latching device consisting of knurled, coin slot, captive screws. Plastic, used as a spring mechanism, is not acceptable as a fixing device for reflectors. The action of the latching device shall not deteriorate due to use and/or ageing.

INDUSTRIAL LUMINAIRES

Industrial type luminaires shall consist of a basic channel luminaire fitted with detachable side reflectors. The reflectors shall be manufactured of cold rolled steel, not less than 0,8mm thick.

RECESSED LUMINAIRES

Recessed luminaires shall be suitable for mounting in the ceiling structure specified in the project specification. The attachment of the prismatic diffuser or reflector shall be similar to that specified in paragraph 10 above. The diffuser or reflector shall fit flush with the ceiling and the only visible portion shall be the reflector or diffuser. Should the luminaire be so designed that a surrounding frame is visible, and then this frame shall be manufactured of anodized aluminum. The frame shall

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form a neat trim with the ceiling. The corners of the surrounding frame shall be mitered and reinforced.

L. BULKHEAD LUMINAIRES FOR USE WITH COMPACT FLUORESCENT OR TUNGSTEN

FILAMENT LAMPS FOR INTERIOR AND EXTERIOR APPLICATIONS

SCOPE

The specification covers the requirements for bulkhead type luminaires, using compact fluorescent or tungsten filament lamps, for general indoor and outdoor use. The types of luminaires covered are decorative round, rectangular or square surface-mounted and recessed types and include luminaires with one or more lamps with standard wattage ratings as specified in the project specification. Luminaires for use in special applications or atmospheres are not included in this specification.

GENERAL

To promote work creation in South Africa, the luminaire should preferably be manufactured within the Republic of South Africa and should have a local content of at least 50%. If the luminaire offered is of foreign origin, full specifications on technical performance and quality must be submitted and full reasons shall be given why the unit had to be imported. A sample luminaire shall be provided for evaluation and approval by the SAPS Project Manager: Electrical, prior to installation. Luminaires, associated equipment and control gear shall be new and unused and shall be supplied complete with lamps, control gear, diffusers, mounting brackets, etc. and shall be delivered to site in a protective covering. Lamps shall be delivered separately.

STANDARDS

The following standard specifications of the South-African Bureau of Standards and the International Electro technical Commission shall apply to this luminaire specification:

SABS 1119: Interior luminaires for fluorescent lamps. Note: The latest Amendments whereby luminaires with compact fluorescent lamps are covered, shall apply.

SABS 1250: Capacitors for use with fluorescent and other discharge lamp ballasts.

SABS 890, IEC 920 and IEC 921: Ballasts for fluorescent lamps.

SABS 1464: Safety of luminaires.

SABS 1479: Glow starters for fluorescent lamps.

SABS IEC 400: Lamp holders for tubular fluorescent lamps.

SABS 1041, IEC 81 and IEC 901: Tubular fluorescent lamps for general service.

131

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STANDARDS

The LED General Lamps must comply with the following SABS requirements:

SANS Codes	Title
SANS 62560	Self-ballasted LED-lamps for general lighting services by voltage > 50 V – Safety Specification
SANS 62031	LED modules for general lighting – Safety Specifications
SANS 60598	Luminaires – Part 1: General requirements and tests
SANS 1662	Self-Ballasted LED Tubular lamps for general lighting services > 50 V – Safety Requirements
SANS 62612	Self-ballasted LED lamps for general lighting services with supply voltages > 50 V - Performance Requirements
SANS 475	Luminaires for interior lighting, street lighting and floodlighting - Performance requirements

N. LED DOWN LIGHTER FOR COMMUNITY SERVICE CENTRE (CSC) AND OFFICE PASSAGE.

The luminaire shall consists of a pressed metal ceiling trim, reflector, ceiling brackets and reinforced luminaire frame. Designed to operate LED light sources of up to 22W in an ambient temperature environment of up to 35°C, without reducing the useful lifetime of 50 000 hours, at a lumen depreciation of not more than 30% (L70). The fix ceiling brackets shall be made of spring steel to ensure rigid and positive mounting in the ceiling, eliminating any sagging of the luminaire. Effective high-power LED, 3000K or 4000K, at a colour rendering index ≥ 80 . A 99.9% pure aluminium reflector made from pressed grade 1050 aluminium alloy is required.

O. EXTERIOR WALL MOUNT LED TAMPER RESISTANT BULKHEAD WITH HIGH-IMPACT ACRYLIC.

The luminaire base and trim ring shall be manufactured of a high-pressure die-cast aluminium (EN 1706 AC-44300). The trim ring casting shall be mounted onto the base casting by means of stainless steel M5 Allen head screws, located outside the lamp compartment. The base and trim shall be finished with epoxy powder coating. The luminaires shall bear the SANS 60598-2-1 safety mark. The luminaires shall have a degree of protection that complies with SANS 60598-2-1:

Lamp compartment: IP66

The IP rating shall be certified by a SABS test report.

133

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An opal non-discoloring high impact acrylic injection Moulded diffuser shall be used throughout. It shall be vandal resistant, be highly translucent and shall not discolor when subjected to the UV environments. A silicon sponge gasket shall be fitted into a groove in the diffuser to prevent damage to the gasket during installation and the certified ingress protection rating of IP66. All interconnecting wiring shall be Teflon insulated. It shall be designed to operate LEDs of up to 20W

P. LED RECESSED NEUTRAL WHITE LIGHT FITTING WITH ACRYLIC DIFFUSER FOR GENERAL OFFICES AND ADMIN AREAS.

The body shall be manufactured from powder coated, cold-rolled steel. The diffuser shall be manufactured from injection-moulded, high-impact, non-discolouring acrylic. It shall be structured on the inside and smooth on the outside. The gear tray shall be manufactured from 1.6mm galvanised and passivated steel, powder coated white to prevent corrosion and improve reflectance. All electrical components and lamp holders shall be mounted on the gear tray. It shall be suitable for operation with the specified rating of the lamp on a 230V +3%/-10% 50Hz single phase system.

All control gear components shall be removable and bear the relevant SABS mark.

The luminaires shall bear the SANS 60598-2-1 safety mark. The luminaires shall have a degree of protection that complies with SANS 60598-2-1:

Lamp compartment: IP20

The IP rating shall be certified by a SABS test report.

All internal wiring shall be Teflon® coated with protective sleeving to prevent damage by possible abrasion. All screws, bolts and metal parts shall be stainless steel or non-corrosive material. Mains connections shall be by means of a suitable screw terminal block with a wire clamping contact. The luminaire shall be power factor corrected to a minimum of 0.9. The diffuser shall be permanently sealed to the base. The control gear shall incorporate an automatic reversible over temperature protection. The LED's and control gear shall ensure a maintenance-free operation of no less than 50000 hrs. The unit shall be EMC compliant to the EN 55015 and EN 61347-1 Standard. It shall also conform to IEC613-2-13, IEC62384, IEC61000-3-2, IEC61000-3-3 and IEC61547. The LED's in the luminaire shall provide a light of a (4000K) Neutral colour temp.

Q. LED EMERGENCY SIGNAGE FITTING FOR OFFICE EMERGENCY LIGHTING.

134

Synthetic housing shall be manufactured to EN 60598-1 and EN 60695-2-10 (850°C). Array of high-brightness LEDs shall provide uniformity. Multiple circuits shall be used in order to ensure a single point of failure which does not affect the entire installation. A NiMH battery shall be used

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with no memory effect, and shall contain no Cadmium and shall have double the capacity of NiCad batteries.

R. LED SURFACE MOUNTED VANDAL-PROOF FOR CELL (WITH NIGHTLIGHT).

The luminaire shall consist of a high-pressure die-cast marine grade aluminum body with a robust clear polycarbonate diffuser and shall be designed to operate LEDs of up to 49W. The luminaire shall bear the SANS 60598-2-1 safety mark. It shall be for surface mounted applications.

The luminaires shall have a degree of protection that complies with SANS 60598-2-1:

Lamp compartment: IP65

The IP rating shall be certified by a SABS test report.

The body and diffuser shall prevent collection of dust on the accessible surface of the body, thus also preventing any grip of the luminaire. The luminaire shall allow entry of surface conduits via 20mm conduit threaded entries at both ends, as well as a 25mm hole in the center of the back of the body. A silicone sponge gasket shall be fitted, and the fitting shall have IP 65 rating. An injection-Moulded polycarbonate diffuser shall be used and vandal resistant. It shall be secured to the body by stainless steel Allen head screws. Tamper-proof screws with center-pin shall be used. The removable gear tray shall be manufactured from mild steel, powder coated white. All control gear components shall be mounted on the gear tray. The gear tray shall be removed by loosening Allen head screws in keyhole slots, which allow the gear tray to be relieved into a suspended position, ensuring ease of maintenance. All control gear components shall be removable and bear the relevant SABS mark. All screws, bolts and metal parts shall be stainless steel or non-corrosive material. Mains connections by means of a suitable screw terminal block with a wire clamping contact. Power factor $\geq 0,9$.

S. POST TOP LED LIGHT, WARM WHITE FOR PERIMETER LIGHTING AND STATION ENTRANCE (POLICE BLUE COLOUR).

This post top luminaire shall provide a new contemporary design for a well-known shape using state-of-the-art LED technology. It shall consist of high-pressure die-cast marine grade aluminium (EN 1706 AC-44300 base and gear plate, a top cover made of Acrylonitrile Styrene Acrylate (ASA) and a high-impact acrylic protector for durability and weather resistance. The luminaires shall bear the SANS 60598-2-1 safety mark. The luminaires shall have a degree of protection that complies with SANS 60598-2-1:

Lamp compartment: IP66

The IP rating shall be certified by a SABS test report.

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The luminaire shall emit a pleasant, glare-free light base on highly efficient white reflector (symmetrical light distribution). The complete luminaire shall be sealed to IP 66. Electronic temperature monitoring shall prevents overheating of LEDs and power supply, positioned directly next to LEDs.

T. OCCUPANCY SENSOR FOR GENERAL OFFICES, ABLUTIONS AND KITCHEN.

Ceiling-Mounted Occupancy Sensors shall be used in offices and ablutions, the settings shall be accurately detect occupancy and automatically control lighting. The ceiling-mount design of these low-profile sensors allows the greatest possible motion sensitivity. An adjustment panel shall be located on the front of the sensor, providing access to settings controls after the sensor is installed. The device shall comply with Part 15 of the FCC Rules. Operation shall be subject to the following two conditions: (1) the device may not cause harmful interference, and (2) the device must accept any interference received, including interference that may cause undesired operation.

There are three models of ceiling-mounted sensors:

- Passive Infrared (PIR) sensor - General offices and kitchen
- Ultrasonic sensor - Ablutions

U. VANDAL-RESISTANT LED BULKHEAD FOR POLICE COURTYARDS AND CELL PASSAGES.

The luminaires shall consist of a high pressure die cast aluminum body and a structured clear high impact acrylic diffuser. The luminaires shall be equipped a hot dipped galvanized wire guard. The luminaires shall bear the SANS 60598-2-1 safety mark. The luminaires shall have a degree of protection that complies with SANS 60598-2-1:

Lamp compartment: IP65

The IP rating shall be certified by a SABS test report.

The body shall be manufactured from high pressure die cast aluminum, powder coated in the color specified for added protection. It shall be suitable for surface mounting and shall allow for surface conduits to enter. A silicone sponge gasket shall be fitted into a groove in the body. Mounting holes, complete with nylon washers, can be provided on request. The LED version shall be supplied with the /ML accessory. The diffuser shall be manufactured from injection-molded, high-impact, non-discoloring acrylic. It shall be structured on the inside and smooth on the outside. The diffuser shall be held to the body by four captive stainless steelhead screws. A tongue arrangement provided on the diffuser shall ensure the integrity of the IP rating. The luminaires shall be power factor corrected to a minimum of 0, 9. In the LED version, the diffuser shall be

136

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PART C 2: Contract: Supply, Installation, Replacement & Maintenance Of Standby Generators and General Electrical Services

permanently sealed to the aluminium base and shall be supplied with a 0,5m long 1mm² silicone cable. The control gear shall incorporate an automatic reversible over temperature protection. The LED's and control gear shall be designed to ensure a maintenance-free operation of no less than 50000 hours.

23. PREAMBLES TO SCHEDULE OF QUANTITIES

PRICE SCHEDULE

General – The Schedules of Quantities define the scope of the Engineering Works in terms of the measurement and payment parameters specified. The Schedules shall be read in conjunction with the General Conditions of Contract, the Special Conditions, and the Conditions of Tender; the quantities stated on the schedules are provisional and are subject to re-measurement upon completion. Quantities cannot be guaranteed. Bidders shall quote for all equipment and all accessories specified within this document. The procurement of this equipment shall take place as and when needed, spread over the three year period. Servicing and maintenance of all newly installed equipment and components and guaranteeing free of defects for the full maintenance period of two years, will form part of this contract.

Descriptions & Measured Items – The Schedule of Quantities consists of Descriptions followed by measured items (Item lines) which specify the items of differing dimensions, ratings, etc. which comply with the overall requirements of such Description. The measured items may add, subtract or in any other way vary the Description. Below each item line the measured quantities applicable to each of the applicable sections of the Works appears under the relevant column heading, the total of which is shown under the Quantity column. The terms used and Schedule layout are defined in the *Schedule of Quantities* Legend which is presented at this Preamble. The Schedule of Quantities is based upon the Standard system of measurement modified as necessary. **Fixed Rates** – Rates shall be fixed for the duration of the contract. **All inclusive** – The Descriptions and item lines are of necessity abbreviated summaries of the specifications and unless otherwise stated or elsewhere measured, shall include all necessary components and accessories required or necessary for the correct functioning or performance of the item when incorporated into the Engineering Works. The rates and prices shall accommodate the nature of the Engineering Work and any restrictions which apply to the Works Environment and the Site of the Works, shall include all the costs and expenses that may be required in and for the construction of the Works described and shall include the cost of all general obligations, risks and liabilities stated or implied in the contract documents.

Such rates and prices shall, however, exclude Value Added Tax (VAT), which shall be applied only where specified.

137

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PART C 2: Contract: Supply, Installation, Replacement & Maintenance Of Standby Generators and General Electrical Services

Quantities net – The quantities set out in the Schedule are intended for measurement and payment purpose only. Material and equipment orders shall not be based upon such quantities but upon the Contractor's own assessment. Job cards will be signed off and certified by the Station Commander or representative. Invoices will be certified and approved for payment by the Division: SCM Facility Management

Section: Asset Operations Management Sub Section: Property Management: Pretoria. The schedule of quantities is for budget and Bid Evaluation purposes and is subject to amendment, based on site conditions.

Quantities Provisional – The quantities set out in the schedules are measured provisionally and will be subject to re-measurement on completion. Job cards will be signed off and certified by the Station Commander or representative. **This requirement is for a three -year (36 months) contract period and for an unlimited amount of equipment and services, for the purpose of equipping and maintaining “devolved SAPS facilities” throughout the Western Cape Province.** The term “devolved” refers to all facilities that have been transferred from the National Department of Public Works (NDPW) to the SAPS. Quantity cannot be guaranteed.

138

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24. SCHEDULES OF QUANTITIES

NORTHERN CAPE PROVINCE REGION - 01					
GENERATOR AND ELECTRICAL MAINTENANCE CONTRACT					
ITEM	DESCRIPTION	UNIT	QUANT	TARRIF/RATE	AMOUNT (R/c)
NOTE: The schedule of quantities is provisional and budget purposes. Supply and Install the following systems including all components and sundries, tests, etc. required to bring the installations to the working order intended & maintenance agreement for 36 months. Items, equipment, material and services which are not listed will be considerate and evaluated on quotation basis, as part of this contract or as part of a different contract.					
Preliminary & Generals					
1	Site Establishment (Central Point)	sum	1		
2	Surety, performance bond: Fixed	sum	1		
3	Insurance: Construction Works : Time related	sum	1		
4	Insurance: Public Liability : Time related	sum	1		
5	Insurance: Special Risk (SASRIA) : Time related	sum	1		
6	Insurance: Occupational Compensation (COID): Time Related	sum	1		
7	Admin facilities: Maintenance register, communication, etc.	sum	1		
8	Prepare & submit Health & Safety Plan	sum	1		
9	Prepare & submit Programme of the works	sum	1		
10	Removal of Rubbles, Rubbish & waste on site	sum	1		
11	Attending of six(6) monthly meeting with client department at the Stations	No	6		
12	Site hand-over meeting and inspection with client (stations)	No	12		
13	Display boards placed at each plant room/ container/facility (contract information)	No	12		
14	Safety compliance as per OHS act and specification, including DCP Fire extinguisher Cabinet and 9 kg dry powder fire extinguisher combo in the generator plant	No	8		
Schedule of Quantities No: 1					

139

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NORTHERN CAPE PROVINCE REGION - 01

GENERATOR AND ELECTRICAL MAINTENANCE CONTRACT

ITEM	DESCRIPTION	UNIT	QUANT	TARRIF/RATE	AMOUNT (R/c)
	Supply, deliver, install and commissioning of standby generators at various facilities, on demand and as needed. Complete with control panel, fuel tank, and insulated single core earth cable etc.				
15	Supply, deliver and install an outdoor 50KVA standby generator (three phase), as per Specification, including protection gear, all accessories (Victoria West SAPS)	No	1		
16	Factory load test of the specified for 50KVA standby generator, inclusive of fuel, consumables, load bank etc.	No	1		
17	Supply and construct the plinth on site, the top of the plinth shall protrude at least 200mm above the ground level and 100mm beyond the edges of the generator set.	sum	1		
18	Construct and install complete Galvanized palisade fencing, including matching entrance gate and locking mechanism. (palisade fence surrounding generator: 1.5m away from generator)	p/m	22		
19	Supply diesel fuel: Commissioning and replenishment during inspections	L	220		
20	Training of end user operating staff (two) in the station and submit proof thereof to Project Manager	No	2		
	Supply and install cabling, including Accessories as per specified.				
21	PVC, non-sheathed, copper conductor/cable, low voltage single core, stranded (1,5mm ²)	p/m	200		
22	PVC, non-sheathed, copper conductor/cable, low voltage single core, stranded (2,5mm ²)	p/m	200		
23	PVC, non-sheathed, copper conductor/cable, low voltage single core, stranded (4mm ²)	p/m	150		
24	PVC, non-sheathed, copper conductor/cable, low voltage single core, stranded (6 mm ²)	p/m	150		
	Schedule of Quantities No: 2				

140

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PART C 2: Contract: Supply, Installation, Replacement & Maintenance Of Standby Generators and General Electrical Services

NORTHERN CAPE PROVINCE REGION - 01					
GENERATOR AND ELECTRICAL MAINTENANCE CONTRACT					
ITEM	DESCRIPTION	UNIT	QUANT	TARRIF/RATE	AMOUNT (R/c)
25	PVC, non-sheathed, copper conductor/cable, low voltage single core, stranded (10 mm ²)	p/m	100		
26	PVC, non-sheathed, copper conductor/cable, low voltage single core, stranded (16 mm ²)	p/m	40		
27	PVC, non-sheathed, copper conductor/cable, low voltage single core, stranded (25 mm ²)	p/m	20		
28	Surfix cable, low voltage, 3 core PVC, Cu, in ground/ducts/air (1,5 mm ²)	p/m	200		
29	Surfix cable, low voltage, 3 core PVC, Cu, in ground/ducts/air (2,5 mm ²)	p/m	200		
30	XLPE cable, low voltage, 3 core PVC/SWA SHEATHED, Cu, in ground/ducts/air (1,5 mm ²)	p/m	150		
31	XLPE cable, low voltage, 3 core PVC/SWA SHEATHED, Cu, in ground/ducts/air (2,5 mm ²)	p/m	150		
32	XLPE cable, low voltage, 3 core PVC/SWA SHEATHED, Cu, in ground/ducts/air (4 mm ²)	p/m	50		
33	XLPE cable, low voltage, 3 core PVC/SWA SHEATHED, Cu, in ground/ducts/air (6 mm ²)	p/m	50		
34	XLPE cable, low voltage, 4 core PVC/SWA SHEATHED, Cu, in ground/ducts/air (1,5 mm ²)	p/m	10		
35	XLPE cable, low voltage, 4 core PVC/SWA SHEATHED, Cu, in ground/ducts/air (2,5 mm ²)	p/m	10		
36	XLPE cable, low voltage, 4 core PVC/SWA SHEATHED, Cu, in ground/ducts/air (4 mm ²)	p/m	10		
37	XLPE cable, low voltage, 4 core PVC/SWA SHEATHED, Cu, in ground/ducts/air (6 mm ²)	p/m	10		
38	XLPE cable, low voltage, 4 core PVC/SWA SHEATHED, Cu, in ground/ducts/air (10 mm ²)	p/m	40		
Schedule of Quantities No: 3					

141

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PART C 2: Contract: Supply, Installation, Replacement & Maintenance Of Standby Generators and General Electrical Services

NORTHERN CAPE PROVINCE REGION - 01					
GENERATOR AND ELECTRICAL MAINTENANCE CONTRACT					
ITEM	DESCRIPTION	UNIT	QUANT	TARRIF/RATE	AMOUNT (R/c)
39	XLPE cable, low voltage, 4 core PVC/SWA SHEATHED, Cu, in ground/ducts/air (16 mm ²)	p/m	40		
40	XLPE cable, low voltage, 4 core PVC/SWA SHEATHED, Cu, in ground/ducts/air (25 mm ²)	p/m	40		
41	XLPE cable, low voltage, 4 core PVC/SWA SHEATHED, Cu, in ground/ducts/air (35 mm ²)	p/m	50		
42	XLPE cable, low voltage, 4 core PVC/SWA SHEATHED, Cu, in ground/ducts/air (50 mm ²)	p/m	50		
43	flat twin and earth, Cu, PVC insulated, white (1,5 mm ²)	p/m	200		
44	flat twin and earth, Cu, PVC insulated, white (2,5 mm ²)	p/m	200		
Supply and install Surface Mount Distribution Board, including Accessories as per specified.					
45	Surface Mounted Double Door DB, IP 65, mild steel, inclusive of Earth and Neutral bar, Powered coated: 3 row and 18 way (partitioned essential and non-essential unpopulated)	No	2		
46	Surface Mounted Double Door DB, IP 65, mild steel, inclusive of Earth and Neutral bar, Powered coated: 3 row and 26 way(partitioned essential and non-essential unpopulated)	No	4		
47	Surface Mounted Double Door DB, IP 65, mild steel, inclusive of Earth and Neutral bar, Powered coated: 3 row and 36 way(partitioned essential and non-essential unpopulated)	No	4		
Supply and install Switchgear And Accessories as per specified.					
48	10 Amp, single pole 3 kA, circuit breaker	No	40		
49	20 Amp, single pole 3kA, circuit breaker	No	40		
50	40 Amp, single pole. 3 kA, circuit breaker	No	50		
Schedule of Quantities No: 4					

142

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PART C 2: Contract: Supply, Installation, Replacement & Maintenance Of Standby Generators and General Electrical Services

NORTHERN CAPE PROVINCE REGION - 01					
GENERATOR AND ELECTRICAL MAINTENANCE CONTRACT					
ITEM	DESCRIPTION	UNIT	QUANT	TARRIF/RATE	AMOUNT (R/c)
51	60 Amp, single pole. 3 kA, circuit breaker	No	30		
52	60 Amp, single pole. 6 kA, circuit breaker	No	20		
53	70 Amp, single pole. 6 kA, circuit breaker	No	16		
54	80 Amp, single pole. 6 kA, circuit breaker	No	20		
55	100 Amp, single pole. 6 kA, circuit breaker	No	30		
56	63 A Earth Leakage unit in DB, with 30 mA earth leakage protection,3 kA	No	30		
57	63 A Earth Leakage unit in DB, with 30 mA earth leakage protection,6 kA	No	45		
58	30 Amp, three pole. 3kA, circuit breaker	No	50		
59	60 Amp, three pole. 3kA, circuit breaker	No	40		
60	80 Amp, three pole3 kA, circuit breaker	No	35		
61	100 Amp, three pole. 3kA, circuit breaker	No	24		
62	120 Amp, three pole. 3kA, circuit breaker	No	12		
63	150 Amp, three pole. 3kA, circuit breaker	No	6		
64	60 Amp, three pole. 6kA, circuit breaker	No	40		
65	80 Amp, three pole. 6kA, circuit breaker	No	20		
66	100 Amp, three pole. 6kA, circuit breaker	No	18		
67	120 Amp, three pole. 6kA, circuit breaker	No	10		
68	250 Amp, three pole. 6kA, circuit breaker	No	6		
69	Contactor 10A single pole 230-240V AC	No	20		
70	Contactor 20A single pole 230-240V AC	No	25		
71	Contactor 40A single pole 230-240V AC	No	20		
Schedule of Quantities No: 5					

143

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PART C 2: Contract: Supply, Installation, Replacement & Maintenance Of Standby Generators and General Electrical Services

NORTHERN CAPE PROVINCE REGION - 01					
GENERATOR AND ELECTRICAL MAINTENANCE CONTRACT					
ITEM	DESCRIPTION	UNIT	QUANT	TARRIF/RATE	AMOUNT (R/c)
72	Contactor 60A single pole 230-240V AC	No	15		
73	Contactor 80A single pole 230-240V AC	No	25		
74	Contactor 20A 3 pole 380-400V AC	No	20		
75	Contactor 40A 3 pole 380-400V AC	No	16		
76	Contactor 60A 3 pole 380-400V AC	No	10		
77	Contactor 80A 3 pole 380-400V AC	No	6		
78	Contactor 100A 3 pole 380-400V AC	No	4		
79	Isolator 30A double pole	No	21		
80	Isolator 60A double pole	No	21		
81	Isolator 40A, 3 pole	No	12		
82	Isolator 60A, 3 pole	No	12		
83	Isolator 80A 3 pole	No	6		
84	Isolator 100A, 3 pole	No	6		
85	Isolator 150A, 3 pole	No	1		
86	class 1 & 2, 4P lightning sure arrester in normal distribution boards	No	12		
Supply and install Conduit as per specified.					
87	PVC Conduit rates to include for waste, couplings, sets, cold galvanized paint on joint, etc. where applicable. (20 mm ²)	m	40		
88	PVC Conduit rates to include for waste, couplings, sets, cold galvanized paint on joint, etc. where applicable. (25 mm ²)	m	24		
89	Galvanized Conduit rates to include for waste, couplings, sets, cold galvanized paint on joint, etc. where applicable. (20mm ²)	m	24		
90	Galvanized Conduit rates to include for waste, couplings, sets, cold galvanized paint on joint, etc. where applicable. (25mm ²)	m	24		
91	Galvanized Conduit rates to include for waste, couplings, sets, cold galvanized paint on joint, etc. where applicable. (50mm ²)	m	12		
Schedule of Quantities No: 6					

144

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PART C 2: Contract: Supply, Installation, Replacement & Maintenance Of Standby Generators and General Electrical Services

NORTHERN CAPE PROVINCE REGION - 01					
GENERATOR AND ELECTRICAL MAINTENANCE CONTRACT					
ITEM	DESCRIPTION	UNIT	QUANT	TARRIF/RATE	AMOUNT (R/c)
92	Open channel galvanized trunking P8000 (76 x 76mm ²)	p/m	20		
93	Power skirting/trunking, 3 compartment, metal, powder-coated	p/m	100		
94	Cable sleeve pipes: HDPE sleeve to SANS/SABS specification: 110 mm	m	24		
95	Galvanize Pole - 3.6m hot dipped galvanize pole, base plate, backing board & inspection cover with tamper proof screws and 10Amp control Circuit Breaker	No	20		
Supply and install Power Socket Outlet and Switch Socket Outlet as per specified.					
96	16 A, 3 pin, switch socket outlet, flush mounted	No	50		
97	16 A, 3 pin, switch socket outlet, power skirting mounted (dedicated & normal power)	No	50		
98	16 A, 3 pin, switch socket outlet, weather proof	No	20		
99	Weatherproof surface mount switch socket, IP 65, 16 Amp, including enclosure Rotary Switch	No	30		
100	Weatherproof surface mount switch socket, IP 65, 16 Amp, including enclosure	No	20		
101	Light switches, 10 Amp, flush mounted, 1 pole, 1 way, including connection and termination	No	20		
102	Light switches, 10 Amp, flush mounted, 1 pole, 2 way, including connection and termination	No	20		
103	Light switches, 10 Amp, flush mounted, 1 pole, 3 way, including connection and termination	No	20		
Supply and install Geyser Including Accessories, as per specified.					
104	Hydro boil 10L including	No	5		
105	Geyser, 100 L, high pressure complete with geyser blanket installed	No	4		
106	Geyser, 150 L, high pressure complete with geyser blanket installed	No	4		
Schedule of Quantities No: 7					

145

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PART C 2: Contract: Supply, Installation, Replacement & Maintenance Of Standby Generators and General Electrical Services

NORTHERN CAPE PROVINCE REGION - 01					
GENERATOR AND ELECTRICAL MAINTENANCE CONTRACT					
ITEM	DESCRIPTION	UNIT	QUANT	TARRIF/RATE	AMOUNT (R/c)
107	Geyser, 200 L, high pressure complete with geyser blanket installed	No	3		
108	Thermostat Switch	No	8		
109	3kW Immersion type element	No	4		
110	Thermostat sleeve	No	4		
111	Geyser safety valve	No	4		
112	Electronic Diesel Pump: CKm 50, Power: 0.37KW (0.5 HP), Voltage: 220-230V, Current: 3A, including all required switch and pipes or similar approved.	No	6		
Generating plant maintenance & servicing (engine & alternator): Including materials and Housekeeping, as per specified.					
113	Six monthly service: Diesel 20 kVA to 50 kVA (8 Station x 6 services)	No	48		
114	Six monthly service: Diesel 20 kVA to 50 KVA (3 Station x 5 Services)	No	15		
115	Six monthly service: Diesel 60 kVA to 100 KVA (1 Station x 6 services)	No	6		
116	Supply and replenish diesoline (20L X 12 Stations)	L	240		
117	Service Lead Acid Battery: 100A/H...120A/H (six monthly basis)	No	12		
118	Lead Acid Battery (100 A/H...120 A/H)	No	4		
119	Electronic Generator Controller: Deep Sea /Lovato or similar approved	No	2		
120	Battery chargers	No	3		
121	Solenoid suitable for generator set: 20 - 100kVA	No	2		
122	Alternator suitable for generator set: 20 - 100kVA	No	2		
123	Automatic Voltage Regulator (AVR): 20 - 100kVA	No	2		
124	Radiator suitable for generator set: 20 - 100kVA	No	4		
125	Starter Motor suitable for generator set: 20 - 100kVA	No	3		
126	Radiator Horse pipes suitable for generator set: 20 - 100kVA	No	4		
Schedule of Quantities No: 8					

146

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PART C 2: Contract: Supply, Installation, Replacement & Maintenance Of Standby Generators and General Electrical Services

NORTHERN CAPE PROVINCE REGION - 01					
GENERATOR AND ELECTRICAL MAINTENANCE CONTRACT					
ITEM	DESCRIPTION	UNIT	QUANT	TARRIF/RATE	AMOUNT (R/c)
127	Automatic Transfer switch (ATS) 30KVA -50KVA Generator	No	1		
128	Automatic Transfer switch (ATS) 60KVA -100KVA Generator	No	1		
Supply and replace Fluorescent Lamps/Tubes					
129	Fluorescent tube, slim line 16 mm	No	80		
130	Lamp Fluorescent PL 18W	No	100		
131	Lamp Fluorescent PL 26W	No	50		
132	Lamp Fluorescent PL 36W	No	50		
133	Lamp Fluorescent PL 58W	No	70		
134	250W HPL-N mercury vapour lamp	No	20		
135	400W HPL-N mercury vapour lamp	No	10		
Supply and Replace light Fittings complete with Accessories					
136	2x36 W fluorescent luminaires with double 1500mm T5 fluorescent luminaires and fluorescent tubes, cool white with electronic control gear	No	50		
137	2x58 W fluorescent luminaires with double 1500mm T8 fluorescent luminaires and fluorescent tubes, cool white with electronic control gear	No	40		
138	Fluorescent luminaires, fitting, complete, 1 x 58 W, open channel, Tri phosphor cool white	No	40		
139	1200 x 600, 3 tube recessed, low profile fluorescent fitting, 4 x 36 Watt, complete	No	50		
140	250-400W HPS floodlights fitting	No	30		
141	Bulkhead light fittings, round IP65 rated, complete with 2 x PL9 lamps (veranda's)	No	50		
142	Surface mounted, integral dome shape, Bulkhead fitting (Type B1), 2 x 9 Watt, PL lamps, complete	No	40		
143	Bulkhead light fittings, round 2xPL 18 down light complete with lamps (toilets)	No	40		
144	2 x 58 W SABS surface-mounted fluorescent luminaire module 6 with prismatic diffuser.	No	50		
Schedule of Quantities No: 9					

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147



PART C 2: Contract: Supply, Installation, Replacement & Maintenance Of Standby Generators and General Electrical Services

NORTHERN CAPE PROVINCE REGION - 01					
GENERATOR AND ELECTRICAL MAINTENANCE CONTRACT					
ITEM	DESCRIPTION	UNIT	QUANT	TARRIF/RATE	AMOUNT (R/c)
145	Mercury vapour, high pressure sodium perimeter lighting post top unit with 57 W CFL post top unit with lamp similar or equal to Beka luminaire, complete.	No	30		
146	Vandal-resistant LED bulkhead courtyards and cell passages (SANS 60598-2-1, SANS 60598-2-1, IP65) Beka or similar approved, (SAPS 5 star specification)	No	60		
147	(Cells): BEKA 4 ft. Rough Guard Pre-wired and Retrofitted with cool white LED tubes from manufacturer (with 9 Watt LED nightlight): or similar approved,	No	60		
148	BEKA 4 ft. Rough Guard Pre-wired and Retrofitted with cool white LED tubes from manufacturer (without night light): or similar approved	No	50		
149	SAPS Blue Version (at pedestrian entrance): 16 LED BEKA Zela (37 Watt): or similar approved	No	24		
150	2 X 20 Watt/12 Volt light, including solar outreach, 1 x120 Watt solar panels, solar battery box, 2 x 100 A/H AGM sealed battery, 6 meter pole, tamper proof torx tool, complete, with MPPT (lead) controller (or similar approved).	No	35		
151	BEKARONDO LED downlight (10 Watt) or similar approved	No	20		
152	(Cell block secure service duct): Beka Bulk 15W 230V LED Bulkhead Light Complete With Vandal Proof Screws or Similar Approved	No	50		
Schedule of Quantities No: 10					

148

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NORTHERN CAPE PROVINCE REGION - 01

GENERATOR AND ELECTRICAL MAINTENANCE CONTRACT

ITEM	DESCRIPTION	UNIT	QUANT	TARRIF/RATE	AMOUNT (R/c)
153	(Female cells, Male cells and Juveniles cells) Rough guard LED Surface Mounted Vandal Proof Light with Night Light, Complete with 3m Flexible cable and 5A Unswitched Plug top or Similar Approved.	No	50		
154	(Secure Offloading Areas Court yards, Cells Kitchen, Plant Rooms): Rough guard LED Surface Mounted Vandal Proof Light Complete with 3m Flexible Cable and 5A Unswitched Plug top or Similar Approved.	No	40		
155	(Security passage, Cell block, ablution): Rough guard 10W LED Surface Mounted Vandal Proof, Complete with 3m Flexible Cable and 5A Unswitched Plug top or Similar Approved.	No	40		
156	(Kitchen): Beka Series 21, 20W LED Bulkhead High-Impact Acrylic Diffuser or Similar Approved	No	35		
157	Light fitting, 50 Watt, minimum 3250 lumens with min 120 degree beam angle LED Floodlight, IP 65, Complete with wall mount bracket, stainless steel screws and polycarbonate corrosion resistant housing	No	50		
158	Light fitting, Post Top 2PL26, IP 65, Complete	No	50		
159	CLF, 4U, 15 watt, fixed base, 240 V	No	40		
Schedule of Quantities No: 11					

149

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PART C 2: Contract: Supply, Installation, Replacement & Maintenance Of Standby Generators and General Electrical Services

NORTHERN CAPE PROVINCE REGION - 01					
GENERATOR AND ELECTRICAL MAINTENANCE CONTRACT					
ITEM	DESCRIPTION	UNIT	QUANT	TARRIF/RATE	AMOUNT (R/c)
160	(General Offices, Admin Offices, Lecture Rooms, Computer Rooms, Stores, Conference Room, Investigators Office, Commanders Offices, Passages (with suspended ceiling), Radio room/CAS terminal, Stores (with suspended ceiling)): Beka DARI 35W With Surface Mount Frame, Warm White light fitting (600x600), Complete with 3m Flexible cable and 5A Unswitched Plug top or Similar Approved	No	50		
161	(Perimeter lighting palisade Police station entrance (Bekaray in a police blue colour): Bekaray die-cast aluminium base and gear plate post top LED light, warm white or Similar Approved	No	20		
162	Beka Series 51 18W LED Prismatic Diffuser Bulkhead or Similar Approved.	No	35		
163	(Passive infrared occupancy sensor and Ultrasonic occupancy sensor)	No	15		
164	Photocell, 15Amp, complete	No	21		
Day Works: Provisional amounts to be expended only as authorized by the Employer. Items shall include for overheads, etc.					
165	Artisan, normal time	Hrs.	2736		
166	Artisan, overtime (weekdays and weekend) : (unplanned / emergency call-outs)	Hrs.	180		
167	Semiskilled, normal time	Hrs.	2736		
168	Semiskilled, overtime (weekdays and weekend): (unplanned / emergency call-outs)	Hrs.	180		
169	Labourer, normal time	Hrs.	180		
170	Labourer, overtime (weekdays and weekend) : (unplanned/emergency call-outs)	Hrs.	180		
171	Transport incl. personnel time: To the level of a LDV	km	213528		
172	Excavation of soft rock/hard rock & backfilling (cable installation)	m	20		
Schedule of Quantities No: 12					

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PART C 2: Contract: Supply, Installation, Replacement & Maintenance Of Standby Generators and General Electrical Services

NORTHERN CAPE PROVINCE REGION - 01					
GENERATOR AND ELECTRICAL MAINTENANCE CONTRACT					
ITEM	DESCRIPTION	UNIT	QUANT	TARRIF/RATE	AMOUNT (R/c)
173	Reinstate concrete/paving (cable installation)	m	30		
174	Testing and certification: Certification of Compliance (COC), with regards to all electrical reticulation, connections, wiring, equipment & electrical installation	No	12		
Schedule of Quantities No: 13					

25. SCHEDULE OF RATES

Where rates are not included in the Schedule of Quantities, the following rates, which shall be inclusive of, profit, supervision, administration and transport charges, shall be used to assess the value of variations to the contract. Approval of schedule of rates, within contract amount is delegated by the SAPS to the Principle Agent/Project Manager. The SAPS's **representative/** Employer may, if he considers that the rates below are unreasonable, request their amendment prior to acceptance of the tender.

25.1. Diesel Engine Plant

Item	Description	Unit	Qty	Rate
1.1	Drain and flush and replace crankcase oil	Sum	1	
1.2	Drain and replace injector box oil	Sum	1	
1.3	Drain, flush and replace radiator water with anti-freeze	Sum	1	
1.4	Replace radiator pressure cap/valve	No	1	
1.5	Replace vee-belt	No	1	
1.6	Replace oil feed pump	No	1	
1.7	Replace dry air filter	No	1	
1.8	Replace radiator hoses	No	2	
1.9	Service battery charging system	Sum	1	
1.10	Service Lead Acid Battery	Sum	1	
1.11	Supply and replace Lead Acid Battery (100 A/H)	No	1	
1.12	Supply and replace Lead Acid Battery (120 A/H)	No	1	

151

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25.2. Generator Set

Supply, deliver and install an outdoor 25KVA standby generator as per Specification, including Plinth, canopy and all accessories (INCLUSIVE OF LABOUR AND TRANSPORT COST) and Factory Load Test	R
Supply, deliver and install an outdoor 30KVA standby generator as per Specification, including Plinth, canopy and all accessories (INCLUSIVE OF LABOUR AND TRANSPORT COST) and Factory Load Test	R
Supply, deliver and install an outdoor 40 KVA standby generator as per Specification, including Plinth, canopy and all accessories (INCLUSIVE OF LABOUR AND TRANSPORT COST) and Factory Load Test	R
Supply, deliver and install an outdoor 50KVA standby generator as per Specification, including Plinth, canopy and all accessories (INCLUSIVE OF LABOUR AND TRANSPORT COST) and Factory Load Test	R
Supply, deliver and install an outdoor 70KVA standby generator as per Specification, including Plinth, canopy and all accessories (INCLUSIVE OF LABOUR AND TRANSPORT COST) and Factory Load Test	R
Supply, deliver and install an outdoor 80KVA standby generator as per Specification, including Plinth, canopy and all accessories (INCLUSIVE OF LABOUR AND TRANSPORT COST) and Factory Load Test	R
Supply, deliver and install an outdoor 100KVA standby generator as per Specification, including Plinth, canopy and all accessories (INCLUSIVE OF LABOUR AND TRANSPORT COST) and Factory Load Test	R
Supply, deliver and install an outdoor 120KVA standby generator as per Specification, including Plinth, canopy and all accessories (INCLUSIVE OF LABOUR AND TRANSPORT COST) and Factory Load Test	R
Supply, deliver and install an outdoor 250KVA standby generator as per Specification, including Plinth, canopy and all accessories (INCLUSIVE OF LABOUR AND TRANSPORT COST) and Factory Load Test	R
Decommissioning and Removal of an existing Generator set in a generator room and stripping thereof in preparation of its removal from site	R

152

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2.2. FINAL SUMMARY OF SCHEDULE OF QUANTITIES

Details	Page	Amount (R)	Amount (c)
Page Subtotal 1	SOQ1		
Page Subtotal 2	SOQ2		
Page Subtotal 3	SOQ3		
Page Subtotal 4	SOQ4		
Page Subtotal 5	SOQ5		
Page Subtotal 6	SOQ6		
Page Subtotal 7	SOQ7		
Page Subtotal 8	SOQ8		
Page Subtotal 9	SOQ9		
Page Subtotal 10	SOQ10		
Page Subtotal 11	SOQ11		
Page Subtotal 12	SOQ12		
Page Subtotal 13	SOQ13		
SUB-TOTAL (SOQ 1+SOQ2+.....+ SOQ12+SOQ13)	ST 1		
Add VAT: @ 15% of ST 1	VAT		
Total Tender Price: ST 1 +VAT	T		

153

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PART C 2: Contract: Supply, Installation, Replacement & Maintenance Of Standby Generators and General Electrical Services

26. JOB CARD

JOB CARD

Service Date: Reference no.

Place..... Institution.....Location

Service Description

Contractor:

WORK EXECUTED DESCRIPTION

Use addendum if additional space is required. Attach the following documents: 1. Completed & signed servicing checklists page and monthly travel log sheet.

Artisan's Name:

Date of arrival:Time:

Completion date:Time.....

Actual hours worked on site:

Signature of Artisan (Contractor)

CONTRACTOR

I hereby declare that the maintenance and servicing as listed have been satisfactorily executed and that all records have been updated.

SIGNED BY THE CONTRACTOR

Date... Name..... Signature.....

CLIENT DEPARTMENT (To be completed by the Station Commander/designated officer).I have personally checked that the contractor inspected the generator plant on the date stated. (However I do not certify technical correctness)

Remarks.....

Name: Rank: Date:

Signature: Telephone:

South African Police
STAMP
PLEASE

154

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**APPOINTMENT OF A CONTRACTOR FOR THE SUPPLY,
INSTALLATION, REPLACEMENT AND MAINTENANCE OF STANDBY
GENERATORS AND GENERAL ELECTRICAL SERVICES IN NORTHERN
CAPE PROVINCE REGION ONE (01): TWELVE (12) DEVOLVED POLICE
STATIONS FOR THE PERIOD OF THREE (3) YEARS**

BID: 19/1/9/1/116TB(22)

PART C

CONTRACT

PART C 3

OCCUPATIONAL HEALTH AND SAFETY

155



HEALTH & SAFETY SPECIFICATION

FOR

CAPITAL WORKS AND PLANNED MAINTENANCE
PROJECTS

MANAGED ON BEHALF OF

SOUTH AFRICAN POLICE SERVICE

(THE "CLIENT")

Rev 2: H&S Specification

20. Lockout System.....	3.4
21. Important Lists & Records to be kept.....	2.4

1. PREAMBLE

In terms of Construction Regulation 5(1) (b) of the Occupational Health and Safety Act, 1993 (Act 85 of 1993), South African Police Service, as the Client must prepare a suitable, documented and coherent site specific health and safety specification for the intended construction work based on the baseline risk assessment.

The Client's further duties are as described in The Act and the Regulations made there-under. The Principal Contractor shall be responsible for the Health & Safety Policy for the site in terms of Section 7 of the Act and in line with Construction Regulation 7 as well as the Health and Safety Plan for the project.

This 'Health and Safety Specifications' document is governed by the 'Occupational Health and Safety Act, 1993 (Act No. 85 of 1993), hereinafter referred to as 'The Act'. Notwithstanding this, cognizance should be taken of the fact that no single Act or its set of Regulations can be read in isolation. Furthermore, although the definition of Health and Safety Specifications stipulates 'a documented specification of all health and safety requirements pertaining to associated works on a construction site, so as to ensure the health and safety of persons', it is required that the entire scope of the Labour legislation, including the Basic Conditions of Employment Act be considered as part of the legal compliance system. With reference to this specification document this requirement is limited to all health, safety and environmental issues pertaining to the site of the project as referred to here-in. Despite the foregoing it is reiterated that environmental management shall receive due attention.

Due to the wide scope and definition of construction work, every construction activity and site will be different, and circumstances and conditions may change even on a daily basis. Therefore, due caution is to be taken by the Principal Contractor when drafting the Health and Safety Plan based on these Health and Safety Specifications. Prior to drafting the Health and Safety Plan, and in consideration of the information contained here-in, the contractor shall set up a Risk Assessment Program to identify and determine the scope and details of any risk associated with any hazard at the construction site, in order to identify the steps needed to be taken to remove, reduce or control such hazard. This Risk

Rev 2: H&S Specification, 2018

3

TABLE OF CONTENT

1. Preamble.....	3
2. Scope of health & safety specification document.....	4
3. Purpose.....	5
4. Definitions.....	6
5. Occupational health & safety management.....	8
5.1 Structure and organization of OHS responsibilities.....	8
5.1.1 Overall supervision and responsibilities OHS.....	8
5.1.2 Required appointment as per the construction regulation.....	9
5.2 Communication, participation & consultation.....	10
6. Interpretation.....	11
7. Responsibilities.....	11
7.1 Client.....	11
7.2 Principal contractor.....	12
7.3 Contractor.....	14
7.4 Construction Health & Safety Agent (SACPCMP).....	14
8. Scope of work.....	15
9. Preparing Health & Safety Plan.....	15
10. Health & Safety File.....	17
11. OH&S Goals & Objective & Arrangements for Monitoring & Reviewing OH&S Performance.....	18
11.1 Identification of Hazards & development of Risk Assessment, Standard working Procedures (SWP) & Method Statement.....	18
11.1.1 Monthly audit by client and/or its agent.....	18
11.1.2 Health & Safety incident/accident reporting and investigation.....	19
12. Review.....	19
12.1 Site Rules & other Restrictions.....	21
12.1.1 Appointment of Health & Safety Reps.....	21
12.1.2 Duties and functions of the Health & Safety Reps.....	22
12.1.3 Establishment of Health & Safety Committee.....	23
12.1.4 Training & Awareness.....	23
13. Project Site Specific Requirements.....	24
14. Outlined Data References & information on Certain & Specific Obligatory Requirements to ensure compliance.....	25
15. Principal Contractor General duties.....	29
16. The Principal Contractor Specific Duties.....	29
17. The Principal Contractor Specific Responsibilities with regard to hazardous activities.....	29
18. General Notes to the Principal Contractor.....	30
19. House Keeping.....	31
20. Facilities.....	32

Rev 2: H&S Specification, 2018

2

Assessment and the steps identified will be the basis or point of departure for the Health and Safety Plan.

The South African Police Service is tasked to provide accommodation and operational facilities to a very large proportion of its members. A very large number of State employees and public users of the facilities and the services provided there-in directly interacts with the facilities provided by the well-being, health and safety of a great number of people. This Department thus has directly or indirectly, an impact on the Republic of South Africa as well as the National Parliament.

In this a high premium is to be placed on the health and safety of the most valuable assets of the South African Police Service. These are its personnel, the personnel of its Clients and the physical assets of which it is the custodian and may also include the public as well. The responsibilities the Department and relevant stakeholders have toward its employees and other people present in the facilities or on the sites are captured further in this specification document. These responsibilities stem from both moral, civil and a variety of legal obligations. The Principal Contractor is to take due cognisance of the above statement.

Every effort has been made to ensure that this specification document is accurate and adequate in all respects. Should it however, contain any errors or omissions they may not be considered as grounds for claims under the contract for additional reimbursement or extension of time, or relieve the Principal Contractor from his responsibilities and accountability in respect of the project to which this specification document pertains. Any such inaccuracies, inconsistencies and/or inadequacies must immediately be brought to the attention of the Agent and/or Client.

2. SCOPE OF HEALTH AND SAFETY SPECIFICATION DOCUMENT

These Specifications should be read in conjunction with the Act, the Construction Regulations and all other Regulations and Safety Standards which were or will be promulgated under the Act or incorporated into the Act and be in force or come into force during the effective duration of the project. The stipulations in this specification, as well as those contained in all other documentation pertaining to the project, including contract

Rev 2: H&S Specification, 2018

4

documentation and technical specifications shall not be interpreted, in any way whatsoever, to countermand or nullify any stipulation of the Act, Regulations and Safety Standards which are promulgated under, or incorporated into the Act.

3. PURPOSE

The South African Police Service is obligated to implement measures to ensure the health and safety of all people and properties affected under its custodianship or contractual commitments, and is further obligated to monitor that these measures are structured and applied according to the requirements of these Health and Safety Specifications.

The purpose of this specification document is to provide the relevant Principal Contractor (and his /her contractor) with any information other than the standard conditions pertaining to construction sites which might affect the health and safety of persons at work and the health and safety of persons in connection with the use of plant and machinery; and to protect persons other than persons at work against hazards to health and safety arising out of or in connection with the activities of persons at work during the carrying out of construction work for the South African Police Service. The Principal Contractor (and his /her contractor) is to be briefed on the significant health and safety aspects of the project and to be provided with information and requirements on inter alia:

- Safety considerations affecting the site of the project and its environment;
- Health and safety aspects of the associated structures and equipment;
- submissions on health and safety matters required from the Principal Contractor (and his /her contractor); and
- the Principal Contractor's (and his /her contractor) health & safety plan.

To serve to ensure that the Principal Contractor (and his /her contractor) is fully aware of what is expected from him/her with regard to the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) and the Regulations made there-under including the applicable safety standards, and in particular in terms of Section 6, 7 and 8 of the construction regulation (2014).

Rev 2: H&S Specification: 2018

5

- the erection, maintenance, alteration, renovation, repair, demolition or dismantling of or addition to a building or any similar structure;
- the installation, erection, dismantling or maintenance of a fixed plant where such work includes the risk of a person falling;
- the construction, maintenance, demolition or dismantling of any bridge, dam, canal, road, railway, runway, sewer or water reticulation system or any similar civil engineering structure; or
- the moving of earth, clearing of land, the making of an excavation, piling, or any similar type of work;

Construction Work Permit – means a document issued by the Provincial Director of Department of Labour

“Contractor” – means an employer, as defined in Section 1 of the Act, who performs construction work and includes Principal Contractors.

“Contract Amount” Financial value of the contract at the time of the award of the contract, exclusive of all allowance and any value added tax or sales tax which the law requires the employer to pay to the contractor.

“Practical Completion Certificates” A certificates issued in terms of a contract by the employer, signifying that the whole of the construction works have reached a state of readiness for occupation or use for the purposes intended, although some minor work may be outstanding.

“Accident” – means unplanned occurrence that happens due to the unsafe condition and may cause injury to a person, damage to the property, material, plant, equipment and the environment;

“Hazard” – means anything including work activities and practices with the potential to cause harm;

“Risk” – means the likelihood that harm will occur and the subsequent consequences.

Rev 2: H&S Specification: 2018

7

To inform the Principal Contractor that the Occupational Health and Safety Act, 1993 (Act 85 of 1993) in its entirety shall apply to the contract to which this specification document applies. The Construction Regulations promulgated on 07 February 2014.

4. DEFINITIONS - The most important definitions in the Act and Regulations pertaining to this specification document are hereby extracted.

“Purpose of the Act” – To provide for the health and safety of persons at work and the health and safety of persons in connection with the use of plant and machinery; the protection of persons other than persons at work against hazards to health and safety arising out of or in connection with the activities of persons at work, to establish an advisory council for occupational health and safety, and to provide for matters connected therewith.

“Health & Safety Specification” – means a document that includes information required under the construction regulation and obtained from the clients & designers during the early planning & design stage for a specific project on a specific site for use by the contractors when preparing their tenders or bids to clients.

“Health & Safety Plan” – means a site, activity or project documented plan in accordance with the clients health and safety specification

“Agent” – means any person who acts as a representative for a client;

“Client” – means any person for whom construction work is performed,

“Construction Health & Safety Agent (SACPCMP)” – The person or entity appointed by the client through the Agent and who has a full authority and obligation to act on the clients behalf in terms of the construction regulations;

“Construction Work” is defined as any work in connection with –

Rev 2: H&S Specification: 2018

6

“Risk assessment” – means a process to determine any risk associated with any hazard at a construction site in order to identify the steps needed to be taken to mitigate, reduce or control such hazards

Health and Safety File” – means a file, or other record containing the information in writing required by Construction Regulations

5. OCCUPATIONAL HEALTH & SAFETY MANAGEMENT

5.1 Structure and Organization of OH&S Responsibilities

5.1.1. Overall Supervision and Responsibility for OH&S

- The Client and/or its Agent on its behalf to ensure that the Principal Contractor, appointed in terms of Construction Regulation 5(1)(k), implements and maintains the agreed and approved H&S Plan. Failure on the part of the Client or Agent to comply with this requirement will not relieve the Principal Contractor from any one or more of his/her duties under the Act and Regulations.
- The Chief Executive Officer of the Principal Contractor in terms of Section 16 (1) of the Act to ensure that the Employer (as defined in the Act) complies with the Act. The pro forma Legal Compliance Audit may be used for this purpose by the Principal Contractor or his/her appointed contractor.
- All OH&S Act (85 /1993), Section 16 (2) appointee/s as detailed in his/her/their respective appointment forms to regularly, in writing, report to their principals on matters of health and safety per routine and ad hoc inspections and on any deviations as soon as observed, regardless of whether the observation was made during any routine or ad hoc inspection and to ensure that the reports are made available to the principal Contractor to become part of site records (Health & Safety File).
- The Construction Supervisor and Assistant Construction Supervisor/s appointed in terms of Construction Regulation 8 to regularly, in writing, report to their principals on matters of health and safety per routine and ad hoc inspections and on any

Rev 2: H&S Specification: 2018

8

deviations as soon as observed, regardless of whether the observation was made during any routine or ad hoc inspection and to ensure that the reports are made available to the principal Contractor to become part of site records (Health & Safety File).

- e) All Health and Safety Representatives (SHE-Reps) shall act and report as per Section 18 of the Act.

5.1.2 Required appointments as per the Construction Regulations:-

Item	Regulation	Appointment	Responsible Person
1.	3.	Application Construction work permit	Client
2.	5(1)(k)	Principal contractor for each phase or project	Client
3.	5(6)	Construction Health & Safety Agent	Client
4.	7 (1)(c)	Contractor	Principal Contractor
5.	7(3)	Contractor	Contractor
6.	8(1)	Construction manager	Contractor
7.	8(2)	Assistance Construction manager	Contractor
8.	8(5)	Construction Safety Officer	Contractor
9.	9(7)	Construction Supervisor	Contractor
10.	8(8)	Responsible employee	Contractor
11.	9(1)	Competent risk assessor	Contractor
12.	10(1)	Fall protection planner	Contractor
13.	12(1)	Temporal work designer	Contractor
14.	12(2)	Supervisor of temporal work operation	Contractor
15.	12(3)(F)	Competent temporary works inspector	Contractor
16.	13(1)(a)	Excavation supervisor	Contractor
17.	13(2)(k)	Competent person in the use of explosive for excavations	Contractor
18.	14(1)	Competent demolition supervisor	Contractor
19.	14(11)	Explosives expert	Contractor
20.	16(f)	Scaffold supervisor	Contractor
21.	17(1)	Suspended platform supervisor	Contractor
22.	18(1)a	Rope access Supervisor	Contractor

Rev 2 H&S Specification: 2018

9

23.	19(8)(a)	Material hoist inspector	Contractor
24.	20(1)	Bulk mixing plant supervisor	Contractor
25.	21(2)(b)	Explosive actuated fastening device inspector	Contractor
26.	21(2)(g)	Explosive actuated fastening device cartridge, nails and studs: issuer & collector	Contractor
27.	23 (1)	Operator construction vehicle and mobile plant	Contractor
28.	28 (a)	Stacking and storage supervisor	Contractor
29.	29 (h)	Fire equipment inspector	Contractor
OTHER APPOINTMENTS			
	ACT /REGULATION	APPOINTMENT	
1	16(1)	CEO	
2	16(2)	Deputy CEO	
3	17	Health and safety representatives	
4	19	Health and Safety committee members	
5	37(2)	Mandatory agreement	
6	GAR 9(2)	Incident investigator	
7	GSR 3	Competent First aider	
8	GSR 5(1)	Competent Confined space inspector	
9	DMR 18(5)(a)	Lifting machine inspector	
10	DMR 18(5)(a)	Lifting machine entity	
11	DMR 2	Supervisor of machinery	

5.2 Communication, Participation & Consultation

5.2.1 Occupational Health & Safety matters/issues shall be communicated between the Employer, the Principal Contractor, the other Contractors, the Designer and other concerned parties shall be through the H&S Committee or other means determined by the client.

5.2.2 In addition to the above, communication may be directly to the Client or his appointed Agent, verbally or in writing, as and when the need arises.

Rev 2: H&S Specification: 2018

10

5.2.3 Consultation with the workforce on OH&S matters will be through their Supervisors and H&S Representatives ('SHE - Reps')

5.2.4 The Principal Contractor will be responsible for the dissemination of all relevant OH&S information to the other Contractors e.g. design changes agreed with the Client and/or its Agent on its behalf and the Designer, instructions by the Client and/or his/her agent, exchange of information between Contractors, the reporting of hazardous/dangerous conditions/situations etc.

6. INTERPRETATION

- The Occupational Health and Safety Act and all its Regulations, with the exception of the Construction Regulations, distinguish between the roles, responsibilities and functions of employers and employees respectively. It views consultants and contractors as employees of the "owner" of a construction or operational project, the "owner" being regarded as the employer.
- The position taken by the Construction Regulations is that the "owner", in terms of its instructions, operates (has to operate) in the role of client as per relevant definition. The contractors working for the "client" are seen to be in two categories, i.e. the Principal Contractor and Contractors.
- The Principal Contractor has to take full responsibility for the health and safety on the site of the relevant project / contract. This includes monitoring health and safety conditions and overseeing administrative measures required by the Construction Regulations from all contractors on the project site.

7. RESPONSIBILITIES

7.1 Client

- The Client or his appointed Agent on his behalf will appoint each Principal Contractor for this project or phase/section of the project in writing for assuming the role of Principal Contractor as intended by the Construction Regulations.

Rev 2: H&S Specification: 2018

11

- The Client or his appointed Agent on his behalf shall discuss and negotiate with the Principal Contractor the contents of the health and safety plan of the both Principal Contractor and Contractor for approval.
- The Client or his appointed Agent on his behalf will take reasonable steps to ensure that the health and safety plan of both the Principal Contractor and Contractor is implemented and maintained. The steps taken will include periodic audits at intervals of at least once every month.
- The Client or his appointed Agent on his behalf, will prevent the Principal Contractor and/or the Contractor from commencing or continuing with construction work should the Principal Contractor and/or the Contractor at any stage in the execution of the works be found to:
 - have failed to have complied with any of the administrative measures required by the Construction Regulations in preparation for the construction project or any physical preparations necessary in terms of the Act;
 - have failed to implement or maintain their health and safety plan;
 - have executed construction work which is not in accordance with their health and safety plan, or
 - act in any way which may pose a threat to the health and safety of any person(s) present on the site of the works or in its vicinity, irrespective of him/them being employed or legitimately on the site of the works or in its vicinity.

7.2 Principal Contractor

- The Principal Contractor shall accept the appointment under the terms and Conditions of Contract. The Principal Contractor shall sign and agree to those terms and conditions and shall, before commencing work, notify the Department of Labour of the intended construction. Annexure 2 of this construction regulation contains a "Notification of Construction Work" form. The Principal Contractor shall submit the notification in writing prior to commencement of work and inform the Client or his Agent accordingly.

Rev 2: H&S Specification: 2018

12

- b) The Principal Contractor shall ensure that he is fully conversant with the requirements of this Specification and all relevant health and safety legislation.
- c) The Principal Contractor will in no manner or means be absolved from the responsibility to comply with all applicable sections of the Act, the Construction Regulations or any Regulations proclaimed under the Act or which may be applicable to this contract.
- d) The Principal Contractor shall provide and demonstrate to the Client a suitable and sufficiently documented health and safety plan based on this Specification, the Act and the Construction Regulations, which shall be applied from the date of commencement of and for the duration of execution of the works. This plan shall, as appendices, include the health and safety plans of all Sub-contractors for which he has to take responsibility in terms of this contract.
- e) The Principal Contractor shall provide proof of his registration and good standing with the Compensation Fund or with a licensed compensation insurer prior to commencement with the works.
- f) The Potential Principal Contractor shall, in submitting his tender, demonstrate that he has made provision for the cost of compliance with the specified health and safety requirements, the Act and Construction Regulations. (Note: This shall have to be contained in the conditions of tender upon which a tenderer's offer is based.)
- g) The Principal Contractor shall consistently demonstrate his competence and the adequacy of his resources to perform the duties imposed on the Principal Contractor in terms of this Specification, the Act and the Construction Regulations.
- h) The Principal Contractor shall ensure that a copy of his health and safety plan is available on site and is presented upon request to the Client, an Inspector, Employee or Sub-contractor.
- i) The Principal Contractor shall ensure that a health and safety file, which shall include all documentation required in terms of the provisions of this Specification, the Act

Rev 2: H&S Specification: 2018

13

- c) H&S responsibilities: Prior to accepting the H&S agent appointment from clients, H&S agents need to ensure that they brief clients fully on the client's particular responsibilities in terms of the OH&SA of 1993 and Construction Regulations as amended from time to time. In the absence of acceptance by clients of these responsibilities, H&S agents will not be able to adequately meet their own H&S responsibilities and duties.
- d) H&S information: H&S agents must provide the designer or design team with all H&S information to enable them to conduct a design HIRA to identify the significant hazards that need to be included in the H&S specification. This information may be gathered from multiple sources such as, for example, discussion with the client, previous historical use of the site or facility, previous surveys and investigations and past H&S files.

8. SCOPE OF WORK

These specifications are applicable to the specific scope of work pertaining to the above-mentioned project as detailed in the tender documents.

Construction Regulation 5(1)(g) determines that potential contractors submitting tenders have made adequate provision for the cost of health and safety measures during the construction process. The Principal Contractor shall on tendering make provision for the cost of health and safety measures in terms of his/her documented Health and Safety Plan and measures based on these Health and Safety Specifications during the period of the project. The cost shall be duly quantified and clearly identified for such identifiable purpose.

9. PREPARING A HEALTH & SAFETY PLAN

- (a) The level of detail required for a H&S plan will depend on how complex the workplace is (in particular, the number of contractors at the workplace at any one time) and the risks involved in the work. The plan must be easily accessible in a construction site and it must be clearly understood by management, supervisors & workers on construction site.

Rev 2: H&S Specification: 2018

15

and the Construction Regulations, is opened and kept on site and made available to the Client or Inspector upon request. Upon completion of the works, the Principal Contractor shall hand over a consolidated health and safety file to the Client.

- j) The Principal Contractor shall, throughout execution of the contract, ensure that all conditions imposed on his Sub-contractors in terms of the Act and the Construction Regulations are complied with as if they were the Principal Contractor.
- k) The Principal Contractor shall from time to time evaluate the relevance of the Health and Safety Plan and revise the same as required, following which revised plan shall be submitted to the Client and/or his/her Agent for approval.

7.3 Contractor

The contractor must demonstrate to the Principal Contractor that he has the Necessary competencies and resources to perform the construction work safely.

7.4 Construction Health & Safety Agent (SACPCMP)

The construction Health & Safety Agent act as a link between the client, Principal Contractor and the project team members with respect to health & Safety. They are Required to ensure that the client carry out its H&S responsibilities in terms of Legislation as well as to co-ordinate and ensure good H&S practices are maintained Throughout the duration of the project. In many cases this role starts from project Initiation to project close-out.

- a) H&S competence: In the event that the client is unable to satisfy the requirements of the Construction Regulations for whatever reasons, the construction H&S agent may be appointed to perform these functions on behalf of the client. Given the need to appoint a registered construction H&S agent that is competent and adequately resourced with respect to H&S matters.
- b) H&S goals: It is important that the construction H&S agents demonstrate clearly to clients how they are going to contribute to the achievement of any client H&S goals and objectives. They should also set their own H&S goals.

Rev 2: H&S Specification: 2018

14

- (b) The plan must be implemented, maintained and kept up to date during the construction of the project.

- (c) The principal contractor should prepare a H&S plan that includes

- project information;
- client requirements for H&S management on the project; Environmental restrictions and existing on-site risks arrangements, imposed by others or developed by the principal contractor, to control significant site H&S risks; H&S file & project H&S review.

- (d) The H&S plan should include the following information:

- details of the client, that is the person commissioning the construction work, for example their name, representative and contact details; details of the principal contractor;
- details of the construction project, for example address of the workplace, anticipated start and end date and a brief description of the type of construction work that the H&S plan will cover;
- details on how subcontractors will be managed and monitored, including how the principal contractor intends to implement and ensure compliance with the H&S plan such as checking on the performance of subcontractors and how non-compliance will be handled; and
- details on how the risks associated with falls, falling objects, moving plant, electrical work and all high risk construction work that will take place on a construction project will be managed.

- (e) The H&S plan should also include information on:

- the provision and maintenance of a hazardous chemicals register, safety data sheets and hazardous chemicals storage;
- the safe use and storage of plant;
- the development of a construction project traffic management plan;
- obtaining and providing essential services information – electrical, gas, telecom, water and similar services;

Rev 2: H&S Specification: 2018

16

159

- workplace security and public safety; and
- ensuring workers have appropriate licences and training to undertake the construction work.

(f) The H&S plan must contain

- a general description of the type of work activities involved in the project and not just a description of the facility to be constructed;
- the project program or schedule details, including start and finish dates, showing principal activities;
- details of client, design team, principal contractor, subcontractors, and major suppliers; and
- extent and location of relevant existing records, surveys, site investigation and geotechnical reports, 'as-built' plans, H&S files.

10. HEALTH AND SAFETY FILE

- The H&S file is a document prepared by the principal contractor containing important project H&S information for use by the owner of the completed structure after construction has been completed.
- The principal contractor is responsible for producing an H&S file. It contains important project H&S information for use by the owner of the completed structure after construction has been completed. It is essential that the process of compiling the file commences as early as possible to ensure sufficient time to gather the required information.
- The Principal Contractor must, in terms of Construction Regulation 7(2) (b), keep a Health & Safety File on site at all times that must include all documentation required in terms of the Act and Regulations and must also include a list of all Contractors on site that are accountable to the Principal Contractor and the agreements between the parties and details of work being done. A more detailed list of documents and other legal requirements that must be kept in the Health & Safety File.

Rev 2: H&S Specification: 2018

17

5(1)(n) to ensure that the principal Contractor has implemented, is adhering to and is maintaining the agreed and approved OH&S Plan.

- A representative of the Principal Contractor and the relevant Health and Safety Representative(s) (SHE-Reps) must accompany the Client and/or its Agent on its behalf on all Audits and Inspections and may conduct their own audit/inspection at the same time. Each party will, however, take responsibility for the results of his/her own audit/inspection results. The Client and/or its Agent on its behalf may require to be handed a copy of the minutes of the previous Health and Safety Committee meeting reflecting possible recommendations made by that committee to the Employer for reference purposes.

11.1.2 Health & Safety incident/accident reporting & investigations

- The Principal Contractor shall report all incidents where an employee is injured on duty to the extent that he/she:
 - dies
 - becomes unconscious
 - loses a limb or part of a limb
 - is injured or becomes ill to such a degree that he/she is likely either to die or to suffer a permanent physical defect or likely to be unable for a period of at least 14 days either to work or continue with the activity for which he/she was usually employed

OR where:

- a major incident occurred
- the health or safety of any person was endangered
- where a dangerous substance was spilled
- the uncontrolled release of any substance under pressure took place
- machinery or any part of machinery fractured or failed resulting in flying, falling or uncontrolled moving objects

Rev 2: H&S Specification: 2018

19

- The contractor must ensure that the client's format and layout of the H&S file is adhered to. The contractor must identify the responsible person that will prepare the H&S file and who will be responsible for the drafting of as-built drawings. The contractor must establish procedures:

- The Health and Safety File will remain the property of the Client and/or its Agent on its behalf throughout the period of the project and shall be consolidated and handed over to the Client and/or its Agent on its behalf at the time of completion of the project.

11. OH&S GOALS AND OBJECTIVES AND ARRANGEMENTS FOR MONITORING AND REVIEWING OH&S PERFORMANCE

The Principal Contractor is required to maintain an acceptable disabling incident frequency rate (DIFR) and report on this to the Client and/or its Agent on its behalf on a monthly basis.

11.1 IDENTIFICATION OF HAZARDS AND DEVELOPMENT OF RISK ASSESSMENTS, STANDARD WORKING PROCEDURES (SWP) AND METHOD STATEMENTS

The Principal Contractor is required to develop Risk Assessments, Standard Working Procedures (SWP) and Method Statements for each activity executed in the contract or project.

The identification of hazards is over and above the hazards identification programme and those hazards identified during the drafting of the Health and Safety Plan.

11.1.1 Monthly Audit by Client and/or its Agent.

The Client and/or its Agent on its behalf will be conducting Periodic Audits at times agreed with the Principal Contractor Audit to comply with Construction Regulation

Rev 2: H&S Specification: 2018

18

- Machinery ran out of control, to the Provincial Director of the Department of Labour within seven days and at the same time to the Client and/or its Agent on its behalf.

- The Principal Contractor is required to provide the Client and/or its Agent on its behalf with copies of all statutory reports required in terms of the Act and the Regulations.

- The Principal Contractor is required to provide the Client and/or its Agent on its behalf with a monthly "SHE Risk Management Report".

- The Principal Contractor is required to provide a s.a.p. the Client and/or its Agent on its behalf with copies of all internal and external accident/incident investigation reports. The Principal Contractor is responsible to oversee the investigation of all accidents/incidents where employees and non-employees were injured to the extent that he/she/they had to receive first aid or be referred for medical treatment by a doctor, hospital or clinic. (General Administrative Regulation 9)

- The results of the investigation to be entered into the Accident/Incident Register listed above. (General Administrative Regulation 9)

- The Principal Contractor is responsible for the investigation of all non-injury incidents as described in Section 24 (1) (b) & (c) of the Act and keeping a record of the results of such investigations including the steps taken to prevent similar incidents in future.

- The Principal Contractor is responsible for the investigation of all accidents relating to the construction site and keeping a record of the results of such investigations including the steps taken to prevent similar accidents in future.

- Notwithstanding the requirements of Section 24 of the Act, ALL incidents shall be investigated and reported on in writing, irrespective of whether such incident gave rise to injury or damage.

Rev 2: H&S Specification: 2018

20

160

(i) Reporting Of Near-Misses

- South African Police Service views the reporting of near misses as a critical component in creating a positive health and safety awareness culture on site.
- South African Police Service retains the right to enforce the reporting of near misses within 24 hours of occurrence.

12. Review

The Principal Contractor is to review the Hazard Identification, Risk Assessments and Standard Work Processes at each Production Planning and Progress Report meeting as the construction work develops and progresses and each time changes are made to the designs, plans and construction methods and processes.

The Principal Contractor must provide the Client and/or its Agent on its behalf, other Contractors and all other concerned parties with copies of any changes, alterations or amendments as contemplated in the above paragraph.

12.1 Site Rules and other Restrictions

a) Site OH&S Rules

The Principal Contractor must develop a set of site-specific OH&S rules that will be applied to regulate the Health and Safety Plan and associated aspects of the construction. When required for a site by law, visitors and non-employees upon entering the site shall be issued with the proper Personal Protective Equipment (PPE) as and when necessary.

- H&S Representatives must form part of the incident/accident investigating team.

12.1.3 Establishment of H&S Committee(s)

- The Principal Contractor must establish H&S Committees consisting of designated H&S Representatives together with a number of Employers Representatives appointed as per Section 19(3) that are not allowed to exceed the number of H&S Representatives on the committee.
- The persons nominated by the employer on a H&S Committee must be designated in writing for such period as may be determined by him. The H&S Committee shall co-opt advisory (temporary) members and determine the procedures of the meetings including the chairmanship.
- The H&S Committee must meet minimum monthly and consider, at least, an agreed Agenda for the first meeting. Thereafter the H&S Committee shall determine its own procedures.

12.1.4 Training & Awareness

The contents and syllabi of all training required by the Act and Regulations including any other related or relevant training as required must be included in the Principal Contractor's Health and Safety Plan and Health and Safety File.

a) Training & Induction

All employees performing work or task on site that potentially impact on H&S must be competent & have the necessary appropriate education, training & experience.

All the training must be closely aligned with the risk profile of the project; procedures must be put in place to ensure that all workers are aware of the consequences of their work activities & benefits of improved H&S performance.

All employees of the Principal and other Contractors must be in possession of proof of General Induction training

b) Security Arrangements

The Principal Contractor must establish site access rules and implement and maintain these throughout the construction period. Access control must include the rule that non-employees shall at all times be provided with fulltime supervision while on site. The Principal Contractor must develop a set of Security rules and procedures and maintain these throughout the construction period.

If not already tasked to the H&S Officer appointed in terms of Construction Regulation, the Principal Contractor must appoint a competent person who must develop contingency plans for any emergency that may arise on site as indicated by the risk assessments.

12.1.1 Appointment of Health & Safety Representatives

a) H&S Representatives('SHE – Reps')

Where the Principal Contractor employs more than 20 persons (including the employees of other Contractors (sub-contractors) he has to appoint one H&S Representatives for every 50 employees or part thereof (Section 17 of the Act and General Administrative Regulation 6. & 7.)

H&S Representatives must be appointed in writing and the designation shall be in accordance with the Collective Agreement as concluded between the parties as is required in terms of General Administration Regulation 6.

12.1.2 Duties and Functions of the H&S Representatives

- The Principal Contractor must ensure that the designated H&S Representatives conduct at least a weekly inspection of their respective areas of responsibility using a checklist developed by a Principal Contractor.
- The report must be consolidated and submitted to the Health & Safety Committee.

b) Site Specific Induction Training

All employees of the Principal and other Contractors must be in possession of Site Specific Occupational Health and Safety Induction or other qualifying training.

c) Other Training

All operators, drivers and users of construction vehicles, mobile plant and other equipment must be in possession of valid proof of training.

13. PROJECT/SITE SPECIFIC REQUIREMENTS

The following is a list of specific activities and considerations that have been identified for the project and site and for which Risk Assessments, Standard Working Procedures (SWP), management and control measures and Method Statements (where necessary) have to be developed by the Principal Contractor:

- a) Clearing & grabbing the area/site
- b) Site establishment
- c) Dealing with existing structures
- d) Location of existing services
- e) Boundary & Access control/Public liability exposures
- f) Protection against heat exhaustion, dehydration, wet & cold conditions
- g) Dealing with HIV & aids other related diseases
- h) Use of portable electrical & explosive tools
- i) Any Excavation work and Demolition work
- j) Any welding work
- k) Loading & offloading of trucks
- l) Driving & operations of Construction vehicles & mobile plant
- m) Temporal works and
- n) Construction work as defined in the construction regulation 2014

14. OUTLINED DATA, REFERENCES AND INFORMATION ON CERTAIN AND/OR SPECIFIC OBLIGATORY REQUIREMENTS TO ENSURE COMPLIANCE

Administrative & Legal Requirements

OHS Act Section/ Regulation	Subject	Requirements
Construction Regulation 3(1)	Notice of carrying out Construction work	<ul style="list-style-type: none"> Department of Labour notified Copy of Notice available on Site
General Admin. Regulation 4	Copy of OH&S Act (Act 85 of 1993)	<ul style="list-style-type: none"> Updated copy of Act & Regulations on site Readily available for perusal by employees
COD Act Section 60	Registration with Compensation Insurer	<ul style="list-style-type: none"> Written proof of registration/Letter of good standing available on Site
Construction Regulation 5 & 7(1)	H&S Specification & Programme	<ul style="list-style-type: none"> H&S Spec received from Client and/or its Agent on its behalf OH&S programme developed & Updated regularly
Construction Regulation 9	Hazard Identification & Risk Assessment	<ul style="list-style-type: none"> Hazard Identification carried out/Recorded Risk Assessment and – Plan drawn up/Updated RA Plan available on Site
Section 16(2)	Assigned duties (Managers)	<ul style="list-style-type: none"> Responsibility of complying with the OH&S Act assigned to other persons by CEO
Construction Regulation 8(1)	Designation of Person Responsible on Site	<ul style="list-style-type: none"> Competent person appointed in writing as Construction Supervisor with job description
Construction Regulation 8(1)	Designation of Assistant for above	<ul style="list-style-type: none"> Competent person appointed in writing as Assistant Construction Supervisor with job description
Section 17 & 18 General Administrative Regulations 6 & 7	Designation of Health & Safety Representatives	<ul style="list-style-type: none"> More than 20 employees – one H&S Representative, one additional H&S Rep. for each 50 employees or part thereof Designation in writing, period and area of responsibility specified in terms of GAR 6 & 7 Meaningful H&S Rep. reports Reports actioned by Management

Rev 2: H&S Specification

Section 19 & 20 General Administrative Regulations 5	Health & Safety Committees	<ul style="list-style-type: none"> H&S Committee's established All H&S Reps shall be members of H&S Committee Additional members are appointed in writing Meetings held monthly, Minutes kept Actioned by Management
Section 37(1) & (2)	Agreement with Mandatories/ (Sub-)Contractors	<ul style="list-style-type: none"> Written agreement with (Sub-)Contractors List of SubContractors displayed Proof of Registration with Compensation Insurer/Letter of Good Standing Construction Supervisor designated Written arrangements re. H&S Reps & H&S Committee Written arrangements re. First Aid
Section 24 & General Admin. Regulation 6	Reporting of incidents (Dept. of Labour)	<ul style="list-style-type: none"> Incident Reporting procedure displayed All incidents in terms of Sect. 24 reported to the Provincial Director, Department of Labour, within 3 days (Annexure 1)(WCL 1 or 2) and to the Client and/or its Agent on its behalf Cases of Occupational Disease Reported Copies of Reports available on Site Record of First Aid injuries kept
General Admin. Regulation 9	Investigation and Recording of Incidents	<ul style="list-style-type: none"> All injuries which resulted in the person receiving medical treatment other than first aid, recorded and investigated by investigator designated in writing Copies of Reports (Annexure 1) available on Site Tabled at H&S Committee meeting Action taken by Site Management
Construction Regulation 12	Fall Prevention & Protection	<ul style="list-style-type: none"> Competent person designated in writing as the Fall Prevention Plan Risk Assessment carried out for work at heights Fall Protection Plan drawn up/updated Available on Site
Construction Regulation 20	Cranes & Lifting Machines/ Equipment Driven Machinery	<ul style="list-style-type: none"> Competent person appointed in writing to inspect Cranes, Lifting Machines & Equipment Written Proof of Competence of above appointee available on Site

Rev 2: H&S Specification 2018

26

Regulations 18		<ul style="list-style-type: none"> Cranes & Lifting tackle identified/numbered Register kept for Lifting Tackle Log Book kept for each individual Crane Inspection – All cranes – daily by operator Tower Cranes – after erection/annually Other cranes – annually by comp. person Lifting tackle(slings/ropes/chain slings etc.) – daily or before every new application
General Safety Regulation 8(1)(a)	Designation of Stacking & Storage Supervisor	<ul style="list-style-type: none"> Competent Person's with specific knowledge and experience designated to supervise all Stacking & Storage Written Proof of Competence of above appointee available on Site
Construction Regulation Environmental Regulation 9	Designation of a Person to Co-ordinate Emergency Planning And Fire Protection	<ul style="list-style-type: none"> Person's with specific knowledge and experience designated to co-ordinate emergency contingency planning and execution and fire prevention measures Emergency Evacuation Plan developed Drilled/Practiced Plan & Records of Drills/Practices available on Site Fire Risk Assessment carried out All Fire Extinguishing Equipment identified and on register Inspected weekly. Inspection Register kept Serviced annually
General Safety Regulation 3	First Aid	<ul style="list-style-type: none"> Every workplace provided with sufficient number of First Aid boxes. (Required where 5 persons or more are employed) First Aid trolley available Equipment as per the list in the OH&S Act One qualified First Aider appointed for every 50 employees. (Required where more than 10 persons are employed) List of First Aid Officials and Certificates Name of person's in charge of First Aid boxes displayed Location of First Aid boxes clearly indicated Signs instructing employees to report all injuries/illness including first aid injuries

Rev 2: H&S Specification 2018

27

General Safety Regulation 2	Personal Safety Equipment (PSE)	<ul style="list-style-type: none"> PSE Risk Assessment carried out Items of PSE prescribed/use enforced Records of issue kept Underlining by Employee to wear/return PSE PSE remain property of Employer, not to be removed from premises (GSR 2)(a)
General Safety Regulation 9	Inspection & Use of welding/Flame Cutting Equipment	<ul style="list-style-type: none"> Competent Person's with specific knowledge and experience designated to inspect Electric Arc, Gas Welding and Flame Cutting Equipment Written Proof of Competence of above appointee available on Site All new vessels checked for leaks, leaking vessels NOT taken into stock but returned to supplier immediately Equipment identified/numbered and entered into a register Equipment inspected weekly. Inspection Register kept Separate, purpose made storage available for full and empty vessels
General Safety Regulation 13A	Inspection of Ladders	<ul style="list-style-type: none"> Competent person appointed in writing to inspect Ladders Ladders inspected at arrival on site and weekly thereafter. Inspections register kept Application of the types of ladders (wooden, aluminium etc.) regulated by training and inspections and noted in register
General Safety regulation 13B	Ramps	<ul style="list-style-type: none"> Competent person appointed in writing to supervise the erection & inspection of Ramps. Inspection register kept Daily inspected and noted in register

Rev 2

Rev 2: H&S Specification 2018

28

162

15. THE PRINCIPAL CONTRACTOR'S GENERAL DUTIES

- The Principal Contractor shall at all times ensure his status of an "employer" as referred to in the Act, and will abide by his/her responsibilities, duties and functions as per the requirements of the Act and Regulations with specific reference to Section 8 of the Act.
- The Principal Contractor shall keep, and on demand make available, a copy of the Act on site at all times and in addition to that he/she will introduce and maintain a file titled "Health and Safety File", or other record in permanent form, which shall contain all relevant aspects and information as contemplated in the Construction Regulations. He/she will make this file available to the client or his representative whenever necessary or on request to an interested party.
- The project under control of the Principal Contractor shall be subject to periodic health and safety audits that will be conducted by the client at intervals agreed upon between the Principal Contractor and the client, provided such intervals will not exceed periods of one month.
- The Principal Contractor is to ensure that he/she and all persons under his control on the construction site shall adhere to the above specifications.
- The Principal Contractor should note that he/she shall be held liable for any anomalies including costs and resulting deficiencies due to delays caused by non-conformance and/or non-compliance to the above Health and Safety Specifications and the Health and Safety Plan based on these specifications.

16. THE PRINCIPAL CONTRACTOR'S SPECIFIC DUTIES

The Principal Contractor's specific duties in terms of these specifications are detailed in the Construction Regulations as published under government notice 07 February 2014, stipulated in Section 7.

17. THE PRINCIPAL CONTRACTOR'S SPECIFIC RESPONSIBILITIES WITH REGARD TO HAZARDOUS ACTIVITIES

Rev 2: H&S Specification

- d. The National Building Regulations and Building Standards Act 1977 (Act 103 of 1977) as amended and relevant proclaimed Regulations (SABS 0400)
- e. The Post Office Act 1958 (Act 44 of 1958) as amended
- f. The Electricity Act 1984, Act 41 of 1984
- g. The Regulations of Local Gas Board(s), including Publications of the SABS Standards and Codes of Practice, with specific reference to GNR 17468 dated 4th October 1997
- h. Legislation pertaining to water usage and the environment
- i. Legislation governing the use of equipment, which may emit radiation (e.g. X-Rays etc.)
- j. Common Law

19. HOUSEKEEPING

Good housekeeping will be maintained at all times as per Construction Regulation No. 27. Poor housekeeping contributes to three major problems, namely, costly or increased accidents, fire or fire hazards and reduction in production. Good housekeeping will enhance production time.

In promotion of environmental control all waste, rubble, scrap etc., will be disposed of at a registered dump site and records will be maintained. Where it is found to be impractical to use a registered dump site or it is not available, the Principal Contractor will ensure that the matter is brought to record with the client or his representative, after which suitable, acceptable alternatives will be sought and applied.

Dross and refuse from metals, and waste matters or by-products whose nature is such that they are poisonous or capable of fermentation, putrefaction or constituting a nuisance shall be treated or disposed of by methods approved of by an inspector.

NOTE: No employer (Principal Contractor) shall require or permit any person to work at night or after hours unless there is adequate, suitable artificial lighting including support services in respect of Health and Safety.

The following examples of activities are identifiable as hazardous in terms of the Construction Regulations. The contractor shall execute the activities in accordance with the following Construction Regulations and other applicable regulations of the Act:

- Fall protection
- Structures
- Excavation work
- Demolition work
- Scaffolding
- Construction vehicles & mobile plant.
- Water environments
- Housekeeping on construction sites
- Fire precautions on construction sites.

This list must not be taken to be exclusive or exhaustive! All of the above requirements will be read in conjunction with the relevant regulations and health and safety standards as required by the Act. All documents and records required by the Construction Regulations will be kept in the Health and Safety File and will be made available at any time when required by the client or his representative, or on request to an interested party.

18. GENERAL NOTES TO THE PRINCIPAL CONTRACTOR

Legal Framework

Part of legal obligations

The more important Acts and relevant subordinate/secondary legislation as well as other (inter alia Local Government) legislation that also apply to the State as well as to State owned buildings and premises: -

- a. The latest issue of SABS 0142: "Code of Practice for the Wiring of Premises"
- b. The Local Government Ordinance 1939 (Ordinance 17 of 1939) as amended and the municipal by-laws and any special requirements of the local supply authority
- c. The Fire Brigade Services Act 1987, Act 99 of 1987 as amended

Rev 2: H&S Specification: 2018

30

20. FACILITIES

The site establishment plan shall make provision for:

20.1 Dining room facilities

The contractor shall make provision for adequate dining room facilities for his employees on site.

20.2 Change rooms

The contractor shall make provision for adequate change rooms for his employees on site.

20.3 Ablution facilities

The contractor shall make provision for adequate ablution facilities for his employees on site.

20.4 Smoking Areas

Designated smoking areas shall be established by Principal Contractor

20.5 Drinking Water Facilities

The provision of drinking water facilities shall be negotiated between the Contractor and client.

20.6 Equipment Compliance Certificate

Before equipment is brought on site valid certificates of compliance issued by a competent person shall be presented. The equipment includes but shall not be limited to:

- i. lifting equipment and lifting tackle
- ii. power driven machinery
- iii. electrical equipment
- iv. testing and monitoring equipment

20.7 Barricading

All barricading shall be of the rigid type unless the use of non-rigid barricading has been approved in writing by South African Police Service Project Manager. The contractors' barricading standard shall be included in the Health and Safety Plan.

Where more than one contractor is working on a site, the fixed barricading shall be clearly marked with the company's name, site contact person as well as the contact number/s.

20.8 Erection of Structures for Logistic Support

Prior to site establishment South African Police Service shall approve the contractor's site plan.

South African Police Service shall approve all structures erected for logistical support by the contractor. These structures include fences, workshops, tool sheds, offices, ablution facilities, etc.

20.9 Salvage Yard Management

Depending on the site specific arrangements and procedures, South African Police Service may provide the salvage yard and the resources to manage it.

The salvage yard management shall conform to safety, health and environmental requirements. The contractors are required to move the equipment from the place of work to the salvage yard.

20.10 Fall Arrest and Prevention Equipment

Approved fall prevention equipment shall be used at heights of less than 2.0 metres. Above heights of 2.0 metres fall prevention equipment shall include fall arrest Equipment. Users of fall arrest equipment shall, amongst other things be trained in what an appropriate load bearing point is for connecting fall prevention equipment. Any deviation from this requirement shall be negotiated and agreed with South African Police Service in writing.

Rev 2: H&S Specification: 2018

33

- 1) an evaluation of the method of the work to be conducted
- 2) the method statement on the procedure to be followed in performing the task shall be developed
- 3) the risk assessment will also include activities like:
 - i. Transportation of passengers and goods to and from site
 - ii. Site establishment
 - iii. Physical and mental capabilities of employees
 - iv. Others as may be specified.
- 4) the hazards as listed in the paragraph – Site Specific Health and Safety Hazards
- 5) a review plan for risk assessments shall provide for:
 - i. the quarterly review of all applicable risk assessments
 - ii. the review of an assessment if there is reason to believe that the previous assessment is no longer valid, or there has been a change in a process, work methods, equipment or procedures and working conditions
 - iii. Risk assessment/s to be reviewed if the outcome of incident investigations and audits etc. requires such action.

A pre - task risk assessment shall be conducted in writing on every task and be facilitated by the team leader. All risk assessments and pre-task risk assessments shall be filed and be available on site.

b) Risk Profile

All contractors shall submit a risk profile of the work to be conducted with their Health and Safety Plan.

c) Risk Based Inspection Program

The inspection programme shall be risk based. The inspection plan shall form part of the Health and Safety Plan.

Rev 2: H&S Specification: 2018

35

20.11 Hazardous Chemical Substances Waste Removal

South African Police Service shall provide a facility to collect all hazardous chemical waste material. The contractor shall provide adequately marked and sealable containers to transport the hazardous chemical waste from the source to the approved South African Police Service disposal point.

20.12 Personal Protective Equipment (PPE)

Personal protective equipment issued shall be specific to the risks associated with the work to be performed and specific to conditions on site and shall comply with South African National Standards (SANS)

21. LOCKOUT SYSTEMS

A system of control shall be established in order that no unauthorized person can energize a circuit, open a valve, or activate a machine on which people are working or doing maintenance, even if equipment, plant or machinery is out of commission for any period, thus eliminating injuries and damage to people and equipment as far as is reasonably practicable.

Physical/mechanical lock-out systems shall be part of the safety system and included in training. Lockouts shall be tagged and the system tested before commencing with any work or repairs.

22. IMPORTANT LISTS AND RECORDS TO BE KEPT

The following are lists of several records that are to be kept in terms of the Construction Regulations. The lists are:

- i. List of appointments
- ii. List of record keeping responsibilities
- iii. Inspection checklist

a) Contractor Risk Assessment Process

The risk assessment process shall include:

Rev 2: H&S Specification: 2018

34

IMPORTANT CONTACT DETAILS

(FOR HEALTH & SAFETY ASPECTS ONLY)

The contractor is to add all the important contact information about essentials services, support and assistance

	SERVICE	NUMBER	CONTACT PERSON
	Hospital		
	Ambulance		
	Water Electricity		
	Police		
	Fire Brigade		
	Engineer		

Rev 2: H&S Specification: 2018

36

SECTION 37(2) AGREEMENTS
CONCLUDED BETWEEN
SOUTH AFRICAN POLICE SERVICE
(Hereinafter referred to as South African Police Service)

AND

(Name of contractor/supplier/Agent)

I,
(name) representing (insert name of
contractor/supplier), do hereby acknowledge that
[insert name of contractor/supplier] is an employer in his/her own right, with duties as prescribed in
the Occupational Health and Safety Act No. 85 of 1993 ("the Act"), as amended, and agree to ensure
that all work will be performed and/or machinery or plant used in accordance with the provisions of
the Act.

I undertake that (insert name of contractor/supplier)
shall strictly adhere to, and ensure that his/her employees adhere to, the provisions of the
Occupational Health and Safety Act, 1993 (Act 85 of 1993).

I have been provided with SHE specifications for project/service (insert
brief details of project/service, for example, name, contract/project number)
..... and will comply with the requirements set out in these.

I accept and agree that the SHE specifications constitute arrangements and procedures between
..... (insert name of contractor/supplier/Agent
Safety Manager/Safety Officer) and South African Police Service which will ensure compliance by
..... (insert name of contractor/supplier) with the
provisions of the Act, as contemplated in section 37(2) of the Act.

This agreement constitutes the sole agreement between the parties, and no variation, modification,
or waiver of any of the provisions of this agreement or consent to any departure from these shall,
in any manner, be of any force or effect, unless confirmed in writing and signed by both parties, and

such variation, modification, waiver, or consent shall be effective only in the specific instance and
for the specific purpose and to the extent for which it was made or given.

This agreement is signed on behalf of the parties, each signatory to this warranting that he/she has
the requisite authority to do so.

Signed this day of 20 at
..... (Place)

(Full name) (Signature) on

behalf of (Supplier/contractor/Agent)
Contractor Responsible Manager (responsible for signing the South African Police Service
contract on behalf of the contractor)

Witnesses

1.
2.

Signed this day of 20

at (Place)

(Full name) (Signature) on

Behalf of South African Police Service.
(Contracts and/or Project Manager or South African Police Service representative)

Witnesses

1.
2.

PROJECT
(full name AND site address of project)
(and full or proper description of project)

WCS NO: (works control system number)

SUPERVISION BY THE SOUTH AFRICAN POLICE SERVICE:

Mr /Ms/Me - CONSTRUCTION PROJECT MANAGER
(add full details of the project manager)

Mr /Ms/Me - CONSTRUCTION MANAGER
(add full details)

Mr /Ms/Me AGENT
(full particulars of agent)

SUPERVISION BY THE PRINCIPAL CONTRACTOR:

PRINCIPAL CONTRACTOR: (full particulars of principle contractor / contractor)

Mr /Ms/Me - CONSTRUCTION HEALTH & SAFETY OFFICER
(add full details and contact of this officer)

Mr /Ms/Me - CONSTRUCTION HEALTH & SAFETY MANAGER
(add full details of this officer)

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41

166