

deep type. In columns where flush mounted draw boxes are installed, the conduits shall be offset from the surface of the column immediately after leaving the draw box. Elbows for conduits of 32 mm dia and smaller and sharp bends will not be allowed in concrete slabs.

Draw boxes and/or inspection boxes shall, where possible, be grouped together under a common approved cover plate. The cover plate shall be secured by means of screws. All conduits shall be installed as close as possible to the neutral axis of concrete beams, slabs and columns. The conduits shall be rigidly secured to the reinforcing to prevent movement towards the surface of the concrete.

All conduits, draw boxes etc, shall be securely fixed to the shuttering to prevent displacement when concrete is cast. Draw boxes and outlet boxes shall preferably be secured by means of a bolt and nut installed from the back of the box through the shuttering. Fixing lugs may also be used to screw the boxes to the shuttering where off-shutter finishes are required. Where fibre glass shuttering is used by the builder, the equipment shall be fixed to the steel only and no holes shall be drilled or made in shuttering. All draw boxes and outlet boxes shall be plugged with wet paper before they are secured to the shuttering.

As far as possible, conduits shall not be installed across expansion joints. Where this is unavoidable a conduit expansion joint shall be provided. The expansion joint shall consist of two draw boxes with an interlinking flexible conduit connection. The draw box shall be installed adjacent to the expansion joint of the structure and a conduit sleeve, one size larger than that specified for the circuit, shall be provided on the side of the draw box nearest to the joint. The one end of the sleeve shall terminate at the edge of the joint and the other shall be secured to the draw box. The circuit conduit passing through the sleeve shall be terminated 40 mm inside the draw box and in the case of metallic conduit, the conduit end shall be fitted with a brass bush.

The gap between the sleeve and the conduit at the joint shall be sealed with a suitable and approved sealing compound, to prevent the ingress of wet cement. In the case of metallic conduit, an earth clip shall be fitted to the conduit projection inside the draw box and the conduit bonded to the box by means of 2,5 mm² bare copper earth wire and a brass bolt and nut. The other end of the circuit conduit shall be secured to the draw box by means of lock nuts and a brass bush in the case of screwed metallic conduit or a standard bushed adaptor for other conduit types. In addition to an earth wire which may be specified for the circuit, a 2,5 mm² bare copper wire shall be provided between the first conduit box on either side of the joint in the case of metallic conduit. The conduit boxes shall be drilled and tapped and the earth wire shall be bonded to the boxes by means of lugs and brass screws. Suitable steel cover plates shall be screwed to draw boxes installed along the expansion joint. The cover plates shall be installed before the ceiling is painted. Where a number of conduits are installed in parallel they shall cross the expansion joint of the structure via a single draw box. A number of draw boxes adjacent to each other will not be allowed. The installation of conduits in floor screed shall be kept to a minimum. Where conduits are installed in screed, the top of the conduit shall be at least 20 mm below the surface of the screed. Where the screed is laid directly on the ground, galvanised conduits shall be used. A minimum distance of twice the outside diameter of the conduit shall be left free between adjoining conduits. Conduits shall be secured to the concrete slab at intervals not exceeding 2,0 m. The electrical contractor shall ensure that conduits are not visible above the screed where the conduits leave the screed. All draw boxes, conduits, etc, which are installed in concrete shall be cleaned with compressed air and provided with draw wires two days after removal of the shuttering.

Errors that occurred during the installation of the conduits, or any lost draw boxes, or blocked conduits shall be immediately reported to the engineer and confirmed in writing in order that an alternative route can be planned and approved by the engineer before the additional concrete is cast. Where it is necessary to cut or drill holes in the concrete structure, prior permission shall be obtained from the engineer in writing.

A11.15 INSTALLATION IN BRICKWORK

Recessed conduits and accessories installed in brickwork shall be built-in. In order not to delay building operations the electrical contractor shall ensure that all conduits and accessories which are to be built-in are placed in position in good time. Any conduits, draw boxes, outlet boxes etc, which have been damaged, lost or omitted shall immediately be reported to the engineer by telephone and confirmed in writing.

A11.16 CHASING AND BUILDER'S WORK

321 300

Except where otherwise specified the builder or principle contractor shall be responsible for building in of conduits, outlet boxes, switchboard trays, bonding trays and other wall outlet boxes. The electrical contractor shall notify the builder of his requirements and the responsibility lies with the electrical contractor to ensure that all builder's work is clearly indicated or marked where necessary and provided in accordance with his requirements.

Electrical materials to be built in must be supplied, placed and fixed in position by the electrical contractor when required to do so by the builder or principle contractor. The electrical contractor shall also ensure that these materials are installed in the correct positions.

Unless specifically stated to the contrary in the detail specification all flush mounted conduits, accessories, switchboard trays, bonding trays etc, shall be built-in and no chasing shall be allowed.

A11.17 MOUNTING HEIGHT OF DISTRIBUTION BOARDS, SWITCHES AND SOCKET OUTLETS

Except where stated otherwise, mounting heights shall be as follows:

- Distribution boards: top frame 2000 mm above finished floor level
- Switches: underside 1400 mm above finished floor level
- Socket outlets: underside 300 mm above finished floor level
- Telephone outlets: underside 300 mm above finished floor level
- Power skirting: underside 100 mm above finished floor level

All distribution boards, switches and socket outlets shall be of the flush mounted type except where stated otherwise.

A11.18 POSITION OF OUTLETS, EQUIPMENT AND CONDUIT

Position of light outlets indicated on the plans are approximate. The exact positions of light outlets shall be determined with due regard to ceiling squares, branding and patterns. Where any doubt arises as to the correct location of outlets, the engineer and/or architect shall be consulted. The positions of other outlets, equipment and conduit are also approximate. The exact positions shall be determined on site in consultation with the engineer and/or architect.

A11.19 CONDUIT IN ROOF SPACES

Conduit in roof spaces shall be installed parallel or at right angles to the roof members and shall be secured at intervals not exceeding 1,5m by means of saddles or conduit clips nailed to the roof timbers.

Where non-metallic conduit has been specified for a particular service, the conduit shall be supported and fixed with saddles with a maximum spacing of 450 mm. The Contractor shall supply and install all additional supporting timbers in the roof space as required.

Under flat roofs, in false ceilings or where there is less than 0,9m of clearance, or should the ceilings be insulated with glass wool or other insulating material, the conduit shall be installed in such a manner as to allow for all wiring to be executed from below the ceilings.

Conduit runs from distribution boards shall, where possible terminate in fabricated sheet steel draw-boxes installed directly above or in close proximity to the boards.

All conduits shall be installed horizontally or vertically as determined by the route. The electrical contractor shall take all measures to ensure a neat installation. Conduits shall be firmly secured by means of saddles and screws and in accordance with SANS 10142. Conduits shall be secured within 150 mm before and after each 90o bend. Only approved plugging materials such as fibre plugs or plastic plugs, etc, and round head brass screws shall be used when fixing saddles, switches, plugs etc, to walls. Wood plugs are not acceptable nor should plugs be installed in joints in brick walls.

A11.20 SURFACE MOUNTED CONDUIT

08

322 9/11

Wherever possible, the conduit installation is to be concealed in the building work; however, where unavoidable or otherwise specified under the particular specification, conduit installed on the surface must be plumbed or levelled and only straight lengths shall be used.

The use of inspection bends is to be avoided and instead the conduit shall be set uniformly and inspection coupling used where necessary.

No threads will be permitted to show when the conduit installation is complete, except where running couplings have been employed.

Running couplings are only to be used where unavoidable, and shall be fitted with a sliced couplings as a lock nut.

Conduit is to be run on approved spaced saddles rigidly secured to the walls.

Alternatively, fittings, tees, boxes, couplings etc., are to be cut into the surface to allow the conduit to fit flush against the surface. Conduit is to be bedded into any wall irregularities to avoid gaps between the surface and the conduit.

Crossing of conduits is to be avoided, however, should it be necessary purpose-made metal boxes are to be provided at the junction. The finish of the boxes and positioning shall be in keeping with the general layout.

Where several conduits are installed side by side, they shall be evenly spaced and grouped under one purpose-made saddle.

Distribution boards, draw-boxes, industrial switches and socket outlets etc., shall be neatly recessed into the surface to avoid double sets.

In situations where there are no ceilings the conduits are to be run along the wall plates and the beams.

Painting of surface conduit shall match the colour of the adjacent wall finishes.

Only approved plugging materials such as aluminium inserts, fibre plugs, plastic plugs, etc., and round-head screws shall be used for fixing saddles, switches, socket outlets, etc., to walls, wood plugs and the plugging in joints in brick walls are not acceptable.

A11.21 FLEXIBLE CONNECTIONS FOR CONNECTING UP OF STOVES, MACHINES, ETC.

Flexible tubing connections shall be of galvanised steel construction, and in damp situations of the plastic sheathed galvanised steel type. Other types may only be used subject to the prior approval of the Employer's site electrical representative.

Connectors for coupling onto the flexible tubing shall be of the gland or screw-in types, manufactured of either brass or cadmium or zinc plated mild steel, and the connectors after having been fixed onto the tubing, shall be durable and mechanically sound.

Aluminium and zinc alloy connectors will not be acceptable.

A11.22 WIRING

Except where otherwise specified in the particular specification, wiring shall be carried out in conduit throughout. Only one circuit per conduit will be permitted.

No wiring shall be drawn into conduit until the conduit installation has been completed and all conduit ends provided with bushes. All conduits to be clear of moisture and debris before wiring is commenced.



Unless otherwise specified in the particular specification or indicated on the service drawings, the wiring of the installation shall be carried out in accordance with the "Wiring Code". Further to the requirements concerning the installation of earth conductors to certain light points as set out in the "Wiring Code", it is a specific requirement of this document that where plain-end metallic conduit or non-metallic conduit has been used, earth conductors must be provided and drawn into the conduit with the main conductors to all points, including all luminaires and switches throughout the installation.

Wiring for lighting circuits is to be carried out with 1,5mm² conductors and a 1,5mm²-earth conductor. For socket outlet circuits the wiring shall comprise 4mm² conductors and a 2,5mm²-earth conductor. In certain instances, as will be directed in the particular specification, the sizes of the aforementioned conductors may be increased for specified circuits. Sizes of conductors to be drawn into conduit in all other instances, such as feeders to distribution boards, power points etc., shall be as specified elsewhere in this specification or indicated on the drawings. Sizes of conductors not specified must be determined in accordance with the "Wiring Code".

The loop-in system shall be followed throughout, and no joints of any description will be permitted.

The wiring shall be done in PVC insulated 600/1000 V grade cable to SANS 60227.

Where cable ends connect onto switches, luminaires etc., the end strands must be neatly and tightly twisted together and firmly secured. Cutting away of wire strands of any cable will not be allowed.

A11.23 SWITCHES AND SOCKET OUTLETS

All switches and switch-socket outlet combination units shall conform to the Employer Quality Specifications, which form part of this specification.

No other than 16 A 3 pin sockets are to be used, unless other special purpose types are distinctly specified or shown on the drawings.

All light switches shall be installed at 1,4m above finished floor level and all socket outlets as directed in the Schedule of Fittings which forms part of this specification or alternatively the height of socket outlets may be indicated on the drawings.

All switches, isolators and socket outlets shall be Lumex or Crabtree with plastic covers.

308

324

| | |
|--|----|
| PART B: PARTICULAR SPECIFICATIONS | 57 |
| B1. DETAILED SCOPE OF WORK | 57 |
| B1.1 MAINS POWER SUPPLY AND SITE RETICULATION..... | 57 |
| B1.2 SMALL POWER..... | 57 |
| B1.3 INTERIOR AND EXTERIOR LIGHTING..... | 58 |
| B1.4 AREA LIGHTING..... | 58 |
| B2. DRAWING SCHEDULE | 58 |
| B3. MEASUREMENT AND PAYMENT..... | 59 |
| B4. SCHEDULED PAY ITEMS (PI) | 59 |
| B5. LUMINAIRE SCHEDULE | 71 |
| B6. EQUIPMENT SCHEDULE | 73 |
| B7. CABLE SCHEDULE..... | 75 |

100.

325 ~~324~~

PART B: PARTICULAR SPECIFICATIONS

The Particular Specifications provide specifics to the work to be carried out for this project. The Particular Specifications must be read in conjunction with the General Specification, drawings, Bill of Quantities and other schedules provided specific to this project.

B1. DETAILED SCOPE OF WORK

The KZN Department of Health through the Department of Public Works has acquired Six (6) Mission houses for use as staff accommodation. Due to lack of security services, all 6 houses were vandalised and as a result the hospital could not allocate any of the houses to personnel. The purpose of this project is to make renovations and alterations to these houses, relevant external buildings and site services to a sufficient standard for staff accommodation.

The following items entail the electrical scope of works for Murchison Staff Residence site:

- Mains Power Supply and Site Reticulation
- Small power for all proposed buildings
- Interior and Exterior lighting of buildings
- Area lighting

The project shall include at a minimum:

- 3-Phase power to the proposed development
- A maximum of 80Amps per house
- 6 x Meters (1 per house)
- Power to all mechanical equipment in the proposed design, which includes:
 - Air-conditioners, Geysers and Extractor fans in houses.
 - 2 x Electric Gates
 - 1 x Domestic Booster Pump
 - 1 x Fire Water Booster Pump
- Small power to the proposed buildings which include:
 - 16 Amp Switch socket outlets in predetermined locations
 - 5 Amp Socket outlets for extractor fans
 - Local isolators for geysers, stoves and air-conditioners.
 - 1 x TV & Satellite point per unit
 - 1 x Telephone point per house
- Power links between distribution boards.
- Interior lighting within each proposed building.
- Exterior lighting around exterior of buildings, in parking areas and entrances.
- Telkom Infrastructure

B1.1 MAINS POWER SUPPLY AND SITE RETICULATION

The main power supply to the site has been determined based on designed loads. It was deemed that a power supply of 300A, 400V. The bulk LV supply will be metered in a meter box located outside the boundary of the site where the main incoming supply will enter the site. Distribution Kiosks (DK1 & DK2) will contain a single meter per house for meter readings to be taken. There will be no prepaid meters in houses as Murchison Hospital will pay a consolidated electricity bill for the site. The site reticulation will consist of kiosks at predetermined locations which will distribute electricity to the proposed buildings via LV cables. Refer to **drawings** for details.

B1.2 SMALL POWER

Typically, Switch socket outlets will be provided in each common area and bedrooms. Every house will be supplied with one TV and satellite connection point and one telephone outlet. Refer to drawings and Equipment schedule for details.

B1.3 INTERIOR AND EXTERIOR LIGHTING

The interior lighting proposed consists of functional and decorative LED energy saving luminaires. LED down lights will provide for functional and decorative lighting in lounge, bedroom and dining areas. LED linear lights will provide for functional lighting in the kitchen, laundry room and garage while LED pendants to provide for decorative lighting in dining areas. The exterior lighting consists of LED wall lighting and LED bulkhead lights to illuminate entrances to buildings such as the houses, garages and laundry blocks. Refer to drawings and Luminaire schedule for details.

B1.4 AREA LIGHTING

Area lighting for the property will consist of pole mounted LED lights. These lights will be located near entrances to the site and parking areas of houses. The lighting shall provide for ambient and security lighting within the confines of the property. Refer to drawings for details.

B2. DRAWING SCHEDULE

The following drawings are part of the tender and should be priced accordingly.

| Drawing No. | Title |
|------------------------|--|
| DNA-MUR-ELE-PL-1000-00 | Electrical Site Plan |
| DNA-MUR-ELE-PL-1000-01 | Electrical Sleeve and Manhole Layout |
| DNA-MUR-ELE-SC-1001-00 | Electrical Schematic |
| DNA-MUR-ELE-PL-1002-00 | House 1 and Laundry Power & Lighting Layout |
| DNA-MUR-ELE-PL-1003-00 | House 2 Power and Lighting Layout |
| DNA-MUR-ELE-PL-1004-00 | House 3 Power and Lighting Layout |
| DNA-MUR-ELE-PL-1005-00 | House 4 Power and Lighting Layout |
| DNA-MUR-ELE-PL-1006-00 | House 5 Power and Lighting Layout |
| DNA-MUR-ELE-PL-1007-00 | House 6 Power and Lighting Layout |
| DNA-MUR-ELE-PL-1008-00 | External Buildings Power and Lighting Layout |



327300

B3. MEASUREMENT AND PAYMENT

Scheduled pay items are items to be priced in the bill of quantities. Contractors are to familiarise details and components indicated under each item as these are to be allowed for in the pricing. No additional costs or variations will be allowed for items indicated. Contractors to comply with the General and Particular Specification in its entirety when pricing.

B4. SCHEDULED PAY ITEMS (PI)

PI.1 Distribution Boards (Refer to section A10)

Unit: No.

Distribution switchboards shall have construction with group mounted circuit protective devices and include the following:

1. Switchboard
2. Circuit Protective Devices

Switchboards shall consist of the required number of vertical sections bolted together to form one metal enclosed rigid switchboard for circuit protective devices and busbar work. Front and side plates shall be screw removable.

PI.2 Conduits & Conduit Boxes (Refer to section A12)

Unit: m.

The conduit and conduit accessories shall comply fully with the applicable SANS specifications as set out below and the conduit shall bear the mark of approval of the South African Bureau of Standards.

- p) The latest issue of SANS 60614 and SANS 61035, parts 1 and 2: Metallic conduit and accessories
- q) The latest issue of SANS 950: Non-metallic conduit and accessories

PI.3 PVC Conductors

Unit: m.

All wiring shall, unless expressly stated otherwise in the detail specification, comprise of PVC insulated, stranded copper conductors and bare stranded copper or green PVC insulated, stranded earth continuity conductors. The conductors shall comprise of high conductivity annealed stranded copper conductors and shall be insulated with general purpose PVC, of the 600/1000 grade. All conductors used for the wiring of the electrical installation shall comply with SANS 1507.

Conductors shall be from new stocks and shall be delivered to site with unbroken seals.

PVC insulated unarmoured cables with a bare earth conductor

(i) General: This section covers the following PVC insulated unarmoured cables with a bare earth conductor:

- (1) PVC insulated flat multicore cable with a bare earth conductor
- (2) PVC insulated round multicore cable with a bare earth conductor and with metal stiffening.

The cable shall comply with the requirements of SANS 1507.

(ii) Installation: The cables shall be installed in accordance with SANS 1507 and as specified in the detail specification.

The cables shall be terminated by means of PVC glands fitted with a neoprene seal. The neoprene seal shall have a round opening for the round multicore cable and a rectangular shaped opening for the flat multicore cable.

45 E

328 77A

Except where otherwise specified in the particular specification, wiring shall be carried out in conduit throughout. Only one circuit per conduit will be permitted.

No wiring shall be drawn into conduit until the conduit installation has been completed and all conduit ends provided with bushes. All conduits to be clear of moisture and debris before wiring is commenced.

Unless otherwise specified in the particular specification or indicated on the service drawings, the wiring of the installation shall be carried out in accordance with the "Wiring Code". Further to the requirements concerning the installation of earth conductors to certain light points as set out in the "Wiring Code", it is a specific requirement of this document that where plain-end metallic conduit or non-metallic conduit has been used, earth conductors must be provided and drawn into the conduit with the main conductors to all points, including all luminaires and switches throughout the installation.

Wiring for lighting circuits is to be carried out with 1,5mm² conductors and a 1,5mm²-earth conductor. For socket outlet circuits the wiring shall comprise 4mm² conductors and a 2,5mm²-earth conductor. In certain instances, as will be directed in the particular specification, the sizes of the aforementioned conductors may be increased for specified circuits. Sizes of conductors to be drawn into conduit in all other instances, such as feeders to distribution boards, power points etc., shall be as specified elsewhere in this specification or indicated on the drawings. Sizes of conductors not specified must be determined in accordance with the "Wiring Code".

The loop-in system shall be followed throughout, and no joints of any description will be permitted.

The wiring shall be done in PVC insulated 600/1000 V grade cable to SANS 60227. Where cable ends connect onto switches, luminaires etc., the end strands must be neatly and tightly twisted together and firmly secured. Cutting away of wire strands of any cable will not be allowed.

PI.4 Light Switches

Unit: No.

Flush mounted switches: Flush mounted switches shall comply with SANS 60947 and shall bear the SABS mark. All flush mounted switches shall be suitable for mounting in 100 x 50 x 50 mm galvanised steel wall boxes unless otherwise specified in the detail specification.

The switch mechanism shall be of the tumbler operated micro-gap type with silent operation and shall be rated for 16 A at 250 V and 50 Hz.

Switches shall have protected terminals for safe wiring. Multi-lever switches shall be constructed so as to enable individual defective switches to be removed and replaced without having to remove the remaining switches.

The mounting holes provided on the yoke strap shall be slotted to allow for easy alignment. A brass earthing terminal shall furthermore be provided on the yoke to ensure the positive earthing of the switch assembly.

Switches with pilot light indication: Flush mounted switches with pilot light indication shall comply with the relevant SANS specification and shall bear the SABS mark.

Switches with pilot light indication shall be suitable for mounting in 100 x 50 x 50 mm galvanised steel wall boxes. The switch shall be rated at 16 A at 250 V and 50 Hz. A red neon indication lamp shall form an integral part of the switch level and shall light-up when the switch is in the on position.

Cover plates for switches: Cover plates for flush mounted switches shall have levelled edges which overlap the wall box in order to conceal all wall imperfections and shall conform to SANS 60947.

Cover plates shall be finished in ivory coloured baked enamel and shall bear the identical manufacturing batch number.

Surface mounted switches: Surface mounted switches shall comply with SANS 60947 and shall bear the SABS mark. Surface mounted switches shall consist of single or multiple switches, not exceeding four, and shall be mounted in a pressed steel box of heavy duty construction.

The switch mechanism shall be of the tumbler operated micro-gap type with silent operation and shall be rated for 16 A at 250 V and 50 Hz.

A brass earthing terminal shall furthermore be provided on the switch construction to ensure the positive earthing of the switch assembly and enclosure.

The covers of surface mounted switches shall have toggle protectors.

Watertight Switches: Watertight switches shall consist of 10A switches on porcelain bases in cast iron or aluminium alloy housing. Contacts must be of heavy duty brass construction and a quick acting spring mechanism shall be fitted. A rigid operating knob shall be clearly marked to indicated the "ON" and "OFF" positions. Conduit entry shall be provided through a tapped hole. The complete unit shall be watertight.

PI.5 Socket Outlets

Unit: No.

The electrical contractors shall only commence with the installation of power outlets in the conduit outlets allowed therefore of the plasterer and painter have completed their work in the vicinity of the outlet.

All socket outlets with switches shall be of the standard 16A 3-pin pattern, white in colour. Units for flush mounting shall be suitable for 100 x 100 x 50 mm deep flush wall box. Surface mounted patterns shall be housed in heavy pressed steel boxes. Shutters shall be provided. All socket outlets with switches shall be continuously rated at 16A and shall be suitable for operation on a 250V, 50 Hz, a.c. system.

All socket outlets with switches shall fully comply with SANS 164 as amended. Covers shall have bevelled edges which overlap the box.

Socket outlets and power outlets shall be installed in the positions as indicated on the drawings.

Unless otherwise specified socket outlets shall be installed at the following heights above finished floor level, measured to the underside of the outlet:

| Outlet Point | Location | Height (from finished floor level to underside of outlet) |
|---------------------------------|----------------------|--|
| Socket Outlet | General applications | 300mm |
| Socket Outlet | Kitchens | 1200mm |
| Geyser isolator | Within 1m of geyser | 500mm |
| Heaters, fans & airconditioners | Within 1m of unit | 1500mm |

PI.6 Isolators

Unit: No.

Moulded case isolators shall be of the double pole ON-LOAD type.

Toggles shall be interlocked with the covers. All isolators shall comply with SANS 60947. To distinguish the switches from circuit breakers the operating handles of isolators shall have a distinctive colour and where called for in the "particular specification" the switch shall be clearly and indelibly labelled "ISOLATOR".



Connections to geysers: Each geyser shall be connected to a separate circuit with a separate earth conductor. The conduit from the distribution board shall terminate in a 100 x 100 x 50 mm outlet box within 1 metre of the geyser. A suitably rated double pole isolator shall be installed in the outlet box. A flexible conduit shall be installed between the isolator and the geyser.

Connections to heaters, fans and air-conditioners: A suitably rated double pole isolator shall be supplied and installed within 1 metre of heaters, fans and air conditioners. Where the equipment is out of reach the isolator shall be installed 1,5 metres above floor level. Flexible cords of sufficient rating may be used for the final connection to the equipment. Where control units are to be installed the units shall be installed 1,5 metres above floor level.

PI.7 Lighting

Unit: No.

Furnish and install LED lighting fixtures of the types and manufacturers scheduled on the Drawings. Fixtures shall be furnished with all required accessories and trim for a complete installation in the ceiling type shown on the Architectural Drawings.

LED fixtures shall be complete with lamps of the type, colour, wattage and size indicated on the Luminaire Schedule, or as specified by the lighting fixture manufacturer. Unless otherwise noted, all lamps shall be Cool white.

Minimum requirements:

- The minimum lamp life should be equal or greater than 30 000 hours
- The Colour Rendering Index (CRI) must be 80 or greater
- Power factor must be greater than 0.9
- Test reports from an approved and accredited test laboratory must be submitted when called for.
- Alternate fixture manufacturers shall submit computer generated illumination calculations and files (.ies) to the engineer for approval

Luminaire Markings: All products shall be marked according to SANS 62031 as follows:

- Lamp rating in Watts
- Lamp life in hours
- Colour Correlated Temperature (CCT) or colour name
- Colour Rendering Index (CRI)
- Initial lamp life output
- Energy Efficiency Marking /label per SANS codes

PI.8 Earthing and Lightning Protection (Refer to section A3)

Unit: m.

The lightning Protection system shall be designed and installed by a certified specialist contractor.

The lightning protection system of buildings and structures shall include:

- Bonding of metal roofs and structures
- Installation of 8mm aluminium Lightning conductor on concrete and non-metallic roof structures
- Bonding of lightning protection system with earthing system.

The contractor to use approved methods for joints, terminations and bonding.

- Lightning conductors shall be fixed to walls and parapets by means of raised galvanised saddles and secured onto the structure.
- If waterproofing is installed, lightning conductors to be installed above the waterproofing membrane.

- Care must be taken to prevent damage to waterproofing membranes and any damage or penetration onto waterproofing membranes must be first approved by the waterproofing installers prior to drilling/cutting.
- All repairs to waterproofing membranes must be done by the specialist waterproofing installers at the contractors cost.
- Down conductors to be 50mm copper conductor in PVC conduit to the earth mat of test points as indicated on the drawings.
- Test points shall be installed 600mm above finished ground level in a suitably approved IP65 box with a removable cover.
- Test points shall be provided with a bolted connection and labelled for future testing.
- Down conductor tails from the test point to earth mat/rod shall be of 50mm² copper conductor and to be exothermically welded onto the earth mat/rod. No crimps or clamps will be allowed.
- All drilling of holes onto structures and frames and re-instatement of protective coatings, eg. paint or galvanising shall form part of this contract.
- All connections to earth rods and conductor joints shall be by means of exothermic welds.
- Bonding to steel reinforcing shall be by means of approved clamps.
- All connections between different metals shall be by means of suitable bi-metal connections.

PI.9 Earth Works - Excavation and Backfill

Excavation of all material for trenches, backfill, compaction and removal of excess material.

The volumes of the cable sleeve, cable ways and cable trench excavations must be calculated according to the length and depth as shown on the drawings or to the bottom of the specified bedding, whichever is the largest and to the minimum base width specified in 5.8. The tariff covers the cost to comply with safety and protection regulations, except in the case of particular items listed to cover the cost of excavations, backfill and compaction as well as the removal of any excess material as specified.

The tariff also covers the cost of the same works in tunnels if the contractor wishes to use this method of excavation. No additional payment will be made for such tunnels and no deductions will be allowed for the decrease in the amount of excavation quantities.

LV trenching to be 1000mm deep and MV trenching to be 1000mm deep.

The maximum width of a single cable trench shall be fixed at 300mm.

.1. Hand pickable soil (soft soil).

Unit: m³.

The unit of measure shall be the number of cubic metres of hand pickable soil removed from the trenches (see general specifications for definition of soil type).

.2. Machine excavation (soft rock).

Unit: m³.

The unit of measure shall be the number of cubic metres of soft rock removed to form the trenches (see general specifications for definition of soil type).

.3. Hard rock (blasting).

Unit: m³.

The unit of measure shall be the number of cubic metres of hard rock removed to form the trenches (see general specifications for definition of soil type).

.4. Back filling and compacting.

Unit: m³.

The unit of measure shall be the number of cubic metres of backfilling and compaction done to close the trenches (the measurement shall be based on the size of the trench).

When backfilling, every 150mm shall be compacted to 90% AASHTO.

The size of the trench shall be from the top of the bedding to ground level with a trench width maximum of 450mm.

.5. Sifting of local soil for bedding of the cables.

Unit: m³.

The unit of measure shall be the number of cubic metres of bedding sifted and installed in the trenches.

The bedding shall have a thermal resistivity of at least 1.2 K.m/W and be approved by the Engineer prior to installation. A 6mm grid shall be used during the sifting process.

The bedding shall be 150mm above and below the cable as well as cover the width of the trench (maximum of 300mm).

.6. Import soil for bedding of cables.

Unit: m³.

The unit of measure shall be the number of cubic metres of imported soil and installed in the trenches.

The bedding shall be 150mm below and 150mm above the MV cable.

PI.10 Low voltage Cable.

Unit: m.

The unit of measure shall be the cable length in meters supplied, installed, terminated and commissioned.

All cable ends shall be labelled. The labels shall be included in the rate.

Laying cables in trenches:

Measurement of cables laid in trenches shall be of the actual length of that part of a cable laid in the trench when the cable is finally installed.

Drawing cables into ducts, pipes and conduits:

(excluding supply and installation of ducts, pipes and conduits).

Measurement of cables drawn into ducts, pipes and conduits shall be of the actual length of that part of a cable laid in ducts, pipes or conduits when the cable is finally installed.

PI.11 Low voltage Cable Joint and Termination.

Unit: No.

The unit of measure shall be the number of joints and terminations supplied and installed.

The joints and termination shall be rated for 1000V for LV cables and 11000V for MV cables and be made from termination glands or heat shrinkable material.



PI.12 Cable Warning Tape. Unit: m.

The unit of measure shall be the number of metres supplied and installed.
(trenching measured elsewhere).

The warning tape shall be installed 300mm above cables.

PI.13 Supply and install Cable Markers. Unit: No.

The unit of measure shall be the cable markers supplied and installed.

PI.14 Concrete Encasement of Services Unit: m³.

In-situ 20MPa Concrete Encasement of low voltage cables, sleeves for Low Voltage, I.T.S services and other future services. Supply, Delivery and Installation to be included.

The unit of measure shall be the length of concrete encasement constructed and finished.

The concrete encasement shall be 450mm wide x 400mm deep for service sleeves and 300mm wide x 200mm deep for cables alone.

All LV and intermediate voltage cables shall be totally encased in concrete and enforced using bonding agent and chicken wire mesh.

Encasements shall be done in one meter sections. Service sleeves are laid into position; as per construction drawings as well as shuttering installed to obtain a class F1 surface finish. The concrete encasement will be constructed of standard 20MPa concrete with 19mm grade crush stone size.

Furthermore, cube tests shall be performed on the concrete and results submitted to the Engineer. One set of cubes shall be submitted to the engineer for independent testing if required.

Encasement quantities are provisional and subject to final measure on site. Quantities are to be based on site verification.

PI.15 Negotiations with Supply Authorities for supplying Mains Power. Unit: P/Sum

The unit of measure shall be a Provisional Sum for the application for the increased power supply with the power Supply Authority of the area. Payment will be based on actual Quotation / Invoice received from the Supply Authority.

PI.16 Electrical Connection Fee for Supply Point. Unit: PC Sum

The unit of measure shall be a provisional sum for the Electrical Connection Fee to the Electricity Supply Authority. The amount to be paid to the Supply Authority will be based on formal quotation from the Supply Authority. No Profit or Attendance will be paid in this regard.

PI.17 LV Distribution Kiosk. Unit: No.

The unit of measure shall be the number of distribution kiosks supplied, installed, tested and commissioned complete with all distribution board equipment.

The rate shall include all associated costs involved in bringing the LV kiosk to full operational status.

A concrete plinth suitable for the Kiosk shall be included in the rate.

PI.18 Anti-Vandal LV Kiosk

Unit: No.

The unit of measure shall be the number of distribution kiosks supplied, installed, tested and commissioned complete with all distribution board equipment as per particular specification and Electrical Schematic.

The kiosk to be an ANTI-VANDAL type complete with the plinth and locks as indicated on the drawings.

The rate shall include all associated costs involved in bringing the LV kiosk to full operational status.

A concrete plinth suitable for the Kiosk shall be included in the rate. The kiosk shall be constructed of 3mm 3CR12.

PI.19 Anti-Vandal LV Kiosk with Electronic Security

Unit: No.

The unit of measure shall be the number of distribution kiosks supplied, installed, tested and commissioned complete with all distribution board equipment as specified in the particular specifications.

The kiosk to be an ANTI-VANDAL type complete with the plinth, cage, electronic locks, vibration sensors and remote monitoring as indicated on the drawings.

The rate shall include all associated costs involved in bringing the LV kiosk to full operational status.

A concrete plinth suitable for the Kiosk shall be included in the rate. The kiosk shall be constructed of 3mm 3CR12.

The rate shall also include all associated costs involved in removing and replacing the existing kiosk and cage, including all fixings as specified in the particular specifications and drawings.

PI.20 Anti-Vandal Mini-substation

Unit: No.

The unit of measure shall be the number of min-substation enclosures supplied, installed, tested and commissioned complete with the transformer and all MV and LV distribution board equipment as per particular specification.

The rate shall include all associated costs involved in bringing the min-substation to full operational status.

A concrete plinth suitable for the mini-substation shall be included in the rate. The mini-substation shall be constructed of 6mm 3CR12 and include electronic anti-vandal controllers and detectors as specified.

PI.21 Anti-Vandal Min-substation with Electronic Security

Unit: No.

The unit of measure shall be the number of mini-substations supplied, installed, tested and commissioned complete with all distribution board equipment and transformer as specified in the particular specifications.

The min-substation to be an ANTI-VANDAL type complete with the plinth, cage, electronic locks, vibration sensors and remote monitoring as indicated on the drawings.

The rate shall include all associated costs involved in bringing the min-substation to full operational status.



A concrete plinth suitable for the mini-substation shall be included in the rate. The mini-substation shall be constructed of 6mm 3CR12.

The rate shall also include all associated costs involved in removing and replacing the existing kiosk and cage, including all fixings as specified in the particular specifications and drawings.

PI.22 Anti-Vandal Security System

Unit: No.

The unit of measure shall be the complete hardware, software and communication required for the security systems installed in the anti-vandal kiosks, enclosures, mini-substations, doors and gates supplied, installed, tested and commissioned complete as per particular specification.

The rate shall include all associated costs involved in supplying, installing, testing and commissioning the security system to full operational status.

PI.23 Security Cage

Unit: No.

The unit of measure shall be the complete Security cage and fencing required around the Kiosk or Mini-substation. Cages to be as specified on the particular specification. Sizes are as indicated on the drawings.

The rate shall include all associated costs involved in supplying and installation of the security cage.

PI.24 Distribution Transformers

Unit: No.

The unit of measure shall be the complete supply, delivery, installation, commissioning and hand over of distribution transformers as as per particular specification.

PI.25 Street Light Luminaire

Unit: No.

The unit of measure shall be the number of luminaires supplied, installed on poles and commissioned. Each light fitting to be supplied with individual photocells.

The luminaires will be supplied, installed, commissioned and aimed by the contractor.

PI.26 Galvanised Poles

Unit: No.

The unit of measure shall be the number of poles supplied, installed and commissioned.

The pole price shall include the complete installation and mounting plate suitable for the site, earthing and lightning protection, electrical wiring and labelling of the mast.

All wiring in the poles and to the luminaires, including circuit breakers, glands and anti-vandal brackets, as indicated on the drawings, to complete the operation of the poles is included in the price.

PI.27 Galvanised Poles with Electronic Security

Unit: No.

The unit of measure shall be the number of poles supplied, installed and commissioned.

The pole price shall include the complete installation and mounting plate suitable for the site, earthing and lightning protection, electrical wiring, Electronic Security and labelling of the mast.

422

336 395

All wiring in the poles and to the luminaires, including circuit breakers, glands, anti-vandal plates, electronic security and earth stud, as indicated on the drawings, is to be included in the price.

Pole quantities are provisional and subject to final measure on site. Ordering of quantities are to be based on site verification.

PI.28 Mast Lighting

Unit: No.

Supply, install and commission a mast lighting complete with LED light fittings as detailed in the pricing schedule. The mast to be supplied and installed to include the following:

- Concrete base design and installation on site
- Mast per height specified in the pricing schedule
- High intensity LED flood lights
- Electrical Control gear
- Mechanical equipment for lowering and erecting of mast
- Earthing and lighting protection

Design of the masts must comply with the design data of general and particular specification.

PI.29 Area and Flood Lighting

Unit: No.

Area and Floodlighting fixtures have been selected for specific features, beam characteristics and style. Alternate fixtures will be considered for approval based upon compliance with procedures as described below.

Alternate fixture manufacturers shall submit computer generated illumination calculations and files (.ies) to the engineer for approval

Floodlighting fixtures shall consist of a cast aluminium housing and housing door assembly. The housing shall contain the optical components and a removable ballast drawer assembly. The unit shall be supported by cast aluminium, adjustable mounting bracket. The unit shall contain no weep or drain holes. A filtered vent hole into the fitter chamber shall be provided. The entire unit shall be classified as a sealed type. It shall bear a IP rating.

Housing shall be a single piece aluminium casting, forming a watertight shell. It shall contain the electrical and optical component compartments.
Housing door shall be cast aluminium and shall hold a tempered heat and impact resistant clear glass lens. It shall be gasketed with high temperature resistant gasket and shall be hinged to the fixture housing with a non-corrosive hinge assembly. It shall be held closed with corrosion resistant captive screws, or stainless steel, spring loaded, quick release latches.

All gasketing material shall be high temperature resistant rubber. All areas that are gasketed shall be of metal to metal or metal to glass interface contact design, to control gasket compression. All gasketing shall provide component compartment sealing, to prevent external atmospheric containment intrusion.

PI.30 160mm Diameter PVC Sleeves

Unit: m.

The unit of measure shall be the length of 160mm diameter PVC sleeves.

Supply and install.



- PI.31 160mm Diameter PVC slow bends. Unit: No.**
The unit of measure shall be the slow bends for the 160mm diameter PVC sleeves.
Supply and install.
- PI.32 110mm Diameter PVC Sleeves for LV and Intermediate Voltage services. Unit: m.**
The unit of measure shall be the length of 110mm diameter PVC sleeves.
Supply and install.
- PI.33 110mm Diameter PVC slow bends. Unit: No.**
The unit of measure shall be 110mm diameter PVC bends for the 110 mm PVC sleeves.
Supply and install.
- PI.34 System Testing Unit: No.**
The unit of measure shall be the complete testing, proving and handing over of a completed working system.
- PI.35 Lightning Protection of Poles Unit: No.**
Supply, install and commission a 0.5m x 10mm finial with pole strap complete with 14m x 16mm covered copper conductor to 1m earth rod in ground.
- PI.36 Test, Commission & Handover Unit: No.**
The unit of measure shall be the complete testing, proving and handing over of a completed working system.
- PI.37 Labelling Unit: No.**
The unit of measure shall be the supply and installation of labels for all equipment as specified. Refer to relevant sections in the specification detailing labelling for Poles, Masts, Kiosks, Mini-substations, etc.
- PI.38 As-built documents Unit: Lump Sum.**
Provide full "As-built" documentation as specified and to the Engineer's satisfaction.

Documents to include:
 - Post installation Lux levels tests
 - Surveyor certificate confirming "As-built" information.
One set of "As-built/ Record" drawings for the entire system, inserted in a plastic sleeve to be submitted ,

Drawings shall be "red lined" on a hard copy of the latest construction drawings issued. A copy of the construction drawing set shall be for the contractors cost.
- PI.39 Operating and Maintenance manuals Unit: Lump Sum.**
A draft copy of the operating and maintenance manual shall be submitted to the Engineer one month prior to practical handover. Once approved, the following to be submitted:
 - One CD copy of the entire operating and maintenance manual. Documents may be scanned.



338 99A

- Three copies of the approved maintenance and operating manual must be submitted to the Engineer as a requirement for practical handover. These manuals must as a minimum requirement include the following information:
 - The manual shall be bound in a plastic hardcover ring file,
 - Name of the project shall be clearly and boldly shown on the spine and on the cover of each document,
 - Contact details of contractor and person for callouts,
 - Brief description of installation and summary of equipment installed,
 - Technical data sheets and operating instructions on all equipment installed,
 - Maintenance schedules for each item of equipment giving each maintenance activity and also frequency,
 - Recommended spares to be kept on site,
 - Nearest agents details for each item of equipment. Name, address, telephone and fax numbers,
 - Commissioning data, including, test sheets and sign-off commissioning sheets.




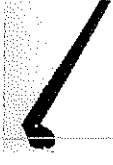


PI.40 P&G Obligations

Unit: Lump Sum.

The unit of measurement shall be Lump Sum. The tendered rate shall include full compensation for site establishment and subsequent removal from site for all equipment, transport, plants, materials, security camps and personnel necessary to carry out the specified works. It shall also include for all permits, contractor's administration, managements and supervision of the works, as well as for the production of all method statement reports, designs/drawings as required for the Engineers acceptance.


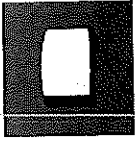

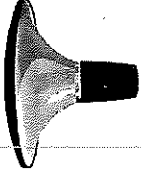
Compliance with all Health and Safety obligations in accordance with the OHS Act and Construction Regulations shall also be required, as well as Environmental compliance.

B5. LUMINAIRE SCHEDULE

| TYPE | EQUIVALENT WATTAGE | LOCATION | DESCRIPTION | IMAGES/CODE |
|------|--------------------|--|--|---|
| D1 | 2x5 | Bedrooms. | Recessed Mounted luminaire, 2 x GU10 Base. 2 x LED Lamp complete with electronic control gear and all necessary accessories. Minimum 1040 lm. Warm White. Colour black or as per architect. |  |
| D2 | 1x5 | Lounges, Dining areas, Passages | Recessed Mounted luminaire, GU10 Base. 1 x LED Lamp complete with electronic control gear and all necessary accessories. Minimum 520 lm. Warm White. Colour black or as per architect. |  |
| D3 | 1x5 | Bathrooms | Recessed Mounted luminaire, GU10 Base. 1 x LED Lamp complete with electronic control gear and all necessary accessories. Minimum 520 lm. Cool White. Colour black or as per architect. |  |
| L1 | 1x36 | Kitchen, Garages, Laundry, External Buildings. | 1500mm (5ft) Surface mounted, LED luminaire. Aluminium Body. LED lamps complete with electronic control gear and telescopic ends. Minimum 7200 Lumens. Cool White. Colour black or as per architect. |  |
| L1-A | 1x36 | As specified on drawings | 1500mm (5ft) suspended, LED luminaire. Aluminium Body. LED lamps complete with electronic control gear and telescopic ends. Minimum 7200 Lumens. Cool White. Colour black or as per architect. |  |
| A | 1x20 | Over Dining tables, kitchen nooks. | 500mm Diameter x 230mm Height Surface Mounted Pendant light fitting. LED lamp complete with all electronic control gear and all necessary accessories. Warm White. Colour Black or as per architect. |  |

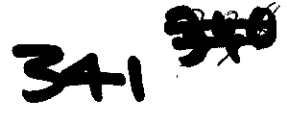
340 22

Technical Specifications - Electrical
 Project Title: Murchison Staff Residence









| | | | | |
|----|------|-------------------------------------|---|---|
| B | 1x18 | Varandas, Patios | Surface mounted polycarbonate body. IP 65, Corrosion resistant luminaire, complete with 1 x LED lamps, polycarbonate Diffuser, electronic control gear and all necessary accessories. All external bolts to be stainless steel. Minimum 1550 Im. Cool White. Colour black or as per architect. |  |
| W1 | 1x9 | Exterior of buildings | Wall Mounted LED Bulkhead . IP 65, Corrosion resistant luminaire, complete with 1 x LED lamps, electronic control gear and all necessary accessories. Minimum 630 Im. Cool white. Colour Black or as per architect. |  |
| W2 | 1x12 | Exterior of buildings | Wall mounted luminaire with polycarbonate diffuser. Minimum IP 65, Corrosion and vandal resistant luminaire complete with 1 x LED lamps, electronic control gear and all necessary accessories. All external bolts to be stainless steel. Cool White. Colour black or as per architect. |  |
| P2 | 1x30 | Driveways, Walkways, Parking areas. | Post Top mounted luminaire, with glass-filled nylon dome with frosted acrylic diffuser. High-pressure die-cast aluminium spigot base. Minimum IP 65, Corrosion and vandal resistant luminaire complete with 1x LED lamp, electronic control gear and all necessary accessories and to include pole. All external bolts to be stainless steel. Minimum 4200Im. Cool White. Colour Dark Grey or as per architect. Mounted on 3.6m Pole at 3m mounting height. |  |

Note:

1. All luminaires are subject to the approval of the Engineer prior to ordering and purchase.
2. All images are of luminaires used for the design. The supplier to provide specified fittings subject to approval by the Engineer.
3. Light output verification is subject to simulation of submitted IES/LDT files. Non-submission of photometric data files could lead to rejection of the proposed luminaire.
4. All light fittings supplied must comply with SANS requirements for manufacture and SANS 10114-1. The Engineer reserves the right to request such compliance certificates. Failure to submit such compliance certificates will result in the fittings being rejected.
5. Alternate fittings proposed will only be considered if cost saving, better quality and longer guarantee is provided and subject to approval by the engineer, architect and client.






B6. EQUIPMENT SCHEDULE

| NO. | TYPE | LOCATION | DESCRIPTION | IMAGE/CODE |
|-----|------------|---------------------|--|---|
| 1 | Type A SSO | Various | 16A, 3-pin single SSO with two Type J sockets (ZA plug). Mounted at 300mm. |  |
| 2 | Type B SO | Ceiling Voids | 5A, 3-pin single socket outlet. |  |
| 3 | Type C SSO | Kitchens | 16A, 3-pin single SSO with two Type J sockets (ZA plug), Mounted above kitchen counters. |  |
| 4 | Type D SSO | Garages | 16A, 3-pin single SSO |  |
| 5 | Type E SSO | Patios and Verandas | 16A single SSO in weatherproof slide up box |  |
| 6 | Type F SSO | Laundry | 16A, 3-pin double SSO |  |
| 7 | Isolators | All | 30 amps, 2 poles isolators |  |
| 8 | Site Kiosk | Site | Moss Green (RAL 6005) 3mm 3CR12 Steel Kiosk |  |

045

342

Technical Specifications - Electrical
 Project Title: Murchison Staff Residence

| | | | | |
|----|-----------------------------|----------------------|-----------------------------|---|
| 9 | Distribution Board frame | Houses and buildings | 12 and 24 way |  |
| 10 | Circuit Breaker | All | Circuit breakers |  |
| 11 | TV & Satellite Junction Box | Houses | TV & Satellite Junction Box |  |

343 312

B7. CABLE SCHEDULE

| CABLE REF | FROM | TO | EXPECTED CIRCUIT LOAD (A) | CABLE TYPE / SIZE / NO. IN PARALLEL | INSTALLATION TYPE (TRAY / DUCT/ GROUND / SPACING) | ROUTE LENGTH (m) | COMMENTS |
|-----------|-------|----------|---------------------------|--|---|------------------|---|
| LVC01 | MB | DK1 | 215 | 1x185mm ² 4C SWA PVC ECC Cu | GROUND | 45 | 300A, 3-PHASE CIRCUIT BREAKER |
| LVC02 | DK1 | DK3 | 62 | 1x25mm ² 4C SWA PVC ECC Cu | GROUND | 71 | 80A, 3-PHASE CIRCUIT BREAKER |
| LVC03 | DK3 | DB-H3-U1 | 26 | 1x16mm ² 2C SWA PVC ECC Cu | GROUND | 11 | 63A, SINGLE PHASE CIRCUIT BREAKER (RED PHASE) |
| LVC04 | DK3 | DB-H3-U2 | 57 | 1x16mm ² 2C SWA PVC ECC Cu | GROUND | 5.5 | 63A, SINGLE PHASE CIRCUIT BREAKER (WHITE PHASE) |
| LVC05 | DK1 | DB-H4 | 66 | 1x25mm ² 2C SWA PVC ECC Cu | GROUND | 72 | 80A, SINGLE PHASE CIRCUIT BREAKER (WHITE PHASE) |
| LVC06 | DK1 | DB-H5 | 66 | 1x25mm ² 2C SWA PVC ECC Cu | GROUND | 69 | 80A, SINGLE PHASE CIRCUIT BREAKER (BLUE PHASE) |
| LVC07 | DB-H5 | DB-H5-1 | 5 | 1x6mm ² 2C SWA PVC ECC Cu | GROUND | 47 | 32A CIRCUIT BREAKER, FED (BLUE PHASE) |
| LVC08 | DK1 | DB-A | 3 | 1x10mm ² 2C SWA PVC ECC Cu | GROUND | 64 | 32A, SINGLE PHASE CIRCUIT BREAKER (RED PHASE) |
| LVC09 | DK1 | DB-B | 4 | 1x10mm ² 2C SWA PVC ECC Cu | GROUND | 45 | 32A, SINGLE PHASE CIRCUIT BREAKER (WHITE PHASE) |
| LVC10 | DK1 | DB-C | 6 | 1x10mm ² 2C SWA PVC ECC Cu | GROUND | 17 | 32A, SINGLE PHASE CIRCUIT BREAKER (BLUE PHASE) |

Technical Specifications - Electrical
Project Title: Murchison Staff Residence

| | | | | | | | |
|-------|-------|-------------------------------|------|--|--------|-----|---|
| LVC11 | DK1 | P2(1) | 6.25 | 1x10mm ² 4C SWA PVC ECC Cu | GROUND | 15 | 20A, THREE PHASE CIRCUIT BREAKER |
| LVC12 | P2(1) | P2(2) | 5 | 1x10mm ² 4C SWA PVC ECC Cu | GROUND | 30 | COMMON CIRCUIT BREAKER (DK1- P2(2)) |
| LVC13 | DK1 | FIRE WATER BOOSETR PUMP | 14 | 1x6mm ² 4C SWA PVC ECC Cu | GROUND | 38 | 40A, THREE PHASE CIRCUIT BREAKER |
| LVC14 | DK1 | DOMESTIC BOOSTER PUMP | 28 | 1x6mm ² 4C SWA PVC ECC Cu | GROUND | 38 | 40A, THREE PHASE CIRCUIT BREAKER |
| LVC15 | DK1 | ELECTRIC GATE PUMP | 10 | 1x10mm ² 2C SWA PVC ECC Cu | GROUND | 39 | 20A, SINGLE PHASE CIRCUIT BREAKER (BLUE PHASE) |
| LVC16 | DK1 | DK2 | 95 | 1x70mm ² 4C SWA PVC ECC Cu | GROUND | 107 | 160A, THREE PHASE CIRCUIT BREAKER |
| LVC17 | DK2 | DB-H2 | 59 | 1x35mm ² 2C SWA PVC ECC Cu | GROUND | 63 | 80A, SINGLE PHASE CIRCUIT BREAKER (RED PHASE) |
| LVC18 | DB-H2 | DB-H2-1 | 9 | 1x10mm ² 2C SWA PVC ECC Cu | GROUND | 20 | 32A, SINGLE PHASE CIRCUIT BREAKER (RED PHASE) |
| LVC19 | DK2 | DK5 | 45 | 1x35mm ² 4C SWA PVC ECC Cu | GROUND | 71 | 80A, THREE PHASE CIRCUIT BREAKER |
| LVC20 | DK5 | DB-H1-U1 | 36 | 1x25mm ² 2C SWA PVC ECC Cu | GROUND | 40 | 63A, SINGLE PHASE CIRCUIT BREAKER (RED PHASE) |
| LVC21 | DK5 | DB-H1-U2 | 45 | 1x25mm ² 2C SWA PVC ECC Cu | GROUND | 39 | 63A, SINGLE PHASE CIRCUIT BREAKER (WHITE PHASE) |
| LVC22 | DK5 | DB-H1-U3 | 9 | 1x10mm ² 2C SWA PVC ECC Cu | GROUND | 54 | 32A, SINGLE PHASE CIRCUIT BREAKER (BLUE PHASE) |
| LVC23 | DK2 | DK4 | 59 | 1x25mm ² 4C SWA PVC ECC Cu | GROUND | 19 | 80A, THREE PHASE CIRCUIT BREAKER |

Technical Specifications - Electrical
 Project Title: Murchison Staff Residence

| | | | | | | | |
|-------|-------|----------|------|--|--------|------|---|
| LVC24 | DK4 | DB-H6-U1 | 59 | 1x25mm ² 2C SWA PVC ECC Cu | GROUND | 31.5 | 80A, SINGLE PHASE CIRCUIT BREAKER (BLUE PHASE) |
| LVC25 | DK4 | DB-H6-U2 | 3 | 1x10mm ² 2C SWA PVC ECC Cu | GROUND | 8 | 32A, SINGLE PHASE CIRCUIT BREAKER (WHITE PHASE) |
| LVC26 | DK4 | DB-H6-U3 | 3 | 1x10mm ² 2C SWA PVC ECC Cu | GROUND | 11 | 32A, SINGLE PHASE CIRCUIT BREAKER (RED PHASE) |
| LVC27 | DK2 | DK6 | 21 | 1x25mm ² 4C SWA PVC ECC Cu | GROUND | 95 | 63A, THREE PHASE CIRCUIT BREAKER |
| LVC28 | DK6 | DB-GH-1 | 4.5 | 1x16mm ² 2C SWA PVC ECC Cu | GROUND | 12 | 32A, SINGLE PHASE CIRCUIT BREAKER (WHITE PHASE) |
| LVC29 | DK2 | DB-GH | 4 | 1x16mm ² 2C SWA PVC ECC Cu | GROUND | 40 | 32A, SINGLE PHASE CIRCUIT BREAKER (RED PHASE) |
| LVC30 | P2(2) | P2(3) | 1.25 | 1x10mm ² 4C SWA PVC ECC Cu | GROUND | 10 | 20A, THREE PHASE CIRCUIT BREAKER LOCATED IN DK1 |
| LVC31 | P2(1) | P2(4) | 5 | 1x10mm ² 4C SWA PVC ECC Cu | GROUND | 22 | 20A, THREE PHASE CIRCUIT BREAKER LOCATED IN DK1 |
| LVC32 | P2(4) | P2(5) | 1.25 | 1x10mm ² 4C SWA PVC ECC Cu | GROUND | 5 | 20A, THREE PHASE CIRCUIT BREAKER LOCATED IN DK1 |
| LVC33 | DK1 | P2(6) | 1.25 | 1x10mm ² 4C SWA PVC ECC Cu | GROUND | 21 | 20A, THREE PHASE CIRCUIT BREAKER LOCATED IN DK1 |
| LVC34 | DK1 | P2(7) | 5 | 1x10mm ² 4C SWA PVC ECC Cu | GROUND | 46 | 20A, THREE PHASE CIRCUIT BREAKER LOCATED IN DK1 |
| LVC35 | P2(7) | P2(8) | 1.25 | 1x10mm ² 4C SWA PVC ECC Cu | GROUND | 25 | 20A, THREE PHASE CIRCUIT BREAKER LOCATED IN DK1 |
| LVC36 | P2(7) | P2(9) | 2.5 | 1x10mm ² 4C SWA PVC ECC Cu | GROUND | 37 | 20A, THREE PHASE CIRCUIT BREAKER LOCATED IN DK1 |

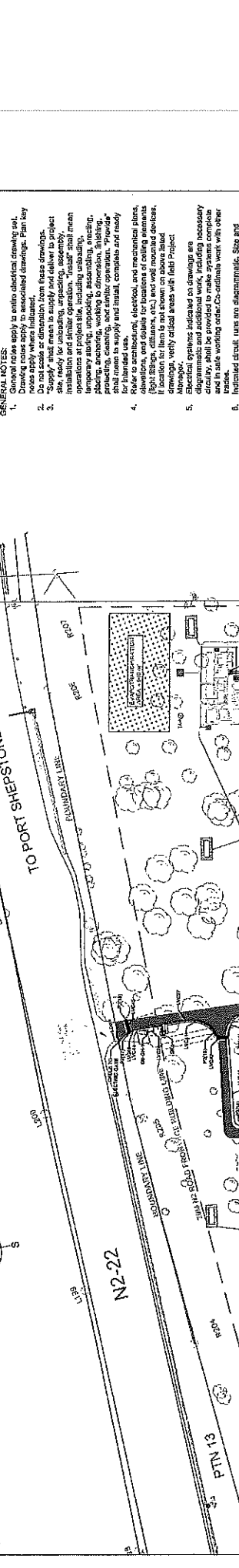
347

Technical Specifications - Electrical
Project Title: Murchison Staff Residence

| | | | | | | | |
|-------|--------|------------------|------|--|--------|----|---|
| LVC37 | P2(9) | P2(10) | 1.25 | 1x10mm ² 4C SWA PVC ECC Cu | GROUND | 35 | 20A, THREE PHASE CIRCUIT BREAKER LOCATED IN DK1 |
| LVC38 | DK2 | P2(11) | 2.5 | 1x10mm ² 4C SWA PVC ECC Cu | GROUND | 6 | 20A, THREE PHASE CIRCUIT BREAKER LOCATED IN DK2 |
| LVC39 | P2(11) | P2(12) | 1.25 | 1x10mm ² 4C SWA PVC ECC Cu | GROUND | 47 | 20A, THREE PHASE CIRCUIT BREAKER LOCATED IN DK2 |
| LVC40 | DK2 | P2(13) | 1.25 | 1x10mm ² 4C SWA PVC ECC Cu | GROUND | 13 | 20A, THREE PHASE CIRCUIT BREAKER LOCATED IN DK2 |
| LVC41 | DK6 | P2(16) | 3.75 | 1x10mm ² 4C SWA PVC ECC Cu | GROUND | 23 | 20A, THREE PHASE CIRCUIT BREAKER LOCATED IN DK6 |
| LVC42 | P2(16) | P2(15) | 2.5 | 1x10mm ² 4C SWA PVC ECC Cu | GROUND | 12 | 20A, THREE PHASE CIRCUIT BREAKER LOCATED IN DK6 |
| LVC43 | P2(15) | P2(14) | 1.25 | 1x10mm ² 4C SWA PVC ECC Cu | GROUND | 41 | 20A, THREE PHASE CIRCUIT BREAKER LOCATED IN DK6 |
| LVC44 | DK6 | P2(17) | 2.5 | 1x10mm ² 4C SWA PVC ECC Cu | GROUND | 15 | 20A, THREE PHASE CIRCUIT BREAKER LOCATED IN DK6 |
| LVC45 | P2(17) | P2(18) | 1.25 | 1x10mm ² 4C SWA PVC ECC Cu | GROUND | 20 | 20A, THREE PHASE CIRCUIT BREAKER LOCATED IN DK6 |
| LVC46 | DK6 | ELECTRIC GATE | 10 | 1x6mm ² 4C SWA PVC ECC Cu | GROUND | 23 | 20A, SINGLE PHASE CIRCUIT BREAKER (BLUE PHASE) |

348

| Rev No | Date | Description | By |
|--------|----------|--------------------------|----|
| 1 | 10/08/20 | FOR PRELIMINARY APPROVAL | JM |
| 2 | 10/08/20 | FOR FINAL APPROVAL | JM |



DRAWING NOTES:

- Drawings shall comply with SANS 101-02-1
- Drawings shall be extended 100mm beyond road edges
- LV Cables to be buried at 1000mm. (See details)
- Existing telephone installation to be done by contractor.
- Telephone electrical services to be buried at 800mm. (See details)

GENERAL NOTES:

- General notes apply to entire electrical drawing set. Drawing notes apply to associated drawings. Plan key shall be used to identify drawings.
- Do not scale or dimension from these drawings.
- "Supply" shall mean to supply and deliver to project site, ready for unloading, unloading, assembly, installation and/or operation. It shall include all necessary materials, labour, tools, equipment, temporary scaffolding, unpacking, assembling, erecting, placing, anchoring, working to dimension, finishing, painting, cleaning, and similar operations. "Provide" shall mean to provide materials, tools, equipment and ready for labour use.
- Refer to architectural, electrical, and mechanical plans. Where necessary, the location of existing services shall be indicated on drawings. If location for item is not shown on above said drawings, verify critical areas with field Project Engineer.
- Existing systems indicated on drawings are diagrammatic and additional work, including necessary earthing, shall be provided to make systems complete and in safe working order. Co-ordinates work with other disciplines. Ensure that drawings are correct and complete. Location shall be indicated on drawings. Size and location shall be provided for all items.
- On job completion, provide As-Built drawings accurately depicting final construction.
- Installation to comply with OHS act, SANS 10142 and SANS 10144.
- No commissioning to take place unless authorized by the Engineer.
- All test certificates to be issued to the Engineer before the work is completed.
- Confirmation of compliance to be issued to the Engineer after commissioning but before handover for use.

KIOSK NOTES:

- All equipment to be approved by engineer prior to purchase.
- Equipment to comply with items 10.1, 10.2, and 10.3.
- Enclosure doors are not to be lockable.

| Rev No | Date | Description | By |
|--------|----------|--------------------------|----|
| 1 | 10/08/20 | FOR PRELIMINARY APPROVAL | JM |
| 2 | 10/08/20 | FOR FINAL APPROVAL | JM |

HEALTH DEPARTMENT SIGNATURES

HEALTH DIRECTOR GENERAL: _____
 HEAD OF OFFICE PROMOTION / SERVICE: _____
 DISTRICT MANAGER: _____
 CDD / MANAGER OF THE FACILITY: _____
 JOB PROJECT MANAGER: _____
 APPLICANT / ACCOUNT PROJECT MANAGER: _____
 PROFESSIONAL SERVICE PROVIDER: _____

NAME: _____ DATE: _____
 SIGNATURE: _____

ELECTRICAL CONSULTANT:

DMA
 Design & Manufacturing Associates
 605 Pinar Mabasa Rd
 Claremont, Western Cape
 7708
 Tel: 021 207 5789
 Cell: 207 9022
 Fax: 021 207 5789
 Email: info@dma.co.za

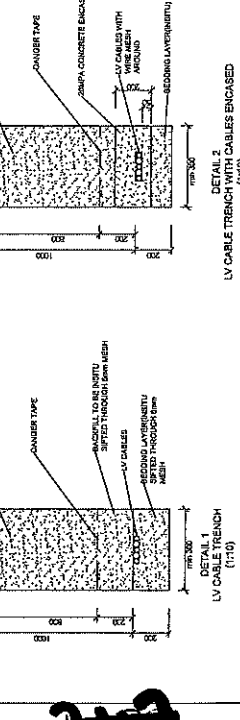
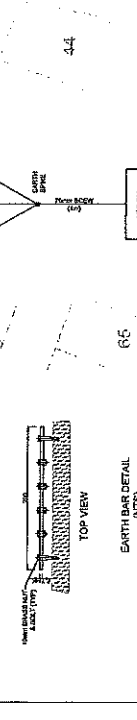
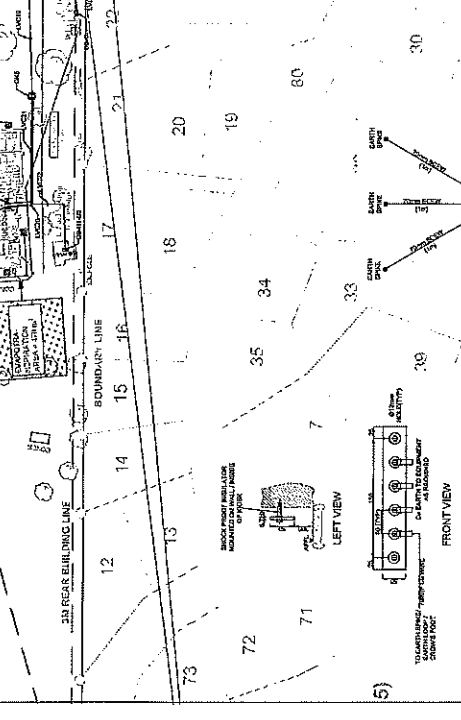
health
 Department of Health
 PROVINCE OF KWAZULU-NATAL
 SOUTHERN REGION

PROJECT: MURCHISON HOSPITAL ALTERATIONS AND RENOVATIONS TO STAFF ACCOMMODATION

DRAWING DESCRIPTION: ELECTRICAL SITE PLAN

| Rev No | Date | By |
|---------------|--------------|----|
| AS SHOWN (A3) | OCTOBER 2020 | JM |
| PROJECT (A3) | PROJECT (A3) | JM |
| NO (B) | NO (B) | JM |
| PROJ (B) | PROJ (B) | JM |

Drawn by: Pinar Mabasa
 Checked by: Pinar Mabasa
 Approved by: Pinar Mabasa



319 319

DRAWING NOTES:
1. Electrical installation to comply with SANS 10142-1
2. Sleeves to be extended 1000mm beyond road
3. All cables to be buried at 1000mm (see details)
4. Existing telephone excavation to be done by service provider upon application
5. Telephone electrical sleeves to be buried at 800mm (see details)

GENERAL NOTES:

- 1. General notes apply to entire electrical drawing set. Drawing notes apply to associated drawings. Plan key
- 2. Do not scale or dimension from these drawings.
- 3. "Supply" shall mean to supply and deliver to project site, ready for installation, unopened, assembly, materials, components and accessories, including any temporary storage, unpacking, assembling, erecting, placing, attaching, working to dimension, finishing, protecting, painting, sealing, and testing, and ready for intended use.
- 4. Refer to architect, electrical, and mechanical plans, elevations, and details for dimensions, materials, and location for items not shown on above listed drawings, verify critical areas with field Project Manager.
- 5. All dimensions indicated on drawings are programmatic and additional work, including necessary clarity, shall be provided to make systems complete and in safe working order. Co-ordinate work with other indicated detail notes are diagrammatic. Size and location shall be provided. Building conditions shall be confirmed.
- 6. Upon job completion, provide As-Built drawings accurately depicting final construction.
- 7. Installation to comply with SANS 10142 and other applicable legislation.
- 8. No connections to be made unless authorized by the Engineer.
- 9. All test certificates to be issued to the Engineer before completion.
- 10. All test certificates to be issued to the Engineer before completion.
- 11. Certificate of completion to be issued to the Engineer after commissioning but before handover for use.

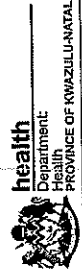
MANHOLE AND SLEEVE INSTALLATION NOTES:

- 1. Refer to plan for location and size of sleeves.
- 2. All sleeves to extend 1000mm beyond road edges.
- 3. All manhole bedding and finish material to be specified by client engineer and to be installed by client engineer.
- 4. Sleeves to be installed in 150mm layers and compacted with mechanical vibrators to 95% MOD wet to density.
- 5. Completion per each engineer's specifications.
- 6. All sleeves to be coupled to prevent ingress of water and dirt.
- 7. All sleeves to be provided with galvanneal draw wire/rope for road crossings and to remain within 2000mm wide trench. Should this requirement be exceeded then a dual layer duct arrangement will be required.
- 8. All concrete cable route markers identification plates can be engraved to customer's specifications.
- 9. All concrete cable route markers to be 25kg, with 100 x 100mm aluminium plate.

REVISIONS

| No. | Date | Description | By | For |
|-----|------|-------------------|----|-----|
| 1 | | ISSUED FOR PERMIT | | |

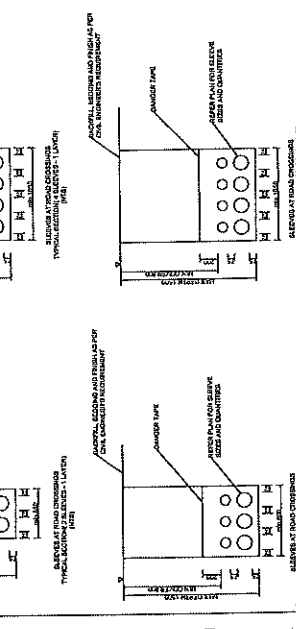
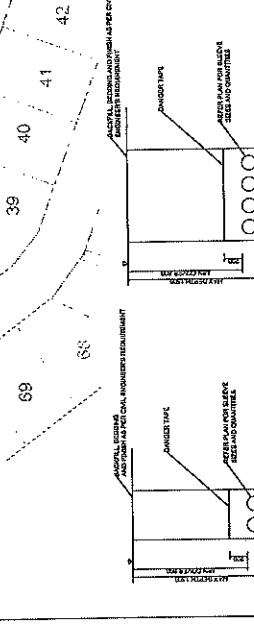
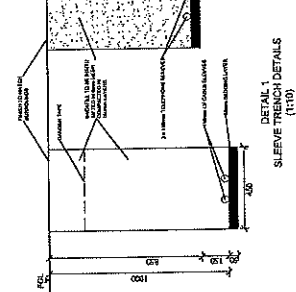
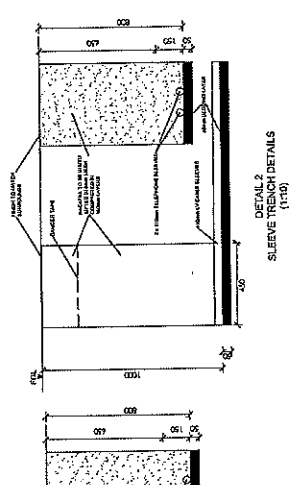
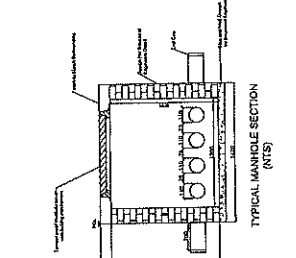
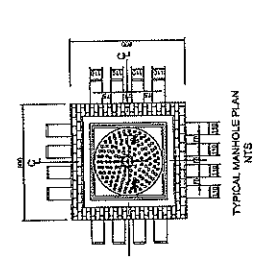
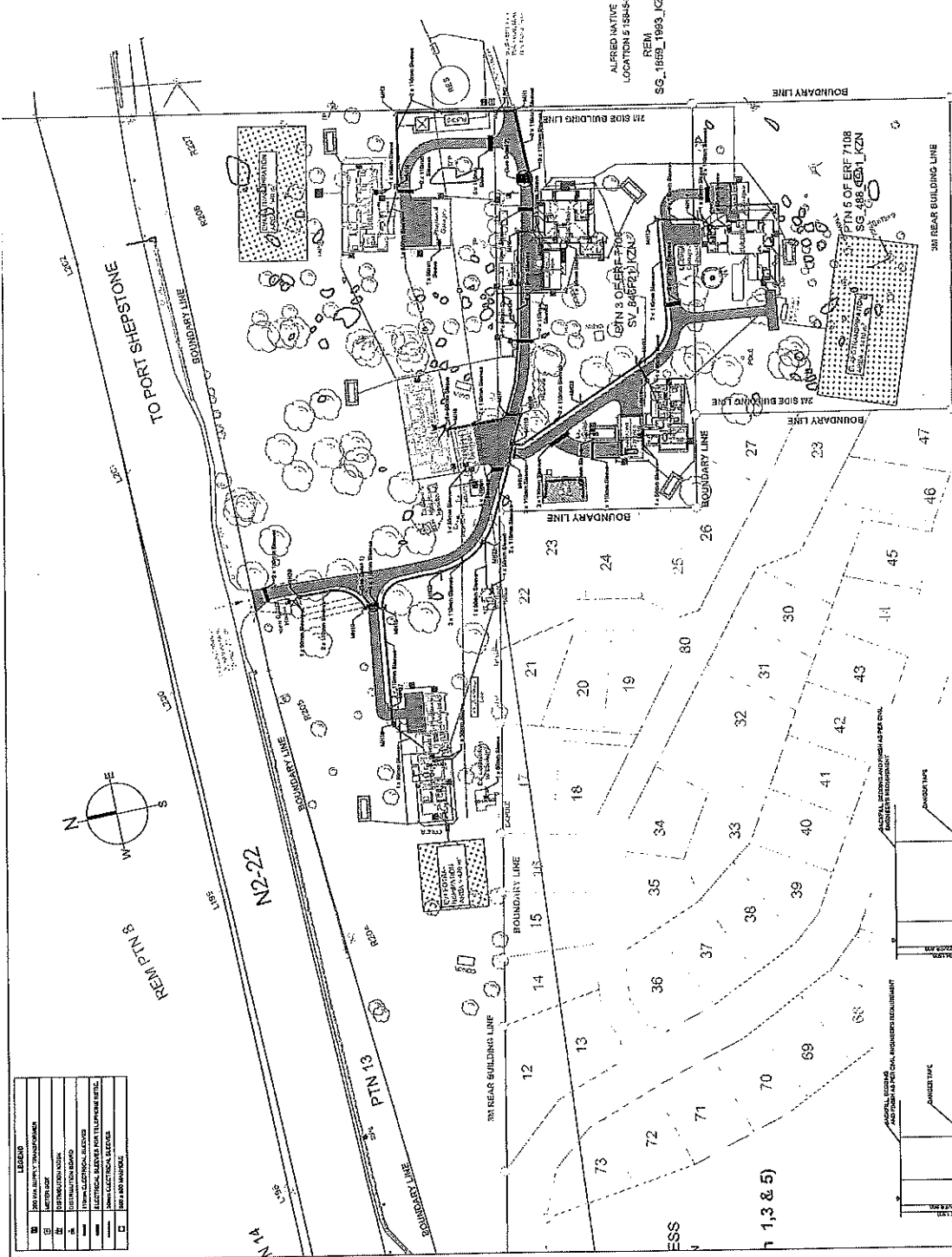
ELECTRICAL CONSULTANT
DNA
DIVERSIFIED ELECTRICAL CONSULTANTS
031 207 1976
031 397 3442
Private Bag 1128
Mossburg, Grahamstown, Eastern Cape
Email: info@dnaweb.co.za



PROJECT
MURCHISON HOSPITAL ALTERATIONS
AND RENOVATIONS TO STAFF
ACCOMMODATION

DRAWING DESCRIPTION
ELECTRICAL SLEEVES AND
MANHOLE LAYOUT

DATE 20 OCT 2020
BY JG
DATE 20 OCT 2020
PROJECT NO DHA-MUR-HLE-P-1408047
PO BOX A



LEGEND

| Symbol | Description |
|--------|-----------------------------------|
| [Line] | 200mm RIBBON TRANSFORMER |
| [Line] | BURIED CABLE |
| [Line] | 150mm OVERHEAD CABLE |
| [Line] | 100mm OVERHEAD CABLE |
| [Line] | 75mm OVERHEAD CABLE |
| [Line] | ELECTRICAL SERVICE TO TRANSFORMER |
| [Line] | 100mm ELECTRICAL SLEEVES |
| [Line] | 200mm MANHOLE |

350

| Rev. No. | Date | Description | By |
|----------|------------|------------------|----|
| A | 01-10-2020 | FOR NAC APPROVAL | JM |

| | | | |
|--|--|--|--|
| | | | |
| | | | |

| | | | |
|--|--|--|--|
| | | | |
| | | | |

| | | | |
|--|--|--|--|
| | | | |
| | | | |

| | | | |
|--|--|--|--|
| | | | |
| | | | |

| | | | |
|--|--|--|--|
| | | | |
| | | | |

| | | | |
|--|--|--|--|
| | | | |
| | | | |

| | | | |
|--|--|--|--|
| | | | |
| | | | |

| | | | |
|--|--|--|--|
| | | | |
| | | | |

| | | | |
|--|--|--|--|
| | | | |
| | | | |

| | | | |
|--|--|--|--|
| | | | |
| | | | |

| | | | |
|--|--|--|--|
| | | | |
| | | | |

| | | | |
|--|--|--|--|
| | | | |
| | | | |

| | | | |
|--|--|--|--|
| | | | |
| | | | |

DRAWING NOTES:

- Full installation is comply with SANS 10142.
- 200mm x 100mm x 100mm junction box to ceiling wall.
- 200mm x 100mm x 100mm junction box to ceiling wall.
- 200mm x 100mm x 100mm junction box to ceiling wall.
- 200mm x 100mm x 100mm junction box to ceiling wall.
- 200mm x 100mm x 100mm junction box to ceiling wall.
- 200mm x 100mm x 100mm junction box to ceiling wall.
- 200mm x 100mm x 100mm junction box to ceiling wall.

GENERAL NOTES:

- General notes apply to entire electrical drawings set.
- Drawing notes apply to associated drawings. Run key notes.
- Do not scale or dimension from these drawings.
- "Supply" shall mean to supply and deliver to project site.
- Contractor shall be responsible for the installation of all electrical equipment, including temporary wiring, including the installation of all electrical equipment, including temporary wiring, including the installation of all electrical equipment, including temporary wiring.
- Contractor shall be responsible for the installation of all electrical equipment, including temporary wiring, including the installation of all electrical equipment, including temporary wiring.
- Contractor shall be responsible for the installation of all electrical equipment, including temporary wiring, including the installation of all electrical equipment, including temporary wiring.

SAFETY NOTES:

- All work shall be done in accordance with the relevant SANS codes.
- All work shall be done in accordance with the relevant SANS codes.
- All work shall be done in accordance with the relevant SANS codes.
- All work shall be done in accordance with the relevant SANS codes.
- All work shall be done in accordance with the relevant SANS codes.
- All work shall be done in accordance with the relevant SANS codes.
- All work shall be done in accordance with the relevant SANS codes.
- All work shall be done in accordance with the relevant SANS codes.

WORKING NOTES:

- Working notes apply to entire electrical drawings set.
- Working notes apply to associated drawings. Run key notes.
- Working notes apply to associated drawings. Run key notes.
- Working notes apply to associated drawings. Run key notes.
- Working notes apply to associated drawings. Run key notes.
- Working notes apply to associated drawings. Run key notes.
- Working notes apply to associated drawings. Run key notes.
- Working notes apply to associated drawings. Run key notes.

WORKING NOTES:

- Working notes apply to entire electrical drawings set.
- Working notes apply to associated drawings. Run key notes.
- Working notes apply to associated drawings. Run key notes.
- Working notes apply to associated drawings. Run key notes.
- Working notes apply to associated drawings. Run key notes.
- Working notes apply to associated drawings. Run key notes.
- Working notes apply to associated drawings. Run key notes.
- Working notes apply to associated drawings. Run key notes.

WORKING NOTES:

- Working notes apply to entire electrical drawings set.
- Working notes apply to associated drawings. Run key notes.
- Working notes apply to associated drawings. Run key notes.
- Working notes apply to associated drawings. Run key notes.
- Working notes apply to associated drawings. Run key notes.
- Working notes apply to associated drawings. Run key notes.
- Working notes apply to associated drawings. Run key notes.
- Working notes apply to associated drawings. Run key notes.

WORKING NOTES:

- Working notes apply to entire electrical drawings set.
- Working notes apply to associated drawings. Run key notes.
- Working notes apply to associated drawings. Run key notes.
- Working notes apply to associated drawings. Run key notes.
- Working notes apply to associated drawings. Run key notes.
- Working notes apply to associated drawings. Run key notes.
- Working notes apply to associated drawings. Run key notes.
- Working notes apply to associated drawings. Run key notes.

WORKING NOTES:

- Working notes apply to entire electrical drawings set.
- Working notes apply to associated drawings. Run key notes.
- Working notes apply to associated drawings. Run key notes.
- Working notes apply to associated drawings. Run key notes.
- Working notes apply to associated drawings. Run key notes.
- Working notes apply to associated drawings. Run key notes.
- Working notes apply to associated drawings. Run key notes.
- Working notes apply to associated drawings. Run key notes.

WORKING NOTES:

- Working notes apply to entire electrical drawings set.
- Working notes apply to associated drawings. Run key notes.
- Working notes apply to associated drawings. Run key notes.
- Working notes apply to associated drawings. Run key notes.
- Working notes apply to associated drawings. Run key notes.
- Working notes apply to associated drawings. Run key notes.
- Working notes apply to associated drawings. Run key notes.
- Working notes apply to associated drawings. Run key notes.

WORKING NOTES:

- Working notes apply to entire electrical drawings set.
- Working notes apply to associated drawings. Run key notes.
- Working notes apply to associated drawings. Run key notes.
- Working notes apply to associated drawings. Run key notes.
- Working notes apply to associated drawings. Run key notes.
- Working notes apply to associated drawings. Run key notes.
- Working notes apply to associated drawings. Run key notes.
- Working notes apply to associated drawings. Run key notes.

WORKING NOTES:

- Working notes apply to entire electrical drawings set.
- Working notes apply to associated drawings. Run key notes.
- Working notes apply to associated drawings. Run key notes.
- Working notes apply to associated drawings. Run key notes.
- Working notes apply to associated drawings. Run key notes.
- Working notes apply to associated drawings. Run key notes.
- Working notes apply to associated drawings. Run key notes.
- Working notes apply to associated drawings. Run key notes.

WORKING NOTES:

- Working notes apply to entire electrical drawings set.
- Working notes apply to associated drawings. Run key notes.
- Working notes apply to associated drawings. Run key notes.
- Working notes apply to associated drawings. Run key notes.
- Working notes apply to associated drawings. Run key notes.
- Working notes apply to associated drawings. Run key notes.
- Working notes apply to associated drawings. Run key notes.
- Working notes apply to associated drawings. Run key notes.

WORKING NOTES:

- Working notes apply to entire electrical drawings set.
- Working notes apply to associated drawings. Run key notes.
- Working notes apply to associated drawings. Run key notes.
- Working notes apply to associated drawings. Run key notes.
- Working notes apply to associated drawings. Run key notes.
- Working notes apply to associated drawings. Run key notes.
- Working notes apply to associated drawings. Run key notes.
- Working notes apply to associated drawings. Run key notes.

WORKING NOTES:

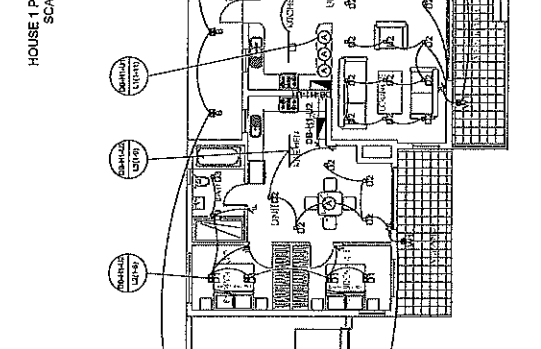
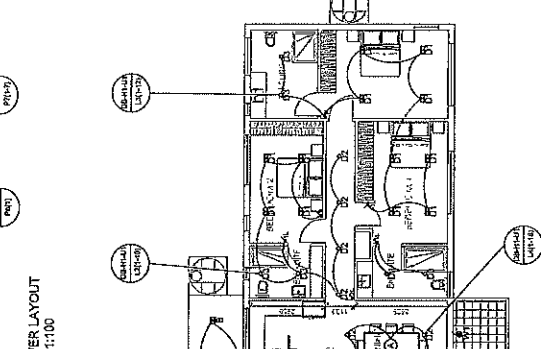
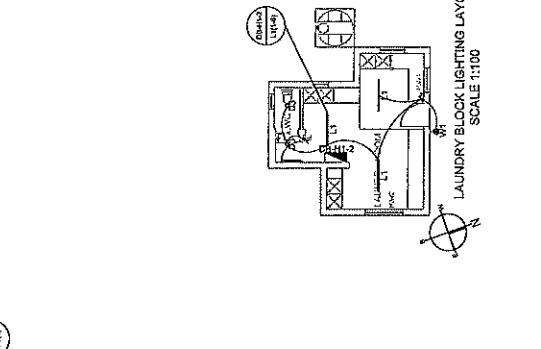
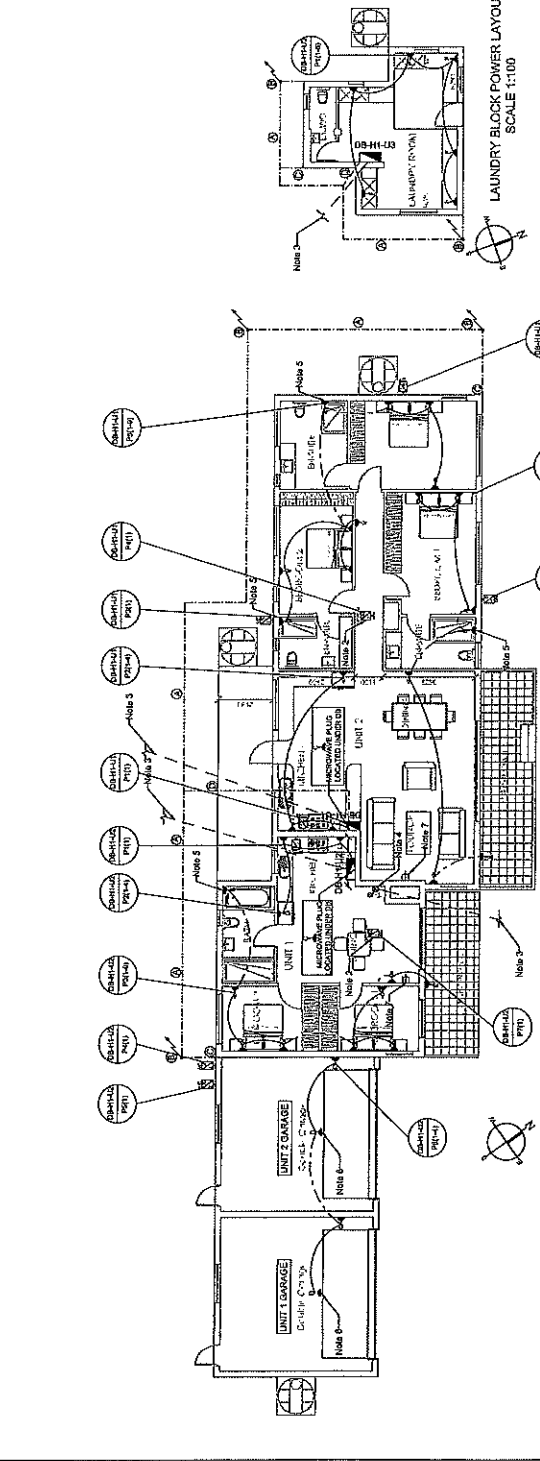
- Working notes apply to entire electrical drawings set.
- Working notes apply to associated drawings. Run key notes.
- Working notes apply to associated drawings. Run key notes.
- Working notes apply to associated drawings. Run key notes.
- Working notes apply to associated drawings. Run key notes.
- Working notes apply to associated drawings. Run key notes.
- Working notes apply to associated drawings. Run key notes.
- Working notes apply to associated drawings. Run key notes.

| SYMBOL | DESCRIPTION |
|--------|------------------------------|
| ① | LINEAR LED FIXTURE |
| ② | DOWNLIGHT FIXTURE 1 |
| ③ | DOWNLIGHT FIXTURE 2 |
| ④ | DOWNLIGHT FIXTURE 3 |
| ⑤ | LED PENDANT 1 |
| ⑥ | LED PENDANT 2 |
| ⑦ | WALL LIGHT FIXTURE 1 |
| ⑧ | WALL LIGHT FIXTURE 2 |
| ⑨ | 1 LEVER SWITCH |
| ⑩ | 2 LEVER SWITCH |
| ⑪ | 3 LEVER SWITCH |
| ⑫ | 1 LEVER SWITCH, 2 WAY SWITCH |

| SYMBOL | DESCRIPTION |
|--------|---|
| ⑬ | 13A SINGLE ISO |
| ⑭ | 16A SINGLE ISO |
| ⑮ | 16A DOUBLE ISO, 100mm x 100mm x 100mm |
| ⑯ | DISTRIBUTION BOARD |
| ⑰ | 20A, 2 POLE STOVE ISOLATOR |
| ⑱ | 30A, 2 POLE ISOLATOR FOR AIR CONDITIONING UNITS |
| ⑲ | 30A, 2 POLE ISOLATOR FOR AIR CONDITIONING UNITS |
| ⑳ | 30A, 2 POLE ISOLATOR FOR AIR CONDITIONING UNITS |
| ㉑ | 30A, 2 POLE ISOLATOR FOR AIR CONDITIONING UNITS |
| ㉒ | 30A, 2 POLE ISOLATOR FOR AIR CONDITIONING UNITS |
| ㉓ | 30A, 2 POLE ISOLATOR FOR AIR CONDITIONING UNITS |
| ㉔ | 30A, 2 POLE ISOLATOR FOR AIR CONDITIONING UNITS |
| ㉕ | 30A, 2 POLE ISOLATOR FOR AIR CONDITIONING UNITS |
| ㉖ | 30A, 2 POLE ISOLATOR FOR AIR CONDITIONING UNITS |
| ㉗ | 30A, 2 POLE ISOLATOR FOR AIR CONDITIONING UNITS |
| ㉘ | 30A, 2 POLE ISOLATOR FOR AIR CONDITIONING UNITS |
| ㉙ | 30A, 2 POLE ISOLATOR FOR AIR CONDITIONING UNITS |
| ㉚ | 30A, 2 POLE ISOLATOR FOR AIR CONDITIONING UNITS |
| ㉛ | 30A, 2 POLE ISOLATOR FOR AIR CONDITIONING UNITS |
| ㉜ | 30A, 2 POLE ISOLATOR FOR AIR CONDITIONING UNITS |
| ㉝ | 30A, 2 POLE ISOLATOR FOR AIR CONDITIONING UNITS |
| ㉞ | 30A, 2 POLE ISOLATOR FOR AIR CONDITIONING UNITS |
| ㉟ | 30A, 2 POLE ISOLATOR FOR AIR CONDITIONING UNITS |
| ㊱ | 30A, 2 POLE ISOLATOR FOR AIR CONDITIONING UNITS |
| ㊲ | 30A, 2 POLE ISOLATOR FOR AIR CONDITIONING UNITS |
| ㊳ | 30A, 2 POLE ISOLATOR FOR AIR CONDITIONING UNITS |
| ㊴ | 30A, 2 POLE ISOLATOR FOR AIR CONDITIONING UNITS |
| ㊵ | 30A, 2 POLE ISOLATOR FOR AIR CONDITIONING UNITS |
| ㊶ | 30A, 2 POLE ISOLATOR FOR AIR CONDITIONING UNITS |
| ㊷ | 30A, 2 POLE ISOLATOR FOR AIR CONDITIONING UNITS |
| ㊸ | 30A, 2 POLE ISOLATOR FOR AIR CONDITIONING UNITS |
| ㊹ | 30A, 2 POLE ISOLATOR FOR AIR CONDITIONING UNITS |
| ㊺ | 30A, 2 POLE ISOLATOR FOR AIR CONDITIONING UNITS |
| ㊻ | 30A, 2 POLE ISOLATOR FOR AIR CONDITIONING UNITS |
| ㊼ | 30A, 2 POLE ISOLATOR FOR AIR CONDITIONING UNITS |
| ㊽ | 30A, 2 POLE ISOLATOR FOR AIR CONDITIONING UNITS |
| ㊾ | 30A, 2 POLE ISOLATOR FOR AIR CONDITIONING UNITS |
| ㊿ | 30A, 2 POLE ISOLATOR FOR AIR CONDITIONING UNITS |

| CIRCUIT | LOCATION | LENGTH TO FROM (m) | TYPE OF OUTLET |
|-----------------|----------------------|--------------------|---------------------|
| SOCKET OUTLET | GENERAL APPLICATIONS | 100mm | UNDERSIDE OF OUTLET |
| SOCKET OUTLET | KITCHENS | 100mm | UNDERSIDE OF OUTLET |
| SOCKET OUTLET | WITHIN 1m OF SERVER | 100mm | IN CEILING |
| STOVE | WITHIN 1m OF UNIT | 100mm | IN CEILING |
| AIR-CONDITIONER | GENERAL APPLICATIONS | 100mm | IN CEILING |
| SERVER | GENERAL APPLICATIONS | 100mm | IN CEILING |

| CIRCUIT | MINIMUM CONDUCTOR (SIZE) | PHASE (mm) | EARTH (mm) |
|-----------------|--------------------------|------------|------------|
| LIGHTING | 1.5 | 2.5 | 2.5 |
| SOCKET OUTLETS | 2.5 | 4.0 | 2.5 |
| STOVE | 6.0 | 10.0 | 6.0 |
| AIR-CONDITIONER | 4.0 | 6.0 | 4.0 |
| SERVER | 4.0 | 6.0 | 4.0 |



351 219

| Rev. No. | Date | Description | Employee |
|----------|------------|-----------------------|----------|
| 1 | 10/08/2020 | FOR REVISION APPROVAL | JA |

| CIRCUIT | MINIMUM CONDUCTOR SIZE | PHASE (MVP) | EARTH (MVP) |
|-----------------|------------------------|-------------|-------------|
| LIGHTING | 1.6 | 2.5 | 2.5 |
| SOCKET OUTLETS | 2.5 | 2.5 | 2.5 |
| STOVE | 6.0 | 6.0 | 6.0 |
| AIR-CONDITIONER | 4.0 | 2.5 | 2.5 |
| SERVER | 4.0 | 2.5 | 2.5 |

| CIRCUIT | LOCATION | HEIGHT (FROM FFR TO INSIDE OF OUTLET) |
|------------------|----------------------|---------------------------------------|
| SOCKET OUTLET | GENERAL APPLICATIONS | 200mm |
| SERVER REGULATOR | WITHIN 1m OF SERVER | 1200mm |
| AIR-CONDITIONER | WITHIN 1m OF UNIT | 1500mm |
| LIGHT SWITCHES | GENERAL APPLICATIONS | 1200mm |

POWER LEGEND

1. 16A SINGLE PHASE 1P+N+SD WITH 2 EURO TYPE 3 SOCKET
 2. 5 AMP SOCKET OUTLET, DEDICATED FOR EXTRACTOR FAN
 3. 16A SINGLE PHASE 1P+N+SD WITH 2 EURO TYPE 3 SOCKET 1200mm APPL.
 4. 16A SINGLE SD
 5. 16A TRIP SD OUTDOOR PUG IN WEATHERPROOF SLIDE UP BOX
 6. 16A DOUBLE SD, 1200mm APPL.
 7. DISTRIBUTION BOARD
 8. SA. 2 POLE STOVE ISOLATOR
 9. SA. 2 POLE ISOLATOR, LOCATED IN CEILING
 10. SA. 2 POLE ISOLATOR FOR AIR CONDITIONING UNITS
 11. TV & SATELLITE POINT (150mm x 100mm FLUSH BOX WITH CONDUIT TO CEILING VOID)
 12. TELEPHONE JUNCTION BOX

LIGHTING LEGEND

1. LINBA LED FIXTURE
 2. DOWNLIGHT FIXTURE 1
 3. DOWNLIGHT FIXTURE 2
 4. DOWNLIGHT FIXTURE 3
 5. LED PENDANT
 6. LED BULBHEAD
 7. WALL LIGHT FIXTURE 1
 8. WALL LIGHT FIXTURE 2
 9. 11 BUBBLE SWITCH
 10. 2 LEVER SWITCH
 11. 3 LEVER SWITCH
 12. 1 LEVER SWITCH, 2 WAY SWITCH

DRAWING NOTES

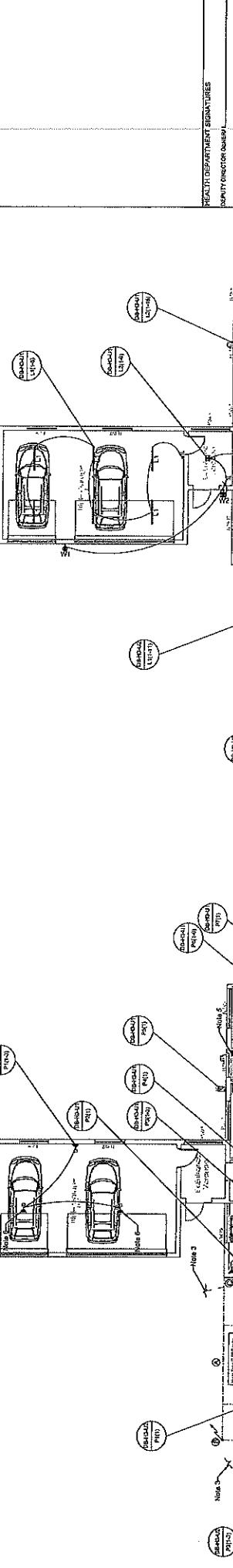
1. Drawing shall comply with SANS 10142.
 2. General location located in ceiling void.
 3. 500mm conduit to lift to site verification.
 4. All type B socket outlets to be located in main void.
 5. Garage door switch socket outlets located on outside.
 6. 16Amp conduit to lift junction box to ceiling void.
 7. 16Amp conduit to lift junction box to ceiling void.

EARTHING AND LIGHTNING PROTECTION NOTES:

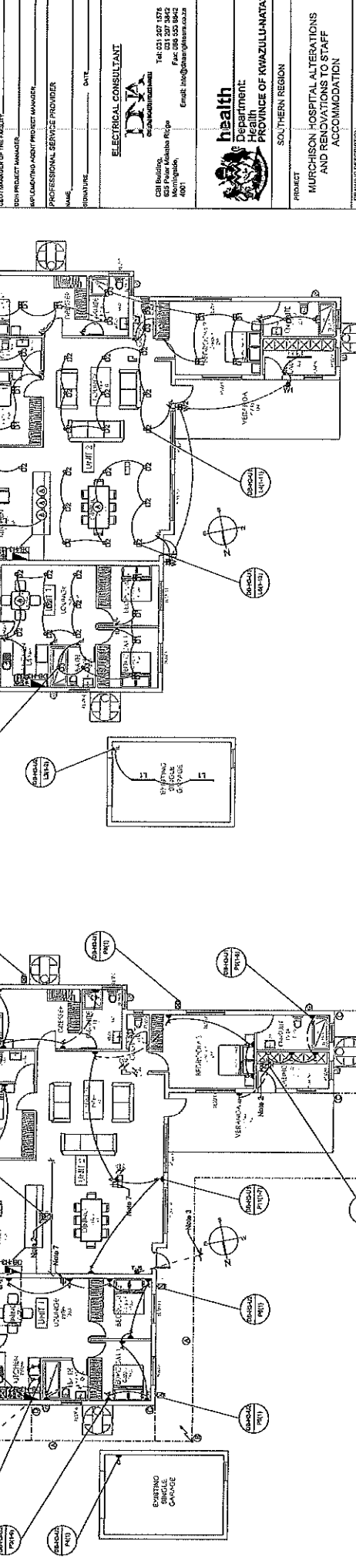
1. 70mm bare copper earth loop
 2. Earth rod
 3. 10mm bonding to building + railing
 4. 10mm bare copper to air earth bar

GENERAL NOTES:

1. Drawing shall comply with SANS 10142.
 2. Drawing shall comply with SANS 10142.
 3. Supply of cables from these drawings.
 4. Supply of cables from these drawings.
 5. Supply of cables from these drawings.
 6. Supply of cables from these drawings.
 7. Supply of cables from these drawings.
 8. Supply of cables from these drawings.
 9. Supply of cables from these drawings.
 10. Supply of cables from these drawings.
 11. Supply of cables from these drawings.
 12. Supply of cables from these drawings.



HOUSE 3 POWER LAYOUT
SCALE 1:100



HOUSE 3 LIGHTING LAYOUT
SCALE 1:100

HEALTH DEPARTMENT SIGNATURES

HEAD OF OFFICE PROGRAMME SERVICE: _____ DATE: _____

DISTRICT MANAGER: _____

SDM PROJECT MANAGER: _____

MANAGING ENGINEER PROJECT MANAGER: _____

PROFESSIONAL SERVICE PROVIDER: _____

NAME: _____

SIGNATURE: _____

ELECTRICAL CONSULTANT

TEL: 031 267 1576
 631 Building, Marikissa Ridge
 Marikissa, 4001
 Email: isa@isaengineering.co.za

health department
 PROVINCE OF KWAZULU-NATAL

SOUTHERN REGION

PROJECT: MURCHISON HOSPITAL ALTERATIONS AND RENOVATIONS TO STAFF ACCOMMODATION

DRAWING DESCRIPTION: HOUSE 3: POWER & LIGHTING LAYOUT

Scale: AS SHOWN (P1) DATE: OCTOBER 2020
 Drawing No.: _____
 Project No.: DHA-MUR-RELP-1004-Q
 Revision: A

Drawn by: _____
 Checked by: _____
 Approved by: _____

| | | | |
|----------|------------|----------------|----|
| Rev. No. | Date | Description | By |
| A | 01-10-2020 | FINAL APPROVAL | JM |

| |
|-------------------------------------|
| HEALTH DEPARTMENT SIGNATURES |
| SAPIT DIRECTOR GENERAL |
| HEAD OFFICE PROGRAMME / SERVICE |
| DISTRICT MANAGER |
| CEO / MANAGER OF THE FACILITY |
| JOB PROJECT MANAGER |
| IMPLEMENTING AGENCY PROJECT MANAGER |
| PROFESSIONAL SERVICE PROVIDER |
| NAME |
| SIGNATURE |
| DATE |

| | |
|-------------------------------|--|
| ELECTRICAL CONSULTANT | |
| JNA | |
| JNA ELECTRICAL CONSULTANTS | |
| Tel: 031 207 1570 | |
| 031 220 2842 | |
| Fax: 031 220 2842 | |
| 1001 | |
| E-mail: jna@jnanetworks.co.za | |

| | |
|---------------------------|--|
| health | |
| Department of Health | |
| PROVINCE OF KWAZULU-NATAL | |
| SOUTHERN REGION | |

| | |
|---------|---|
| PROJECT | MURCHISON HOSPITAL ALTERATIONS AND RENOVATIONS TO STAFF ACCOMMODATION |
|---------|---|

| | |
|---------------------------------|--|
| DRAWING DESCRIPTION | |
| HOUSE 4 POWER & LIGHTING LAYOUT | |

| | |
|---------------|-----------------------------------|
| Date | 01 OCTOBER 2020 |
| AS SHOWN (A1) | JM |
| Project No. | 20000000000000000000 |
| Page No. | 1 |
| Scale | AS SHOWN |
| Drawn By | JNA |
| Checked By | JNA |
| Approved By | JNA |
| Stamp | Stamp by Pines Approval Committee |

- DRAWING NOTES:**
- Full installation to comply with SANS 10142.
 - 200mm PVC conduit to be used for all installations.
 - 200mm PVC conduit to be used for all installations.
 - Group down each section unless stated otherwise on underside of ceiling.
 - LED pendant lights to be used for all installations.
 - Plugs for kitchen island to be coordinated with furniture layout and to be approved by the electrical engineer prior to installation.

- GENERAL NOTES:**
- Drawings apply to specific electrical drawings. Plan key notes apply where indicated.
 - Do not make any changes to drawings without the written approval of the electrical engineer.
 - For all installations, the contractor shall ensure that the installation is ready for use at the time of completion of the project.
 - For all installations, the contractor shall ensure that the installation is ready for use at the time of completion of the project.
 - For all installations, the contractor shall ensure that the installation is ready for use at the time of completion of the project.
 - For all installations, the contractor shall ensure that the installation is ready for use at the time of completion of the project.
 - For all installations, the contractor shall ensure that the installation is ready for use at the time of completion of the project.
 - For all installations, the contractor shall ensure that the installation is ready for use at the time of completion of the project.
 - For all installations, the contractor shall ensure that the installation is ready for use at the time of completion of the project.
 - For all installations, the contractor shall ensure that the installation is ready for use at the time of completion of the project.
 - For all installations, the contractor shall ensure that the installation is ready for use at the time of completion of the project.

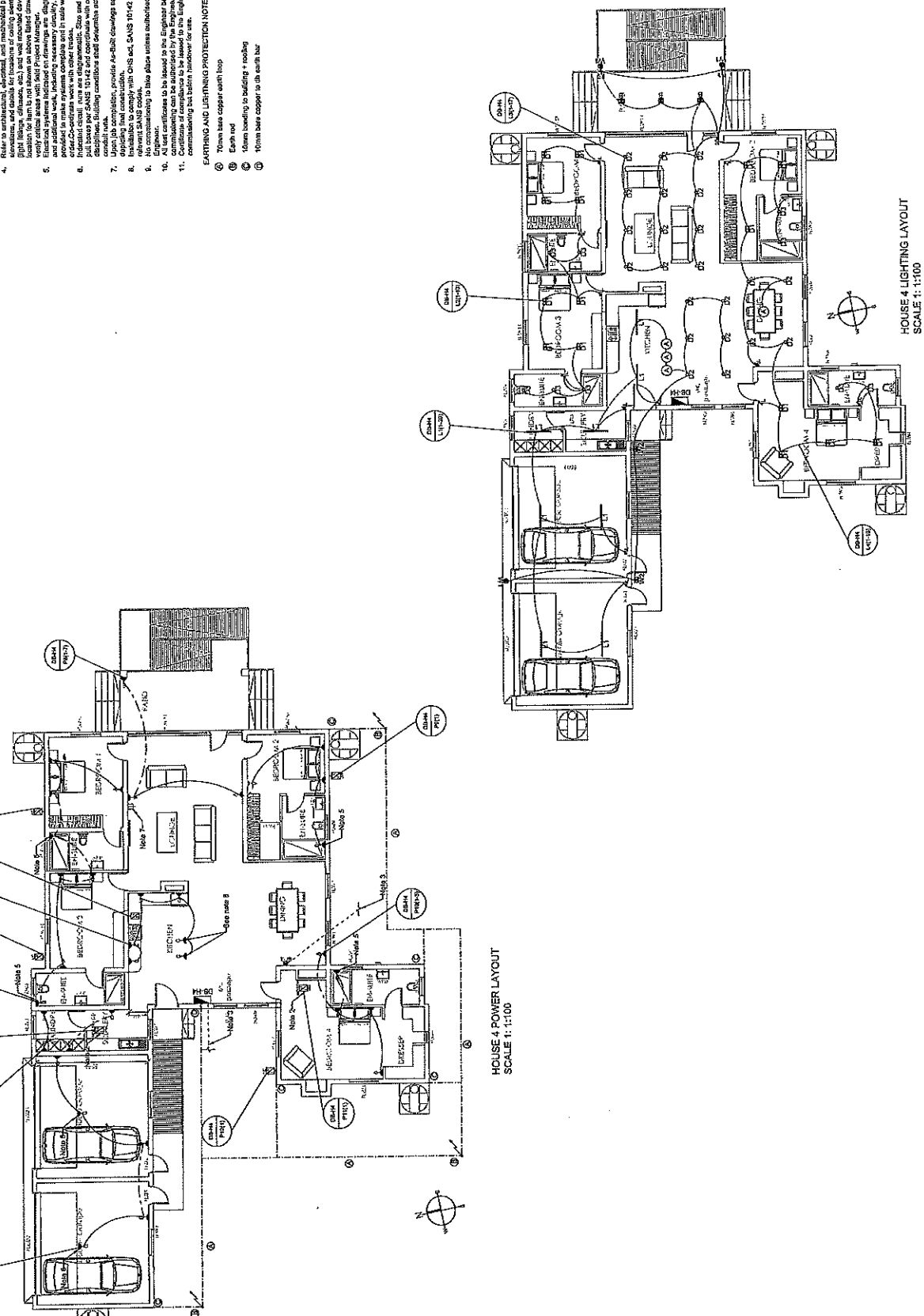
- EARTHING AND LIGHTNING PROTECTION NOTES:**
- 70mm bare copper earth loop
 - Earth rod
 - 10mm bonding to building + footing
 - 10mm bare copper to the earth bar

| LIGHTING LEGEND | |
|-----------------|------------------------------|
| 1 | LINEAR LED FIXTURE |
| 2 | DOWNLIGHT FIXTURE 1 |
| 3 | DOWNLIGHT FIXTURE 2 |
| 4 | DOWNLIGHT FIXTURE 3 |
| 5 | LED PENDANT |
| 6 | LED BULKHEAD |
| 7 | WALL LIGHT FIXTURE 1 |
| 8 | WALL LIGHT FIXTURE 2 |
| 9 | 1 LEVER SWITCH |
| 10 | 2 LEVER SWITCH |
| 11 | 3 LEVER SWITCH |
| 12 | 1 LEVER SWITCH, 3 WAY SWITCH |

| POWER LEGEND | |
|--------------|---|
| 1 | 16A SINGLE THREE PHASE SSO WITH 2 x 2.5mm ² ETR TYPE 1 SOCKET |
| 2 | 300mm AER |
| 3 | 3 AMP SOCKET OUTLET, DESIGNATED FOR EXTRACTOR FAN |
| 4 | 16A SINGLE SSO WITH 2 x 2.5mm ² ETR TYPE 1 SOCKET 1000mm APFL |
| 5 | 16A SINGLE SSO |
| 6 | 16A SINGLE SSO OUTDOOR PLUG IN WEATHERPROOF SLIDE UP BOX |
| 7 | 16A DOUBLE SSO, 1000mm APFL |
| 8 | DISTRIBUTION BOARD |
| 9 | 30A, 3 POLE STOVE ISOLATOR |
| 10 | 30A, 2 POLE ISOLATOR, LOCATED IN CEILING |
| 11 | 30A, 2 POLE ISOLATOR FOR AIR CONDITIONING UNITS |
| 12 | TV & SATELLITE POINT (100mm x 100mm) FLUSH BOX WITH CONDUIT TO CEILING VOID |
| 13 | TELEPHONE JUNCTION BOX |

| CIRCUIT | LOCATION | HEIGHT (FROM FFL TO UNDERSIDE OF OUTLET) |
|-----------------|----------------------|--|
| SOCKET OUTLET | GENERAL APPLICATIONS | 300mm |
| SOCKET OUTLET | KITCHENS | 1200mm |
| GEYSER ISOLATOR | WITHIN 1m OF GEYSER | IN CEILING |
| AIR-CONDITIONER | WITHIN 1m OF UNIT | 1500mm |
| LIGHT SWITCHES | GENERAL APPLICATIONS | 1200mm |

| CIRCUIT | MINIMUM CONDUCTOR (SIZE) | DEPTH (mm) |
|-----------------|--------------------------|------------|
| LIGHTING | 1.5 | 2.5 |
| SOCKET OUTLETS | 2.5 | 2.5 |
| STOVE | 6.0 | 8.0 |
| AIR-CONDITIONER | 4.0 | 2.5 |
| GEYSER | 4.0 | 3.5 |



HOUSE 4 POWER LAYOUT
SCALE 1:1100

HOUSE 4 LIGHTING LAYOUT
SCALE 1:1100

| | | | |
|----------|------------|-----------------|----|
| Rev. No. | Date | Description | By |
| A | 24/08/2023 | FOR PRELIMINARY | JM |

| | |
|--|------|
| HEALTH DEPARTMENT SIGNATURES | DATE |
| SUPPLY DIRECTOR SIGNATURE | |
| HEAD OF OFFICE PROGRAMS SIGNATURE | |
| STRUCTURE MANAGER SIGNATURE | |
| SCO MANAGER OF THE FACILITY SIGNATURE | |
| FOR PROJECT MANAGER SIGNATURE | |
| IMPLEMENTING AGENT PROJECT MANAGER SIGNATURE | |
| PROFESSIONAL SERVICE PROVIDER SIGNATURE | |
| NAME | |
| DATE | |

| | |
|--|------------------------|
| ELECTRICAL CONSULTANT | |
| | |
| Tel: 031 237 1676 635 Peter Mariner Ridge 4141 Springhill, 4001 Email: info@dnacollectors.com.au | |
| | |
| PROVINCE OF KWAZULU-NATAL SOUTHERN REGION PROJECT MURCHISON HOSPITAL ALTERATIONS AND RENOVATIONS TO STAFF ACCOMMODATION DRAWING DESCRIPTION HOUSE 6 POWER AND LIGHTING LAYOUT | |
| Scale | AS SHOWN (A) |
| Date | OCTOBER 2023 |
| Project No. | 0000000000 |
| Drawing No. | 00A-MUR-HLE-EP-1000-00 |
| Rev. | A |
| Stamped by Plans Approval Committee | |

- DRAWING NOTES:**
- All installation to comply with SANS 1042.
 - 100mm conduit to be used for all cabling.
 - 100mm conduit to be used for all cabling.
 - 100mm conduit to be used for all cabling.
 - Change door which opens outwards located on outside of building.
 - 100mm conduit to be used for all cabling.
 - 100mm conduit to be used for all cabling.
- GENERAL NOTES:**
- Drawings apply to entire electrical drawing set.
 - Apply where indicated, from these drawings.
 - "Supply" shall mean to supply and deliver to project site, ready for installation, including assembly, testing and commissioning, including transportation, temporary siting, unloading, assembly, setting, packing, securing, wrapping, labelling, operation, "finish" shall mean to supply and install, complete and ready for handover.
 - Electrical systems, including an drawings are, diagrams, diagrams, diagrams, etc.) just used as a guide. All drawings are provided to make systems complete and in accordance with SANS 1042 and SANS 1942 and applicable with other drawings. Building conditions shall determine actual installation, then consultation.
 - No commissioning to take place unless authorized by the Engineer. All start conditions to be placed in the Engineer before any commissioning can be authorized by the Engineer.
 - Commissioning shall be undertaken by the Engineer after consultation with the Engineer.
- EXISTING AND LIGHTING PROTECTION NOTES:**
1. 100mm bare copper earth loop
 2. Earth rod
 3. Term bonding in building - roofing
 4. Term bonding in building - earth bar

LIGHTING LEGEND

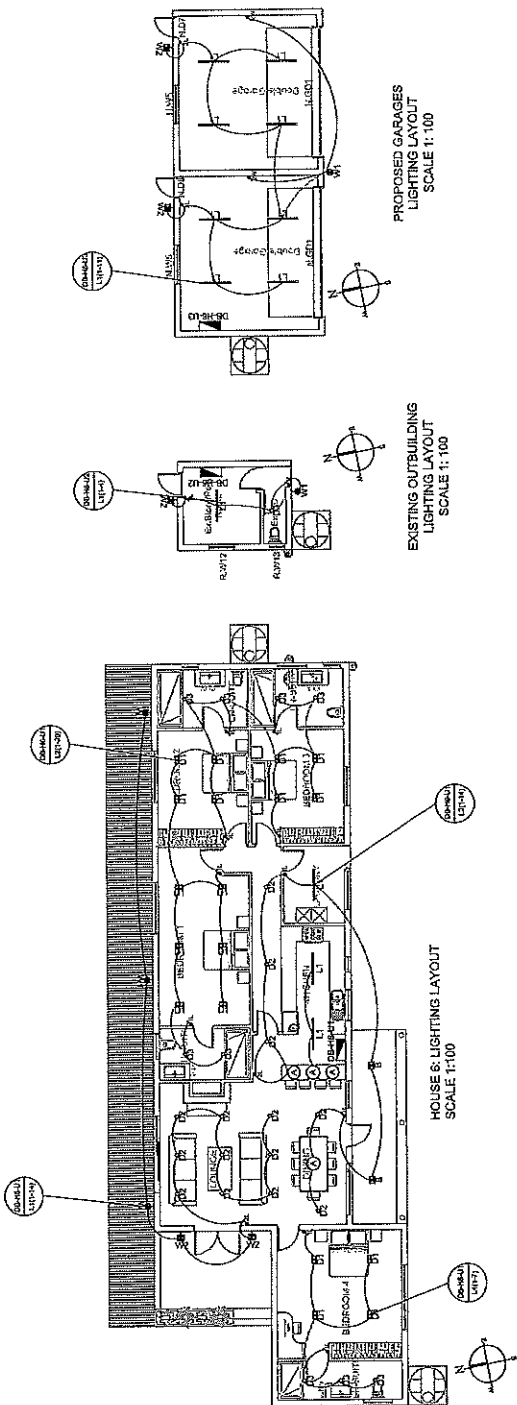
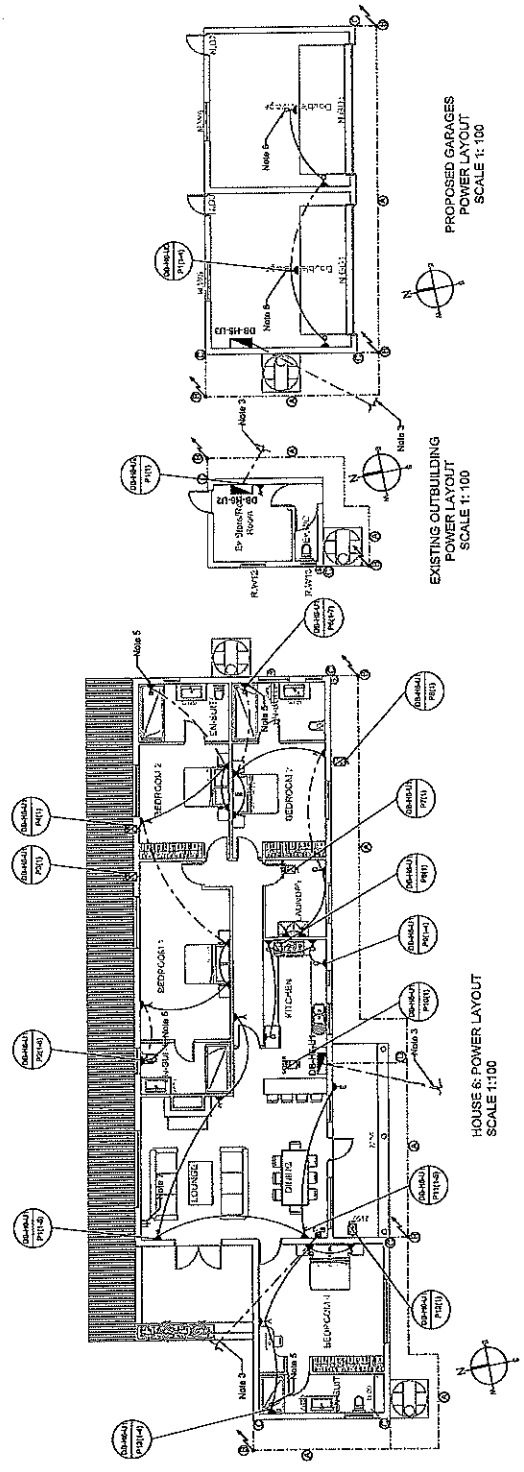
| | |
|----|------------------------------|
| 1 | LINEAR LED FIXTURE |
| 2 | DOWNLIGHT FIXTURE 1 |
| 3 | DOWNLIGHT FIXTURE 2 |
| 4 | DOWNLIGHT FIXTURE 3 |
| 5 | LED PENDANT |
| 6 | LED BULBHEAD |
| 7 | WALL LIGHT FIXTURE 1 |
| 8 | WALL LIGHT FIXTURE 2 |
| 9 | 1 LEVER SWITCH |
| 10 | 2 LEVER SWITCH |
| 11 | 3 LEVER SWITCH |
| 12 | 1 LEVER SWITCH, 2 WAY SWITCH |

POWER LEGEND

| | |
|----|--|
| 1 | 10A SINGLE THREE PIN SOCKET WITH 2 EARTH TYPE 'SOCKET' |
| 2 | 2 AMP SOCKET OUTLET, DESIGNATED FOR EXTRACTOR FAN |
| 3 | 10A SINGLE SOCKET WITH 2 EARTH TYPE 'SOCKET' EARTHING APPL. |
| 4 | 10A SINGLE SSO |
| 5 | 10A SINGLE SSO OUTDOOR PLUG IN WEATHERPROOF SLIDE |
| 6 | 10A DOUBLE SSO, 1.25m APPL. |
| 7 | DISTRIBUTION BOARD |
| 8 | 30A, 2 POLE STOVE ISOLATOR |
| 9 | 30A, 2 POLE ISOLATOR, LOCATED IN CEILING. |
| 10 | 30A, 2 POLE ISOLATOR FOR AIR CONDITIONING UNITS |
| 11 | TV & SATURITE POINT (100mm x 100mm) FLUSH BOX WITH CONDUIT TO CEILING VOID |
| 12 | TELEPHONE JUNCTION BOX |

| CIRCUIT | LOCATION | HEIGHT FROM FIN. TO UNDERBENT OR OUTLET |
|-----------------|----------------------|---|
| SOCKET OUTLET | GENERAL APPLICATIONS | 1200mm |
| SOCKET OUTLET | KITCHENS | 1300mm |
| GREYER ISOLATOR | WITHIN 1m OF GREYER | IN CEILING |
| AC ISOLATOR | WITHIN 1m OF UNIT | 1500mm |
| LIGHT SWITCHES | GENERAL APPLICATIONS | 1200mm |

| CIRCUIT | MINIMUM CONDUCTOR SIZE | DEPTH (mm) |
|-----------------|------------------------|------------|
| LIGHTING | 1.5 | 25 |
| SOCKET OUTLETS | 2.5 | 25 |
| STOVE | 6.0 | 50 |
| AIR-CONDITIONER | 4.0 | 25 |
| GREYER | 4.0 | 25 |



| Rev. No. | Date | Description | By |
|----------|------------|------------------|----|
| A | 01/10/2023 | FOR IAC APPROVAL | JM |

DRAWING NOTES:
 1. FULL INSTALLATION TO COMPLY WITH SANS 10142.
 2. 100MM DOWNOUT TO LINK TO SITE RECTIFICATION.

GENERAL NOTES:
 1. All work to be in accordance with the drawings.
 2. All work to be done in accordance with the drawings.
 3. All work to be done in accordance with the drawings.
 4. All work to be done in accordance with the drawings.
 5. All work to be done in accordance with the drawings.
 6. All work to be done in accordance with the drawings.
 7. All work to be done in accordance with the drawings.
 8. All work to be done in accordance with the drawings.
 9. All work to be done in accordance with the drawings.
 10. All work to be done in accordance with the drawings.
 11. All work to be done in accordance with the drawings.

| Lighting Legend | Lighting Legend |
|-----------------------|-----------------------|
| 1. 1x LED DOWNLIGHT | 1. 1x LED DOWNLIGHT |
| 2. 1x LED DOWNLIGHT | 2. 1x LED DOWNLIGHT |
| 3. 1x LED DOWNLIGHT | 3. 1x LED DOWNLIGHT |
| 4. 1x LED DOWNLIGHT | 4. 1x LED DOWNLIGHT |
| 5. 1x LED DOWNLIGHT | 5. 1x LED DOWNLIGHT |
| 6. 1x LED DOWNLIGHT | 6. 1x LED DOWNLIGHT |
| 7. 1x LED DOWNLIGHT | 7. 1x LED DOWNLIGHT |
| 8. 1x LED DOWNLIGHT | 8. 1x LED DOWNLIGHT |
| 9. 1x LED DOWNLIGHT | 9. 1x LED DOWNLIGHT |
| 10. 1x LED DOWNLIGHT | 10. 1x LED DOWNLIGHT |
| 11. 1x LED DOWNLIGHT | 11. 1x LED DOWNLIGHT |
| 12. 1x LED DOWNLIGHT | 12. 1x LED DOWNLIGHT |
| 13. 1x LED DOWNLIGHT | 13. 1x LED DOWNLIGHT |
| 14. 1x LED DOWNLIGHT | 14. 1x LED DOWNLIGHT |
| 15. 1x LED DOWNLIGHT | 15. 1x LED DOWNLIGHT |
| 16. 1x LED DOWNLIGHT | 16. 1x LED DOWNLIGHT |
| 17. 1x LED DOWNLIGHT | 17. 1x LED DOWNLIGHT |
| 18. 1x LED DOWNLIGHT | 18. 1x LED DOWNLIGHT |
| 19. 1x LED DOWNLIGHT | 19. 1x LED DOWNLIGHT |
| 20. 1x LED DOWNLIGHT | 20. 1x LED DOWNLIGHT |
| 21. 1x LED DOWNLIGHT | 21. 1x LED DOWNLIGHT |
| 22. 1x LED DOWNLIGHT | 22. 1x LED DOWNLIGHT |
| 23. 1x LED DOWNLIGHT | 23. 1x LED DOWNLIGHT |
| 24. 1x LED DOWNLIGHT | 24. 1x LED DOWNLIGHT |
| 25. 1x LED DOWNLIGHT | 25. 1x LED DOWNLIGHT |
| 26. 1x LED DOWNLIGHT | 26. 1x LED DOWNLIGHT |
| 27. 1x LED DOWNLIGHT | 27. 1x LED DOWNLIGHT |
| 28. 1x LED DOWNLIGHT | 28. 1x LED DOWNLIGHT |
| 29. 1x LED DOWNLIGHT | 29. 1x LED DOWNLIGHT |
| 30. 1x LED DOWNLIGHT | 30. 1x LED DOWNLIGHT |
| 31. 1x LED DOWNLIGHT | 31. 1x LED DOWNLIGHT |
| 32. 1x LED DOWNLIGHT | 32. 1x LED DOWNLIGHT |
| 33. 1x LED DOWNLIGHT | 33. 1x LED DOWNLIGHT |
| 34. 1x LED DOWNLIGHT | 34. 1x LED DOWNLIGHT |
| 35. 1x LED DOWNLIGHT | 35. 1x LED DOWNLIGHT |
| 36. 1x LED DOWNLIGHT | 36. 1x LED DOWNLIGHT |
| 37. 1x LED DOWNLIGHT | 37. 1x LED DOWNLIGHT |
| 38. 1x LED DOWNLIGHT | 38. 1x LED DOWNLIGHT |
| 39. 1x LED DOWNLIGHT | 39. 1x LED DOWNLIGHT |
| 40. 1x LED DOWNLIGHT | 40. 1x LED DOWNLIGHT |
| 41. 1x LED DOWNLIGHT | 41. 1x LED DOWNLIGHT |
| 42. 1x LED DOWNLIGHT | 42. 1x LED DOWNLIGHT |
| 43. 1x LED DOWNLIGHT | 43. 1x LED DOWNLIGHT |
| 44. 1x LED DOWNLIGHT | 44. 1x LED DOWNLIGHT |
| 45. 1x LED DOWNLIGHT | 45. 1x LED DOWNLIGHT |
| 46. 1x LED DOWNLIGHT | 46. 1x LED DOWNLIGHT |
| 47. 1x LED DOWNLIGHT | 47. 1x LED DOWNLIGHT |
| 48. 1x LED DOWNLIGHT | 48. 1x LED DOWNLIGHT |
| 49. 1x LED DOWNLIGHT | 49. 1x LED DOWNLIGHT |
| 50. 1x LED DOWNLIGHT | 50. 1x LED DOWNLIGHT |
| 51. 1x LED DOWNLIGHT | 51. 1x LED DOWNLIGHT |
| 52. 1x LED DOWNLIGHT | 52. 1x LED DOWNLIGHT |
| 53. 1x LED DOWNLIGHT | 53. 1x LED DOWNLIGHT |
| 54. 1x LED DOWNLIGHT | 54. 1x LED DOWNLIGHT |
| 55. 1x LED DOWNLIGHT | 55. 1x LED DOWNLIGHT |
| 56. 1x LED DOWNLIGHT | 56. 1x LED DOWNLIGHT |
| 57. 1x LED DOWNLIGHT | 57. 1x LED DOWNLIGHT |
| 58. 1x LED DOWNLIGHT | 58. 1x LED DOWNLIGHT |
| 59. 1x LED DOWNLIGHT | 59. 1x LED DOWNLIGHT |
| 60. 1x LED DOWNLIGHT | 60. 1x LED DOWNLIGHT |
| 61. 1x LED DOWNLIGHT | 61. 1x LED DOWNLIGHT |
| 62. 1x LED DOWNLIGHT | 62. 1x LED DOWNLIGHT |
| 63. 1x LED DOWNLIGHT | 63. 1x LED DOWNLIGHT |
| 64. 1x LED DOWNLIGHT | 64. 1x LED DOWNLIGHT |
| 65. 1x LED DOWNLIGHT | 65. 1x LED DOWNLIGHT |
| 66. 1x LED DOWNLIGHT | 66. 1x LED DOWNLIGHT |
| 67. 1x LED DOWNLIGHT | 67. 1x LED DOWNLIGHT |
| 68. 1x LED DOWNLIGHT | 68. 1x LED DOWNLIGHT |
| 69. 1x LED DOWNLIGHT | 69. 1x LED DOWNLIGHT |
| 70. 1x LED DOWNLIGHT | 70. 1x LED DOWNLIGHT |
| 71. 1x LED DOWNLIGHT | 71. 1x LED DOWNLIGHT |
| 72. 1x LED DOWNLIGHT | 72. 1x LED DOWNLIGHT |
| 73. 1x LED DOWNLIGHT | 73. 1x LED DOWNLIGHT |
| 74. 1x LED DOWNLIGHT | 74. 1x LED DOWNLIGHT |
| 75. 1x LED DOWNLIGHT | 75. 1x LED DOWNLIGHT |
| 76. 1x LED DOWNLIGHT | 76. 1x LED DOWNLIGHT |
| 77. 1x LED DOWNLIGHT | 77. 1x LED DOWNLIGHT |
| 78. 1x LED DOWNLIGHT | 78. 1x LED DOWNLIGHT |
| 79. 1x LED DOWNLIGHT | 79. 1x LED DOWNLIGHT |
| 80. 1x LED DOWNLIGHT | 80. 1x LED DOWNLIGHT |
| 81. 1x LED DOWNLIGHT | 81. 1x LED DOWNLIGHT |
| 82. 1x LED DOWNLIGHT | 82. 1x LED DOWNLIGHT |
| 83. 1x LED DOWNLIGHT | 83. 1x LED DOWNLIGHT |
| 84. 1x LED DOWNLIGHT | 84. 1x LED DOWNLIGHT |
| 85. 1x LED DOWNLIGHT | 85. 1x LED DOWNLIGHT |
| 86. 1x LED DOWNLIGHT | 86. 1x LED DOWNLIGHT |
| 87. 1x LED DOWNLIGHT | 87. 1x LED DOWNLIGHT |
| 88. 1x LED DOWNLIGHT | 88. 1x LED DOWNLIGHT |
| 89. 1x LED DOWNLIGHT | 89. 1x LED DOWNLIGHT |
| 90. 1x LED DOWNLIGHT | 90. 1x LED DOWNLIGHT |
| 91. 1x LED DOWNLIGHT | 91. 1x LED DOWNLIGHT |
| 92. 1x LED DOWNLIGHT | 92. 1x LED DOWNLIGHT |
| 93. 1x LED DOWNLIGHT | 93. 1x LED DOWNLIGHT |
| 94. 1x LED DOWNLIGHT | 94. 1x LED DOWNLIGHT |
| 95. 1x LED DOWNLIGHT | 95. 1x LED DOWNLIGHT |
| 96. 1x LED DOWNLIGHT | 96. 1x LED DOWNLIGHT |
| 97. 1x LED DOWNLIGHT | 97. 1x LED DOWNLIGHT |
| 98. 1x LED DOWNLIGHT | 98. 1x LED DOWNLIGHT |
| 99. 1x LED DOWNLIGHT | 99. 1x LED DOWNLIGHT |
| 100. 1x LED DOWNLIGHT | 100. 1x LED DOWNLIGHT |

| Power Legend | Power Legend |
|----------------------|----------------------|
| 1. 1x 3-PIN SOCKET | 1. 1x 3-PIN SOCKET |
| 2. 1x 3-PIN SOCKET | 2. 1x 3-PIN SOCKET |
| 3. 1x 3-PIN SOCKET | 3. 1x 3-PIN SOCKET |
| 4. 1x 3-PIN SOCKET | 4. 1x 3-PIN SOCKET |
| 5. 1x 3-PIN SOCKET | 5. 1x 3-PIN SOCKET |
| 6. 1x 3-PIN SOCKET | 6. 1x 3-PIN SOCKET |
| 7. 1x 3-PIN SOCKET | 7. 1x 3-PIN SOCKET |
| 8. 1x 3-PIN SOCKET | 8. 1x 3-PIN SOCKET |
| 9. 1x 3-PIN SOCKET | 9. 1x 3-PIN SOCKET |
| 10. 1x 3-PIN SOCKET | 10. 1x 3-PIN SOCKET |
| 11. 1x 3-PIN SOCKET | 11. 1x 3-PIN SOCKET |
| 12. 1x 3-PIN SOCKET | 12. 1x 3-PIN SOCKET |
| 13. 1x 3-PIN SOCKET | 13. 1x 3-PIN SOCKET |
| 14. 1x 3-PIN SOCKET | 14. 1x 3-PIN SOCKET |
| 15. 1x 3-PIN SOCKET | 15. 1x 3-PIN SOCKET |
| 16. 1x 3-PIN SOCKET | 16. 1x 3-PIN SOCKET |
| 17. 1x 3-PIN SOCKET | 17. 1x 3-PIN SOCKET |
| 18. 1x 3-PIN SOCKET | 18. 1x 3-PIN SOCKET |
| 19. 1x 3-PIN SOCKET | 19. 1x 3-PIN SOCKET |
| 20. 1x 3-PIN SOCKET | 20. 1x 3-PIN SOCKET |
| 21. 1x 3-PIN SOCKET | 21. 1x 3-PIN SOCKET |
| 22. 1x 3-PIN SOCKET | 22. 1x 3-PIN SOCKET |
| 23. 1x 3-PIN SOCKET | 23. 1x 3-PIN SOCKET |
| 24. 1x 3-PIN SOCKET | 24. 1x 3-PIN SOCKET |
| 25. 1x 3-PIN SOCKET | 25. 1x 3-PIN SOCKET |
| 26. 1x 3-PIN SOCKET | 26. 1x 3-PIN SOCKET |
| 27. 1x 3-PIN SOCKET | 27. 1x 3-PIN SOCKET |
| 28. 1x 3-PIN SOCKET | 28. 1x 3-PIN SOCKET |
| 29. 1x 3-PIN SOCKET | 29. 1x 3-PIN SOCKET |
| 30. 1x 3-PIN SOCKET | 30. 1x 3-PIN SOCKET |
| 31. 1x 3-PIN SOCKET | 31. 1x 3-PIN SOCKET |
| 32. 1x 3-PIN SOCKET | 32. 1x 3-PIN SOCKET |
| 33. 1x 3-PIN SOCKET | 33. 1x 3-PIN SOCKET |
| 34. 1x 3-PIN SOCKET | 34. 1x 3-PIN SOCKET |
| 35. 1x 3-PIN SOCKET | 35. 1x 3-PIN SOCKET |
| 36. 1x 3-PIN SOCKET | 36. 1x 3-PIN SOCKET |
| 37. 1x 3-PIN SOCKET | 37. 1x 3-PIN SOCKET |
| 38. 1x 3-PIN SOCKET | 38. 1x 3-PIN SOCKET |
| 39. 1x 3-PIN SOCKET | 39. 1x 3-PIN SOCKET |
| 40. 1x 3-PIN SOCKET | 40. 1x 3-PIN SOCKET |
| 41. 1x 3-PIN SOCKET | 41. 1x 3-PIN SOCKET |
| 42. 1x 3-PIN SOCKET | 42. 1x 3-PIN SOCKET |
| 43. 1x 3-PIN SOCKET | 43. 1x 3-PIN SOCKET |
| 44. 1x 3-PIN SOCKET | 44. 1x 3-PIN SOCKET |
| 45. 1x 3-PIN SOCKET | 45. 1x 3-PIN SOCKET |
| 46. 1x 3-PIN SOCKET | 46. 1x 3-PIN SOCKET |
| 47. 1x 3-PIN SOCKET | 47. 1x 3-PIN SOCKET |
| 48. 1x 3-PIN SOCKET | 48. 1x 3-PIN SOCKET |
| 49. 1x 3-PIN SOCKET | 49. 1x 3-PIN SOCKET |
| 50. 1x 3-PIN SOCKET | 50. 1x 3-PIN SOCKET |
| 51. 1x 3-PIN SOCKET | 51. 1x 3-PIN SOCKET |
| 52. 1x 3-PIN SOCKET | 52. 1x 3-PIN SOCKET |
| 53. 1x 3-PIN SOCKET | 53. 1x 3-PIN SOCKET |
| 54. 1x 3-PIN SOCKET | 54. 1x 3-PIN SOCKET |
| 55. 1x 3-PIN SOCKET | 55. 1x 3-PIN SOCKET |
| 56. 1x 3-PIN SOCKET | 56. 1x 3-PIN SOCKET |
| 57. 1x 3-PIN SOCKET | 57. 1x 3-PIN SOCKET |
| 58. 1x 3-PIN SOCKET | 58. 1x 3-PIN SOCKET |
| 59. 1x 3-PIN SOCKET | 59. 1x 3-PIN SOCKET |
| 60. 1x 3-PIN SOCKET | 60. 1x 3-PIN SOCKET |
| 61. 1x 3-PIN SOCKET | 61. 1x 3-PIN SOCKET |
| 62. 1x 3-PIN SOCKET | 62. 1x 3-PIN SOCKET |
| 63. 1x 3-PIN SOCKET | 63. 1x 3-PIN SOCKET |
| 64. 1x 3-PIN SOCKET | 64. 1x 3-PIN SOCKET |
| 65. 1x 3-PIN SOCKET | 65. 1x 3-PIN SOCKET |
| 66. 1x 3-PIN SOCKET | 66. 1x 3-PIN SOCKET |
| 67. 1x 3-PIN SOCKET | 67. 1x 3-PIN SOCKET |
| 68. 1x 3-PIN SOCKET | 68. 1x 3-PIN SOCKET |
| 69. 1x 3-PIN SOCKET | 69. 1x 3-PIN SOCKET |
| 70. 1x 3-PIN SOCKET | 70. 1x 3-PIN SOCKET |
| 71. 1x 3-PIN SOCKET | 71. 1x 3-PIN SOCKET |
| 72. 1x 3-PIN SOCKET | 72. 1x 3-PIN SOCKET |
| 73. 1x 3-PIN SOCKET | 73. 1x 3-PIN SOCKET |
| 74. 1x 3-PIN SOCKET | 74. 1x 3-PIN SOCKET |
| 75. 1x 3-PIN SOCKET | 75. 1x 3-PIN SOCKET |
| 76. 1x 3-PIN SOCKET | 76. 1x 3-PIN SOCKET |
| 77. 1x 3-PIN SOCKET | 77. 1x 3-PIN SOCKET |
| 78. 1x 3-PIN SOCKET | 78. 1x 3-PIN SOCKET |
| 79. 1x 3-PIN SOCKET | 79. 1x 3-PIN SOCKET |
| 80. 1x 3-PIN SOCKET | 80. 1x 3-PIN SOCKET |
| 81. 1x 3-PIN SOCKET | 81. 1x 3-PIN SOCKET |
| 82. 1x 3-PIN SOCKET | 82. 1x 3-PIN SOCKET |
| 83. 1x 3-PIN SOCKET | 83. 1x 3-PIN SOCKET |
| 84. 1x 3-PIN SOCKET | 84. 1x 3-PIN SOCKET |
| 85. 1x 3-PIN SOCKET | 85. 1x 3-PIN SOCKET |
| 86. 1x 3-PIN SOCKET | 86. 1x 3-PIN SOCKET |
| 87. 1x 3-PIN SOCKET | 87. 1x 3-PIN SOCKET |
| 88. 1x 3-PIN SOCKET | 88. 1x 3-PIN SOCKET |
| 89. 1x 3-PIN SOCKET | 89. 1x 3-PIN SOCKET |
| 90. 1x 3-PIN SOCKET | 90. 1x 3-PIN SOCKET |
| 91. 1x 3-PIN SOCKET | 91. 1x 3-PIN SOCKET |
| 92. 1x 3-PIN SOCKET | 92. 1x 3-PIN SOCKET |
| 93. 1x 3-PIN SOCKET | 93. 1x 3-PIN SOCKET |
| 94. 1x 3-PIN SOCKET | 94. 1x 3-PIN SOCKET |
| 95. 1x 3-PIN SOCKET | 95. 1x 3-PIN SOCKET |
| 96. 1x 3-PIN SOCKET | 96. 1x 3-PIN SOCKET |
| 97. 1x 3-PIN SOCKET | 97. 1x 3-PIN SOCKET |
| 98. 1x 3-PIN SOCKET | 98. 1x 3-PIN SOCKET |
| 99. 1x 3-PIN SOCKET | 99. 1x 3-PIN SOCKET |
| 100. 1x 3-PIN SOCKET | 100. 1x 3-PIN SOCKET |

| Circuit | Location | Height from FT. to underside of ceiling |
|-------------------|----------------------|---|
| 1. SOCKET OUTLET | GENERAL APPLICATIONS | 2000mm |
| 2. SOCKET OUTLET | KITCHENS | 1500mm |
| 3. GEBER ISOLATOR | WITHIN 1m OF GEBER | 1500mm |
| 4. A/C ISOLATOR | WITHIN 1m OF UNIT | 1500mm |

| Circuit | Minimum Conductor Size | Earth (mm) |
|--------------------|------------------------|------------|
| 1. LIGHTING | 1.5 | 2.5 |
| 2. SOCKET OUTLETS | 2.5 | 2.5 |
| 3. STOVE | 6.0 | 14.0 |
| 4. AIR-CONDITIONER | 4.0 | 2.5 |
| 5. GEBER | 4.0 | 2.5 |

HEALTH DEPARTMENT SIGNATURES

RESPONSIBLE OFFICER: _____

HEAD OFFICE: _____

DISTRICT MANAGER: _____

CEO / MANAGER OF THE FACILITY: _____

JOB PROJECT MANAGER: _____

MANAGING ENGINEER PROJECT MANAGER: _____

PROFESSIONAL SERVICE PROVIDER: _____

NAME: _____ DATE: _____

SIGNATURE: _____

ELECTRICAL CONSULTANT

health

Department of Health
 PROVINCE OF KWAZULU-NATAL

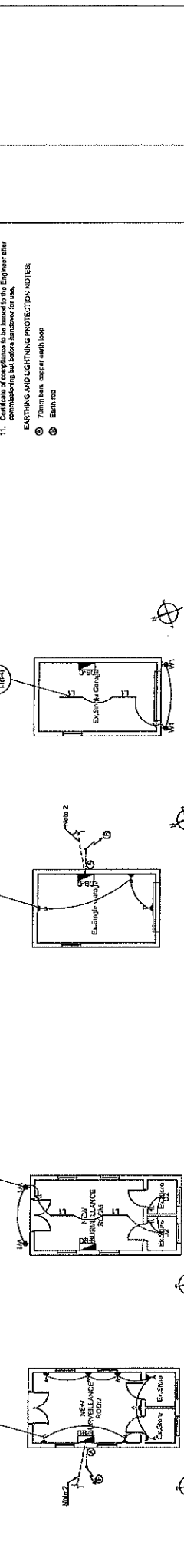
SOUTHERN REGION

PROJECT: MURCHISON HOSPITAL ALTERATIONS AND RENOVATIONS TO STAFF ACCOMMODATION

DRAWING DESCRIPTION: EXTERNAL BUILDINGS: POWER AND LIGHTING LAYOUT

Scale: AS SHOWN (A1)
 Date: October 2023
 Project No.: DHA/JUR/ELN-100-00
 Drawing No.: A

Stamp: By Phase Approval Committee



DRAWING NOTES:
 1. FULL INSTALLATION TO COMPLY WITH SANS 10142.
 2. 100MM DOWNOUT TO LINK TO SITE RECTIFICATION.

GENERAL NOTES:
 1. All work to be in accordance with the drawings.
 2. All work to be done in accordance with the drawings.
 3. All work to be done in accordance with the drawings.
 4. All work to be done in accordance with the drawings.
 5. All work to be done in accordance with the drawings.
 6. All work to be done in accordance with the drawings.
 7. All work to be done in accordance with the drawings.
 8. All work to be done in accordance with the drawings.
 9. All work to be done in accordance with the drawings.
 10. All work to be done in accordance with the drawings.
 11. All work to be done in accordance with the drawings.

EARTHING AND LIGHTING PROTECTION NOTES:
 1. 7mm twin copper earth loop
 2. Earth rod

357305

| POLE TRANSFORMER | |
|------------------|---------------------|
| ME | METER BOX |
| MI | METER |
| PH | PHOTO-ELECTRIC CELL |
| CB | CIRCUIT BREAKER |
| EL | EARTH LEAKAGE UNIT |
| IS | ISOLATOR |
| F | FUSES |
| B | BURGE ARRESTOR |
| T | TERMINATION |

| DISTRIBUTION BOARD INFORMATION | |
|--------------------------------|----------------------|
| CONSTRUCTION | TYPE OF CONSTRUCTION |
| MAX. DIMENSIONS | |
| HEIGHT | |
| WIDTH | |
| DEPTH | |
| WEIGHT | |
| ENVIRONMENTAL | |
| TEMPERATURE | |
| HUMIDITY | |
| SERVICE ACCESS | |
| COLOUR | |
| FINISH | |
| PROTECTION | |
| ISOLATION | |
| GROUNDING | |
| TESTING | |

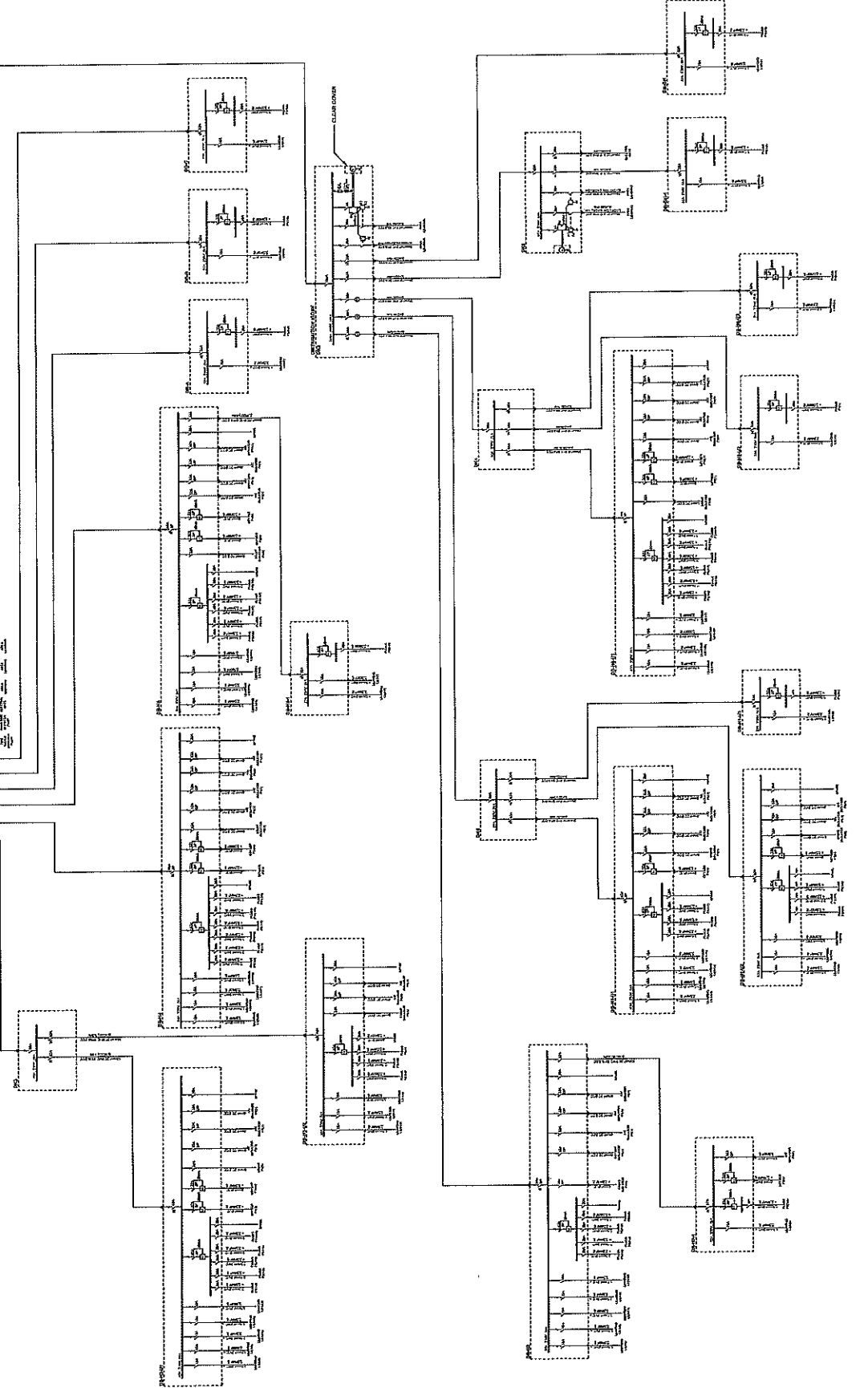
| DISTRIBUTION BOARD INFORMATION | |
|--------------------------------|----------------------|
| CONSTRUCTION | TYPE OF CONSTRUCTION |
| MAX. DIMENSIONS | |
| HEIGHT | |
| WIDTH | |
| DEPTH | |
| WEIGHT | |
| ENVIRONMENTAL | |
| TEMPERATURE | |
| HUMIDITY | |
| SERVICE ACCESS | |
| COLOUR | |
| FINISH | |
| PROTECTION | |
| ISOLATION | |
| GROUNDING | |
| TESTING | |

| DISTRIBUTION BOARD INFORMATION | |
|--------------------------------|----------------------|
| CONSTRUCTION | TYPE OF CONSTRUCTION |
| MAX. DIMENSIONS | |
| HEIGHT | |
| WIDTH | |
| DEPTH | |
| WEIGHT | |
| ENVIRONMENTAL | |
| TEMPERATURE | |
| HUMIDITY | |
| SERVICE ACCESS | |
| COLOUR | |
| FINISH | |
| PROTECTION | |
| ISOLATION | |
| GROUNDING | |
| TESTING | |

| DISTRIBUTION BOARD INFORMATION | |
|--------------------------------|----------------------|
| CONSTRUCTION | TYPE OF CONSTRUCTION |
| MAX. DIMENSIONS | |
| HEIGHT | |
| WIDTH | |
| DEPTH | |
| WEIGHT | |
| ENVIRONMENTAL | |
| TEMPERATURE | |
| HUMIDITY | |
| SERVICE ACCESS | |
| COLOUR | |
| FINISH | |
| PROTECTION | |
| ISOLATION | |
| GROUNDING | |
| TESTING | |

2. Refer to the relevant drawings for details.
 3. All dimensions are in millimeters.
 4. All materials to be used must be approved for the purpose.
 5. All work must be done in accordance with the relevant standards.
 6. All work must be done in accordance with the relevant standards.
 7. All work must be done in accordance with the relevant standards.
 8. All work must be done in accordance with the relevant standards.
 9. All work must be done in accordance with the relevant standards.
 10. All work must be done in accordance with the relevant standards.
 11. All work must be done in accordance with the relevant standards.

| | |
|------|-------------------|
| DATE | FOR THIS APPROVAL |
| | |
| | |
| | |
| | |
| | |



HEALTH DEPARTMENT SIGNATURES
 HEALTH DEPARTMENT DIRECTOR
 HEALTH DEPARTMENT MANAGER
 HEALTH DEPARTMENT PROJECT MANAGER
 HEALTH DEPARTMENT PROFESSIONAL SERVICE PROVIDER

ELECTRICAL CONSULTANT
 DVA
 Tel: 031 207 1576
 Fax: 031 207 1577
 Email: info@dvaingeniours.co.za

Department of Health
 PROVINCE OF KWAZULU-NATAL
 SOUTHERN REGION

PROJECT
 MURCHISON HOSPITAL ALTERATIONS AND RENOVATIONS TO STAFF ACCOMMODATION

DRAWING DESCRIPTION
 OVERALL ELECTRICAL SCHEMATIC

DATE OCTOBER 2020
Drawn JM
Checked JM
Reviewed JM
Approved JM

Stamp: **Stamp by Professional Consultant**



health

Department:
Health
PROVINCE OF KWAZULU-NATAL

**UGU DISTRICT: MURCHISON HOSPITAL: ALTERATIONS AND RENOVATIONS OF STAFF
ACCOMMODATION**

ANNEXURE 4



Annexure 4
Joint Venture Agreement
(March 2004)
(First Edition of CIDB document 1017)

1. **PREAMBLE**

This agreement is made and entered into by and between

of the first part and

of the second part and

of the third part.

(allow for additional parties as necessary).

Whereas the foregoing parties have resolved to form a Joint Venture under the title of

for the exclusive purposes of securing and/or executing the Contract to be awarded by

(name of Employer)

to the **Department of Health: Province of KwaZulu-Natal** in respect of the following project:

for *(brief description of Contract)*

UGU DISTRICT: MURCHISON HOSPITAL: ALTERATIONS AND RENOVATIONS OF STAFF ACCOMMODATION

Now it is hereby agreed as follows :

2. **DEFINITIONS AND INTERPRETATION**

2.1 Definitions

The following words and expressions shall have the meanings indicated, except where the context otherwise requires. Defined terms and words are, in general, signified in the text of the Agreement by the use of capital initial letters, but the absence of such letters does not necessarily signify that a term, or word, is not defined.

'Agreement' means the agreement between the Members of the Joint Venture and includes this model form of agreement together with the Preamble, Specific Provisions, if any, Schedules 'A', 'B' and 'C' and any relevant Documents prepared prior to the signing of the Agreement and appended thereto.

'Contract' means the contract with the Employer for the supply of the Deliverables, for the purposes of securing and executing which, the Joint Venture has been formed.

'Deliverables' means the works and/or services, equipment, materials, goods, etc. to be furnished by the Joint Venture to the Employer in terms of the Contract.

'Document' means any written, drawn, typed, printed, or photographic material, which relates to the Agreement.

'Employer' means the person, or body, which is to award the Contract and will employ the Joint Venture if it is awarded the Contract.

'Joint Venture' means the joint venture formed by the Members in accordance with the Agreement.

'Management Committee' means the body established in terms of the Agreement to manage all aspects of the work of the Joint Venture in securing and executing the Contract and in meeting the provisions for the Agreement.

'Member' means a person, or body which, being a party to the Agreement, is a member of the Joint Venture.

228

360 358

'Member's Interest' means the proportion expressed as a percentage, which the total monetary value of all resources provided and contributions made by a Member towards the execution by the Joint Venture of the Contract bears to the total of such values by all Members and, unless otherwise indicated in the Agreement, represents the extent to which the Member participates in the fortunes of the Joint Venture.

'Representative' means the person representing a Member on the Management Committee.

'Schedules' means Schedules 'A', 'B' and 'C' which set out general, financial and other information relating to the Members and the obligations, duties, rights, risks and benefits arising from their participation in the Joint Venture.

'Specific Provisions' means the variations, if any, required to this standard form of agreement for the specific purposes of the Agreement.

2.2 Interpretation

Unless inconsistent with the context, an expression in the Agreement which denotes:

- any gender shall include the other genders
- a natural person shall include a juristic person and vice versa
- the singular shall include the plural and vice versa

2.3 Headings

The headings to clauses of the Agreement shall not be considered part thereof, nor shall the words they contain be taken into account in the interpretation of any clause.

2.4 Law

The Agreement shall be construed in accordance with and governed by the laws of the Republic of South Africa and the English language versions shall prevail.

2.5 Language

English shall be exclusively used by the Members in the preparation of Documents unless otherwise indicated.

2.6 Conflict between Agreement and Contract

Should any provision of the Agreement be in conflict with the terms of the Contract, the Agreement shall be amended to the approval of the Management Committee so as to eliminate the conflict.

3. **JOINT VENTURE GENERAL**

3.1 Establishment and Purpose

The Joint Venture established by the Members in terms of the Agreement is an unincorporated association with the exclusive purposes of securing and executing the Contract for the benefit of the Members.

3.2 Termination

The operation of the Joint Venture and the validity of the Agreement shall terminate if and when it becomes evident that the Joint Venture will not be awarded the Contract, or, if the Joint Venture secures the Contract, when all obligations and rights of the Joint Venture and the Members in connection with the Contract and the Agreement have ceased and/or been satisfactorily discharged.

Unless otherwise decided by the Management Committee, the Agreement shall not terminate if a Member changes its name, or is taken over by, or merged with, another body.

This agreement will terminate when any one of the Members resigns, are liquidated or opts out of this agreement and the Joint Venture will be in breach of contract with the Employer and their contract could be cancelled.

3.3 Exclusivity

Unless otherwise agreed by the Management Committee, or provided for in the Contract no Member shall engage in any activity related to the Contract other than as a Member of the Joint Venture and Members shall ensure that their subsidiaries and other bodies over which they have control comply with this requirement.

3.4 Participation of Members

Except as may otherwise be stipulated in the Agreement, each Member shall be responsible for all costs incurred by it prior to the date of inception of the Agreement.

Subsequent to the date of inception of the Agreement, each Member shall, participate in the operations, risks, responsibilities and fortunes of the Joint Venture including, inter alia, the provision of funding, sureties, guarantees, insurances, human and other resources and participation in profits and losses to the extents indicated in the Schedules. Participation in any aspect not covered in the Schedules shall, if an agreement cannot be reached between the Members, be to the same extents as indicated by the Members Interests.

3.5 Management

The affairs of the Joint Venture shall be directed and controlled by the Management Committee, as set out in Section 4 hereof.

3.6 Confidentiality

All matters relating to the Agreement and the Contract shall be treated by the Members as confidential and no such matter shall be disclosed to any third party without the prior written approval of the Management Committee.

No Member shall be party to the dissemination of publicity relating to the Contract, or the Agreement, without the prior written approval of the Management Committee and the Employer.

3.7 Assignment

No Member shall cede, assign, or in any other way make over any of its rights, or obligations, under the Agreement without the prior written consent of the Management Committee.

3.8 Subcontracting

No Member shall subcontract any obligation, work or duty for which it is, itself, responsible in terms of the Agreement without the prior written consent of the Management Committee.

3.9 Variations to Agreement

No variation, modification, or waiver of any part of the Agreement shall be of any force, or effect, unless unanimously agreed by the Members and reduced to writing.

3.10 Liability

Each Member warrants that it will indemnify the other Members against all legal liabilities arising out of, or in connection with the performance of its obligations under the Agreement.

It is acknowledged by the Members that they may be held jointly and severally liable in respect of claims against the Joint Venture by the Employer or third parties.

4. **MANAGEMENT OF JOINT VENTURE**

4.1 General

The affairs of the Joint Venture shall be directed, controlled and managed by the Management Committee, which, within the terms of the Agreement and the Contract, shall have full authority to bind the Members in all matters relating to the affairs of the Joint Venture.

Communication between the Joint Venture and the Employer, or third parties, relating to the Contract shall be conducted exclusively by the Management Committee, or by such person as it may delegate to perform this function.

The Management Committee shall have the power to appoint a project manager and/or such other persons as it may see fit to appoint for the purpose of executing the Contract and may delegate such of its powers, responsibilities and duties as it may consider necessary, or desirable, to persons or bodies appointed or seconded for this purpose.

Such administrative functions as are necessary to ensure the effective operation of the Management Committee shall be performed by its chairman.

4.2 Management Committee

4.2.1 Composition

The Management Committee shall, unless otherwise agreed by all the Members, consist of one Representative of each Member and each Member shall be obliged, at all times, to maintain a Representative on the Management Committee.

Each member shall, not later than three working days after the signing of the Agreement, appoint its Representative and notify the other Members of the name and contact details of the Representative. Such Representative shall have the power to bind the Member that he represents in all matters relating to the execution of the Contract and the performance of the Agreement.

A Member shall be entitled, after giving the other Members not less than three working days written notice of his intention to do so, appoint, remove and/or replace, an alternate who shall, at any meeting of the Management Committee from which the Representative whom he represents is absent, be vested with all rights and powers and subjected to all the obligations of the absent Representative.

The chairman of the Management Committee shall be the Representative of the Member which has the largest Member's Interest. If two, or more, Members have the same, largest Member's Interest, the chairmanship shall rotate between the Representatives of such Members at three monthly intervals, the order of rotation to be determined by ballot.

Notwithstanding the foregoing, the chairmanship of the Management Committee may be determined, or changed, at any time by unanimous decision of the Management Committee.

4.2.2 *Meetings*

No remuneration shall be paid by the Joint Venture to Representatives or their alternates for serving on the Management Committee. Meetings of the Management Committee shall take place at such times and places as the Management Committee may determine, provided that the chairman shall convene a meeting of the Management Committee to be held not later than ten working days after he has been requested, in writing, by a Member to do so. Not less than five working days written notice of any meeting of the Management Committee shall be given to all Representatives and their alternates.

The Management Committee may permit, or invite, persons other than Representatives or alternates to attend any of its meetings, but such persons shall not have voting rights.

4.2.3 *Decisions*

Each Representative shall have one vote on the Management Committee and where, in terms of this clause, a casting vote is required, this shall be exercised by the chairman.

All decisions of the Management Committee shall, desirably, be unanimous. Accordingly, if unanimity cannot, initially, be achieved in regard to a decision, the meeting at which that decision is sought shall be adjourned for a period of 48 hours to enable Representatives to consult with their principals. If, on resumption of the adjourned meeting, unanimity can still not be achieved, the decision, provided it is not one requiring unanimity of the Members, shall be taken by majority vote and, in the event of a tie, the chairman shall exercise a casting vote.

A Member not satisfied with a majority decision of the Management Committee may declare a dispute, to be dealt with in terms of Clause 8 hereof, but the majority decision shall, nevertheless, be implemented with immediate effect.

Decisions of the Management Committee, whether taken at a meeting, or otherwise, shall be recorded in written minutes, which shall be distributed by the chairman to reach the Representatives not later than five working days after those decisions were taken. Such minutes shall be deemed to have been affirmed by the Representatives unless written notice of dissent is received by the chairman not later than three working days after receipt of the minutes by the Representative.

4.2.4 Powers and duties

The functions, responsibilities and powers of the Management Committee shall include, inter alia, those listed below:

- 4.2.4.1 Formulating overall policy in regard to the achievement of the objectives of the Joint Venture.
- 4.2.4.2 Managing the day to day affairs of the Joint Venture.
- 4.2.4.3 Monitoring, directing and co-ordinating the activities of the Members to ensure that the objectives of the Joint Venture are achieved and that the obligations and responsibilities of the individual Members are met.
- 4.2.4.4 Monitoring and controlling the financial affairs of the Joint Venture and ensuring that proper books of account and financial records relating to affairs of the Joint Venture are maintained in an approved form and submitted to the Management Committee for approval at regular intervals, which shall not be longer than one month.
- 4.2.4.5 Determining the necessity for and the details of any changes in the duties and responsibilities of Members provided that any resulting changes in Members' Interests shall be unanimously approved by the Members.
- 4.2.4.6 Determining the terms and conditions of employment of personnel and the emoluments applicable to staff seconded to the Joint Venture by the Members.
- 4.2.4.7 Controlling and approving the appointment of all subcontractors.
- 4.2.4.8 Procuring, after the completion of the Contract and the release of all bonds, guarantees and sureties given in respect of the performances of the Joint Venture and the Members, the preparation and auditing of a final set of accounts, on the basis of which the final profits, or losses, attributable to the individual Members shall be determined and any necessary adjustments effected.

5 RESOURCES OF JOINT VENTURE

The resources to be utilised by the Joint Venture in securing and executing the Contract shall, insofar as these are to be provided directly by the Members, be as set out in the Schedules and may, from time to time, be amended by decision of the Management Committee, provided that the Member's Interests are not, except with the unanimous approval of the Members, affected thereby.

Similarly, specific areas of responsibility of the Members for the performance of work and the provision of facilities shall be as set out in the Schedules and may, from time to time, be amended by decision of the Management Committee, provided that the Members' Interest are not, except with the unanimous approval of the Members, affected thereby.

5.1 Schedule 'A' (General)

Schedule 'A' shall contain general information relating to the Joint Venture including, inter alia, the following :

1. The Employer's name and address.
 2. A brief description of the Contract and the Deliverables.
 3. The name, physical address, communications addresses and domicilium citandi et executandi of each Member and of the Joint Venture.
 4. The Members' Interests.
 5. A statement indicating whether, or not, Specific Provisions apply to the Agreement.
 6. A schedule of insurance policies which must be taken out by the Joint Venture and by the individual Members.
 7. A Schedule of sureties, indemnities and guarantees that must be furnished by the Joint Venture and by the individual Members.
8. Details of the persons, who, in the event of failure by the Members to reach agreement on the appointments of mediator and arbitrator, will nominate appointees to these positions in terms of Clauses 8.2 and 8.3.

5.2 Schedule 'B' (Financial)

Schedule 'B' shall contain information regarding the financial affairs of the Joint Venture including, inter alia, the following :

1. The working capital required by the Joint Venture and the extent to which and manner whereby this will be provided and/or guaranteed by the individual Members from time to time.
2. The banking accounts that are to be opened in the name of the Joint Venture and the manner in which these are to be operated.
3. The rates of interest that will be applicable to amounts by which Members are in debit, or credit, to the Joint Venture.
4. The names of the auditors and others, if any, who will provide auditing and accounting services to the Joint Venture.
5. The intervals at which interim financial accounts and forecasts will be prepared for approval by the Management Committee.
6. Insofar as not covered in Schedule 'C', the basis on which contributions of various types by the Members towards the work of the Joint Venture in securing, executing, managing and satisfactorily completing the Contract, will be valued.
7. The basis on which profits and/or surplus cash will, if available from time to time, be distributed to Members.
8. The basis upon which losses, if any, are to be apportioned to Members.

5.3 Schedule 'C' (Contributions by Members)

Schedule 'C' shall set out the contributions of various types, other than cash, that will be made by the individual Members towards the work and obligations of the Joint Venture and shall, as far as possible, indicate the monetary values to be placed on such contributions, which may include, inter alia, the following :

1. Staff seconded to the Joint Venture.
2. Work carried out and services provided to, or on behalf of, the Joint Venture.
3. Plant, equipment, facilities etc. made available for use by the Joint Venture.
4. Materials and goods supplied to, or on behalf of, the Joint Venture.
5. Licences, sureties, guarantees and indemnities furnished to, or on behalf of, the Joint Venture.
6. Joint Venture Disclosure form required for the Contract.

6. **BREACH OF AGREEMENT**

If a Member breaches any material provision of the Agreement, or delays or fails to fulfil its obligations in whole, or in part, and does not remedy the situation within fourteen calendar days of receipt of notice from the Management Committee, or another Member, to do so, the other Members shall have the right, without prejudice to any other rights arising from the default, to summarily terminate the Agreement and re-assign the defaulting Member's rights and obligations in the Joint Venture as they see fit and withhold any moneys due to the defaulting member by the Joint Venture.

Each Member shall indemnify the other Members against all losses, costs and claims which may arise against them in the event of the Agreement being terminated as a result of breach of the Agreement by the said Member.

7. **INSOLVENCY OF MEMBER**

Should a Member be placed in liquidation, or under judicial management, whether provisionally or finally, or propose any compromise with its creditors, the other Members shall be entitled to proceed in terms of Clause 6, as if the Member had breached the Agreement.

8. DISPUTES

8.1 Settlement

The Members shall negotiate in good faith and make every effort to settle any dispute, or claim, that may arise out of, or relate to, the Agreement.

If agreement cannot be reached, an aggrieved Member shall, if he intends to proceed further in terms of Clause 8.2 hereof, advise all other Members in writing that negotiations have failed and that he intends to refer the matter to mediation in terms of Clause 8.2.

8.2 Mediation

Not earlier than ten working days after having advised the other Members, in terms of Clause 8.1, that negotiations in regard to a dispute have failed, an aggrieved Member may require that the dispute be referred, without legal representation, to mediation by a single mediator.

The mediator shall be selected by agreement between the Members, or, failing such agreement, by the person named for this purpose in Schedule 'A'. The costs of the mediation shall be borne equally by all Members.

The mediator shall convene a hearing of the Members and may hold separate discussions with any Member and shall assist the Members in reaching a mutually acceptable settlement of their differences through means of reconciliation, interpretation, clarification, suggestion and advice. The Members shall record such agreement in writing and thereafter they shall be bound by such agreement.

The mediator is authorised to end the mediation process whenever in his opinion further efforts at mediation would not contribute to a resolution of the dispute between the Members.

8.3 Arbitration

Where a dispute or claim is not resolved by mediation, it shall be referred to arbitration by a single arbitrator to be selected by agreement between the Members or, failing agreement, to be nominated by the person named for this purpose in Schedule 'A'.

The Member requiring referral to arbitration shall notify the other Members, in writing, thereof, not later than thirty calendar days after the mediator has expressed his opinion, failing which the mediator's opinion shall be deemed to have been accepted by all Members and shall be put into effect.

Arbitration shall be conducted in accordance with the provisions of the Arbitration Act No. 42 of 1965, as amended, and in accordance with such procedure as may be agreed by the Members or, failing such agreement, in accordance with the rules for the Conduct of Arbitrations published by the Association of Arbitrators and current at the date that the arbitrator is appointed.

The decisions of the arbitrator shall be final and binding on the Members, shall be carried into immediate effect and, if necessary, be made an order of any court of competent jurisdiction.

9. DOMICILIUM

The Members choose domicilium citandi et executandi for all purposes of and in connection with the Agreement as stated in Schedule 'A'. A Member shall be entitled to change his domicilium from time to time, but such change shall be effective only on receipt of written notice of the change by all other Members.

Member No. 1

Thus done and signed at _____ this _____ day of _____ 20__

For and on behalf of _____ [Company]

by [name] _____ who warrants his authority to do so.

As witnesses 1. _____ As witnesses 2. _____

Member No. 2

Thus done and signed at _____ this _____ day of _____ 20__

For and on behalf of _____ [Company]



by [name] _____ who warrants his authority to do so.

As witnesses 1. _____

As witnesses 2. _____

Member No. 3

Thus done and signed at _____ this _____ day of _____ 20____

For and on behalf of _____ [Company]

by [name] _____ who warrants his authority to do so.

As witnesses 1. _____

As witnesses 2. _____

[Allow for additional parties as necessary].

708

366 304



health

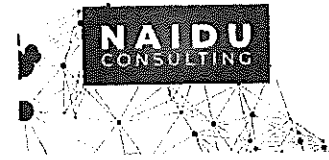
Department:
Health
PROVINCE OF KWAZULU-NATAL

**UGU DISTRICT: MURCHISON HOSPITAL: ALTERATIONS AND RENOVATIONS OF STAFF
ACCOMMODATION**

ANNEXURE 5

402

367 ⁴⁰⁵⁵ 305



BASELINE RISK ASSESSMENT

1. Introduction

In order to ensure that the requirements of the Construction Regulations 5 (1)(a) are fulfilled, the Department of Health has appointed Naidu Consulting, Mr. D. Francis as the Professional Health and Safety Agent who has undertaken the baseline risk assessment for the alterations and renovations at Murchison Staff Accommodation. The anticipated risks identified in this risk assessment and subsequent project OH&S Risk Profile has been incorporated in the Client OH&S Specification, ref ORM/20200407/02

2. Terms and Definitions

| NO | TERMS | DEFINITIONS |
|------|-----------------------------|---|
| | Hazard | Source or exposure to danger or anything that has the potential to cause harms or may cause harm to people, equipment or the environment |
| 2.1 | Risk | The probability that injury or damage will occur or the likelihood, chance or probability that harm may occur from a particular hazard. This is normally represented as a combination of the frequency, consequence and severity of a specified incident or potential incident |
| 2.2 | Risk Identification | This has been achieved by a physical inspection of the various areas. The method used here was that of direct observation (physical inspection) interviewing, documentation review coupled with specialist judgment |
| 2.3 | Risk Evaluation | The purpose of risk evaluation is to evaluate risk in a systematic and objective way. In this regard numerical calculations have been developed in a weighting and rating process. In the evaluation of risk the severity, probability, legislation and frequency are taken into consideration, according to the criteria |
| 2.4 | Risk Rating | = Severity + Frequency + Exposure |
| 2.5 | Baseline Risk Assessment | This is the Client's assessment of risk and is a broad assessment and includes all activities taking place on site |
| 2.6 | Task Based | This is the Contractor assessment of risk based on the Client Baseline Risk Assessment and project activities |
| 2.7 | Issue Based Risk Assessment | In the event that the method of the proposed works change, an incident/accident occurs then an issue- based risk assessment would be conducted |
| 2.8 | S.H.E. | Safety, Health and Environment |
| 2.9 | Pure Risk | This the risk potential which exist prior to any controls being put in place to minimize the said risk or are those risks that offer only the prospective of loss |
| 2.10 | S | Severity |
| 2.11 | F | Frequency |
| 2.12 | E | Exposure |

366
368



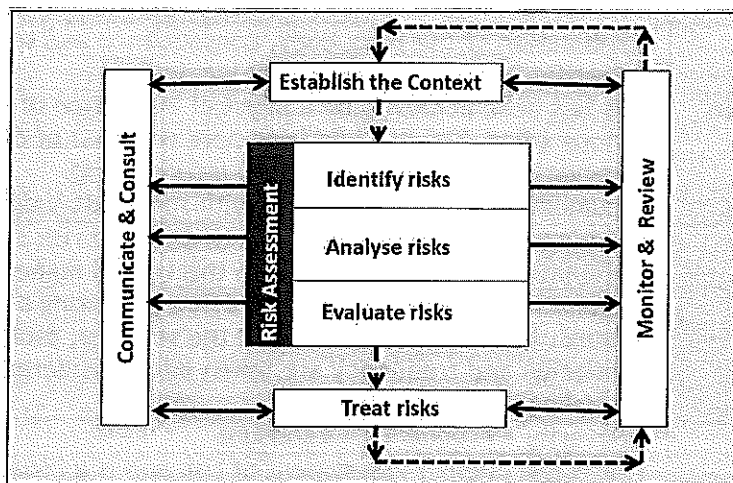
3. Objective

The purpose of this document is to lay down the standardised methodology and parameters for all risk assessments conducted. This document is applicable to all the construction activities and processes.

4. Methodology

The Contractor shall adopt the following methodology when assessing the project construction risk:-

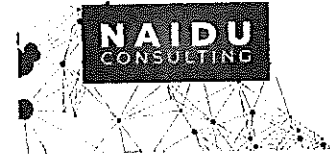
- Step 1 - Determine the scope of the assessment
- Step 2 - Identify the hazards
- Step 3 - Analyze the risk
- Step 4 - Evaluate the risk
- Step 5 - Determine control measures needed
- Step 6 - Set priority and administer controls
- Step 7 - Monitor and Review Risk



5. Risk Matrix Criteria

As a minimum the frequency, severity and exposure criteria has been adopted to evaluate the identified risk

369
 457



5.1 Severity

This refers to the significance of the effect that the identified risks may have on a person/s should the risks not be adequately and effectively controlled

5.2 Frequency

This refers to the number of times a loss producing event occurs in a given period of time

| SEVERITY CRITERIA | | | |
|-------------------|--------------------|--|---|
| Weight No | Hazard Description | Environment | Safety/Health |
| 1 | Insignificant | Low impact, natural rehabilitation | First Aid treatment required |
| 2 | Minor | Short-term ecological impact. Requires intervention | Minor injuries or exposure requiring medical attention |
| 4 | Moderate | Ecological disturbance, can be rehabilitated | Disabling injury or occupational illness |
| 8 | Major | Reversible ecological damage with potential long term impact | Fatality or number of disabilities/disabling diseases |
| 16 | Catastrophic | Irreversible ecological damage | Multiple fatalities due to injury or occupational disease |

| FREQUENCY CRITERIA | | |
|--------------------|--------------------|------------------------------|
| Weight No | Hazard Description | Frequency |
| 1 | Rare | Less than once every 2 years |
| 2 | Infrequent | Every 1-5 years |
| 3 | Frequent | Multiple times per year |
| 4 | Often | Monthly |
| 5 | Consistent | Weekly/Daily |

~~368~~
374



5.3 Exposure

This refers to the number of times a loss producing event occurs in a given period of time

| EXPOSURE CRITERIA | | | |
|-------------------|--------------------|------------------------|--|
| Weight No | Hazard Description | Environmental Exposure | Safety/Health Exposure |
| 1 | Minimal | Incident site | A few of the workforce minimal time |
| 2 | Restricted | Localised | A few of the workforce, some of the time/some of the workforce minimal time |
| 3 | Local | Construction Site Wide | Some of the workforce, some of the time |
| 4 | Widespread | Immediate neighbours | Most of the workforce, some of the time/some of the workforce most of the time |
| 5 | Extensive | Community exposure | Most of the workforce, most of the time |

5.4 Risk Prioritisation

This refers to the prioritisation of risk based on their rating from high to low risks

| RISK RANKING | |
|--------------|----------|
| Total | Priority |
| 20 - 26 | High |
| 12 - 19 | Medium |
| 3 - 11 | Low |

367
371 H59

372

~~370~~
366



| Risk Ref | Activity | Potential Hazard | Risk | S | H | E | Risk Evaluation | | | Pure Risk | Controls mitigation | Effectiveness of Controls | Residual Risk | Residual Risk Ranking |
|----------|----------|------------------|------|---|---|---|-----------------|---|---|-----------|---------------------|---------------------------|---------------|-----------------------|
| | | | | | | | S | F | E | | | | | |

| | | | | | | | | | | | | | | |
|---|--|---|---|--|-------------------------------------|--|---|---|---|----|--|--|-----|-----|
| 1 | Site Access - Km 18+200 | | | | | | | | | | | | | |
| | 1.1 Accessing site using construction vehicles or trucks | a) Excessive speeds | 1.1 Construction trucks/ vehicles not negotiating the road bends at high speeds may cause accidents resulting in damage to equipment or severe injuries | | | | 8 | 3 | 3 | 14 | 1.1.1 The Construction Manager must ensure that the access roads are surveyed prior to the construction vehicles and trucks accessing the site and an alternative road used to access site 1.1.2 The Construction Manager must develop and implement a Driving Policy and Procedure detailing site access procedures, restrictions, monitoring and requirements | | 80% | 20% |
| | | b) Informal Access Road at Km 18+200 blocked off due to community protest | 1.1 Construction trucks/ vehicles could crash into barricades resulting in damage to equipment or severe injuries | | <input checked="" type="checkbox"/> | | | 3 | 4 | 15 | 1.1.1 The Construction Manager must ensure that close communication is kept with the local authorities and the appointed Community Liaison Officer to ensure that all personnel accessing the site are timeously alerted of any protest | | 60% | 40% |
| | | | | | | | 8 | 3 | 4 | 25 | | | 25 | |

373



| | | | | | | | | | | | |
|---|---|--|-------------------------------------|---|---|---|----|--|-----|-----|------|
| 2.2 Appointment/ placement of Personnel | a) Medical unfitness | 2.2 Medically unfit employees could result in medical induced accidents | <input checked="" type="checkbox"/> | 8 | 2 | 3 | 13 | 2.2.1 The Construction Manager must ensure that <u>all</u> employees undergo a medical examination by an Occupational Health Practitioner annually and an updated Annexure 3 is on file 2.2.2 The Construction Manager must ensure that exit medical examinations are conducted on all personnel | 80% | 20% | 16,3 |
| 2.3 Unsafe Stacking/ Storage Practices | a) Collapse of stacked/ stored materials | 2.3 Collapse of unsafe stacked/ stored materials may result in injury to personnel and damage to property/materials | <input checked="" type="checkbox"/> | 4 | 2 | 1 | 7 | 2.3.1 The Construction Manager must ensure that a competent Stacking and Storage Supervisor is appointed for the duration of the Construction Work | 80% | 20% | 8,8 |
| 2.4 Installation of Temporary Electrical Installations | a) Exposed/ incorrectly wired Electrical Cables/Wires | 2.4 Contact with exposed electrical cables may result in electrocution | <input checked="" type="checkbox"/> | 8 | 2 | 1 | 11 | 2.4.1 The Construction Manager must ensure that a specialist Contractor is appointed and a site specific H&S Plan, risk assessment, lock-out and safe working procedures are developed for implementation 2.4.2 The Construction Manager must ensure that the specialist registered Contractor provides an Electrical Certificate of Compliance (CoC) for the temporary electrical installation/s | 80% | 20% | 13,8 |

378 916 977



| | | | | | | | | | | | | | | |
|---|--|--|---|-------------------------------------|--|---|---|---|---|---|---|-----|-----|----|
| | 2.5 Installation of Project and Safety Information Boards | a) Client Project and Contractor Safety Information Boards not provided/ installed and C.W.P Number not displayed (where applicable) | 2.5 Information regarding the project and site safety rules not available causing legal and social issues and/ or non-compliance by employees or visitors <input checked="" type="checkbox"/> | | | 4 | | 3 | 2 | 9 | 2.5.1 The Construction Manager must ensure that adequate provision is made to ensure project information and safety boards are provided for and installed outside site camp 2.5.2 The Construction Manager must ensure that the project C.W.P. number is displayed accordingly as required | 60% | 40% | 15 |
| | 2.6 Rehabilitation of site camp area when removing containers/ offices | a) Site camp not rehabilitated to the original condition | 2.6 Site camp area not rehabilitated to original condition may result in damage to the environment | <input checked="" type="checkbox"/> | | 1 | 1 | 1 | 1 | 3 | 2.6.1 The Construction Manager must ensure that the site camp laydown area is totally cleared of all construction containers, offices, toilets and related sewer systems, flammable liquid stores and fuel storage banded areas and handed over to the Client in the original or improved condition | 60% | 40% | 5 |
| 3 | Traffic Accommodation | | | | | | | | | | | | 178 | |

379 ~~377~~ ~~367~~



| | | | | | | | | | |
|--|---|-------------------------------------|----|---|---|----|--|-----|------|
| 3.1 Moving Plant/ Construction Vehicles on site | a) Un-roadworthy Plant/ Construction Vehicles, Incompetent Operators, Un-licenced Drivers, Inadequate PPE | <input checked="" type="checkbox"/> | 16 | 5 | 3 | 24 | 60% | 40% | 40 |
| | 3.1 Mobile plant/ construction vehicles could crash into personnel, members of the public, other vehicles or any other structure resulting in critical injuries | | | | | | 3.1.1 The Construction Manager must ensure that a Plant Management Plan is developed and all construction plant and vehicles are clearly visible and operated by competent operators/ licenced drivers 3.1.2 The Construction Manager must ensure that all plant/ construction vehicles on site is inspected daily by the appointed person and the recordings of such placed on an applicable register 3.1.3 The Construction Manager must ensure that an updated service/ maintenance report is available for each plant/ construction vehicle and issued by a competent mechanic | | 3,8 |
| | b) Oil or petrol spills | <input checked="" type="checkbox"/> | 1 | 1 | 1 | 3 | 80% | 20% | |
| | 3.1 Oil or petrol spills could result in ground contamination | | | | | | 3.1.1 The Construction Manager must ensure that all trucks are deemed road worthy, free of oil spills and the recent service/ maintenance and daily inspection records are in place 3.1.2 Ensure that the requirements of the Environmental Management Plan are adhered to and vehicles are equipped with a spill control kit | | |
| 3.2 Setting up of temporary road works signage on informal road for site access at Km 18+200 | a) Placing of incorrect temporary works traffic signage at locations | <input checked="" type="checkbox"/> | 16 | 5 | 4 | 25 | 60% | 40% | 41,7 |
| | 3.2 Misinformation may cause drivers to become unable to discern what to do resulting in accidents and irate members of the public | | | | | | 3.2.1 The Construction Manager must ensure that a basic suitable Traffic Management Plan is developed and implemented 3.2.2 All temporary road traffic signage must comply with the SARTSM where required | | |

380
#



| | | | | | | | | | | | | |
|---|---|---|---|-------------------------------------|----|---|---|----|---|-----|-----|------|
| | | b) Handling of signage and placement of signage without wearing the correct PPE | 3.2 Handling of signage without gloves, reflective vests and safety boots may result in injuries and/ or been stuck by passing vehicles | <input checked="" type="checkbox"/> | 2 | 5 | 2 | 9 | 3.2.1 The Construction Manager must ensure that a task specific risk assessment for traffic management and PPE usage and control is implemented | 40% | 60% | 22,5 |
| | 3.3 Traffic Interface | a) Contractor Plant & Public interfacing | 3.3 Contractor Plant & Public vehicles and pedestrians collisions will result in severe injuries | <input checked="" type="checkbox"/> | 16 | 2 | 1 | 19 | 3.3.1 The Construction Manager must ensure that Contractor's Plant & Public interfacing is minimised | 80% | 20% | 23,8 |
| 4 | Alterations & Renovations to Existing Structures | | | | | | | | | | | 132 |
| | 4.1 Removing existing Asbestos roofing, gutters, downpipes and asbestos dust within the roof void | a) Inhalation of asbestos dust/ fibres | 4.1 Inhalation of Asbestos dust/ fibres, may result in respiratory disease | <input checked="" type="checkbox"/> | 16 | 2 | 3 | 21 | 4.1.1 The Construction Manager must ensure that an approved/ DoE&L registered Asbestos removal Contractor is appointed as contemplated in the Asbestos Regulations, 2002 4.1.2 The Construction Manager must ensure that a certificate of safe disposal & clearance is provided by the appointed Approved Asbestos Contractor 4.1.3 The Construction Manager must ensure that appropriate mandatory warning signage is displayed, employees trained and adequate personal dust protection is utilized | 60% | 40% | 35 |

381 *[Handwritten signature]*



| | | | | | | | | | | | |
|--|--|--|-------------------------------------|---|---|---|----|---|-----|-----|----|
| | e) Harness Failure | 4.1 Harness failure may result in workers falling resulting in severe to critical injuries or death | <input checked="" type="checkbox"/> | 8 | 3 | 3 | 14 | 4.1.1 The Construction Manager must ensure that the harnesses purchased conform to SANS 50361 and workers trained in its use, care and maintenance requirements | 80% | 20% | 18 |
| | f) Use of defective Ladders | 4.1 The use of defective ladders could result in ladders breaking and employees injured | <input checked="" type="checkbox"/> | 4 | 4 | 3 | 11 | 4.1.1 The Construction Manager must ensure that ladders are inspected by a competent Inspector and the findings recorded in an applicable register 4.1.2 The Construction Manager must further ensure that all persons utilizing portable ladders are suitably trained in their safe use | 60% | 40% | 18 |
| | g) Defective Portable Electrical Tools | 4.1 The use of defective portable electrical tools may result in critical injuries | <input checked="" type="checkbox"/> | 4 | 4 | 1 | 9 | 4.1.1 The Construction Manager must ensure that all portable electrical tools are inspected before use by a competent person and the findings recorded in an applicable register | 60% | 40% | 15 |
| | a) Untrained erectors/assistants | 4.2 The use of untrained erectors/assistants may result in falls from elevated positions | <input checked="" type="checkbox"/> | 8 | 5 | 2 | 15 | 4.2.1 The Construction Manager must ensure that only trained personnel are utilized | 60% | 40% | 25 |
| | b) No lifeline installed | 4.2 No lifeline installed will result in employees not attaching to a secure anchor point resulting in falls from height | <input checked="" type="checkbox"/> | 8 | 5 | 2 | 15 | 4.2.1 The Construction Manager must ensure that a site specific Fall Protection Plan is developed for implementation which includes the use of SABS approved lifelines | 80% | 40% | 19 |

383



| | | | | | | | | | | | |
|--|--------------------------------------|--|-------------------------------------|---|---|---|----|---|-----|-----|----|
| | c) Unsafe anchorage | 4.2 Attaching safety harnesses to unsafe anchor points may result in falls from height due to anchor point failure | <input checked="" type="checkbox"/> | 8 | 5 | 2 | 15 | 4.2.1 The Construction Manager must ensure that a site specific Fall Protection Plan is developed for implementation which includes the identification of safe anchor points | 80% | 40% | 19 |
| | d) Falling material or tools | 4.2 Falling materials or tools may result in severe head trauma injuries to workers below | <input checked="" type="checkbox"/> | 8 | 5 | 2 | 15 | 4.2.1 The Construction Manager must ensure that a site specific Fall Protection Plan is developed for implementation which includes the inclusion of the drop zone beneath the work areas and tools carried in waist tool bag or similar | 80% | 20% | 19 |
| | e) The use of unsafe scaffolding | 4.2 The use of unsafe Scaffolding can result in critical injury in the event of a collapse or a fall | <input checked="" type="checkbox"/> | 8 | 5 | 3 | 16 | 4.2.1 The Construction Manager must ensure that the Scaffolding conforms to SANS 10085 and has been declared safe to work on. This must be noted by a "safe for use" green tag attached to the scaffolding and signed off by the competent Scaffolding Inspector 4.2.2 The Construction Manager must further ensure that where multiple scaffolding bays are erected, the scaffolding must be numbered and the corresponding numbers reflected in the respective registers | 80% | 20% | 20 |
| | f) Working from a fall risk position | 4.2 Working from a fall risk position may result in falls and critical injuries | <input checked="" type="checkbox"/> | 4 | 4 | 2 | 10 | 4.2.1 The Construction Manager must ensure that all personnel working from fall risk positions are deemed medically fit by an Occupational Health Practitioner and a Fall | 60% | 40% | 17 |

384 392 398



| 4.3 The use of portable electrical tools | 4.3 Defective Portable Electrical Tools | 4.3 The use of defective portable electrical tools may result in critical injuries | <input checked="" type="checkbox"/> | 4 | 4 | 1 | 9 | 4 | 1 | 9 | 60% | 40% | 15 | Protection Plan developed and implemented | 4.3.1 The Construction Manager must ensure that all portable electrical tools are inspected before use by a competent person and the findings recorded in an applicable register 4.3.2 The Construction Manager must further ensure that all persons utilizing portable electrical tools are suitably trained in their safe use | 60% | 40% | 15 |
|--|--|--|-------------------------------------|---|---|---|----|---|---|----|-----|-----|----|---|--|-----|-----|----|
| 4.4 The use of Ladders | 4.4 Defective Ladders | 4.4 The use of defective ladders could result in ladders breaking and employees injured | <input checked="" type="checkbox"/> | 4 | 4 | 3 | 11 | 4 | 4 | 11 | 60% | 40% | 18 | 4.4.1 The Construction Manager must ensure that ladders are inspected by a competent inspector and the findings recorded in an applicable register 4.4.2 The Construction Manager must further ensure that all persons utilizing portable ladders are suitably trained in their safe use | 60% | 40% | 18 | |
| 4.5 Painting | a) Preparation of walls/ door & window frame surfaces b) Inhalation of Primer/Paint | 4.5 Preparation of walls surface will generate excessive silica dust resulting in respiratory illness 4.5 Inhalation of paint could result in respiratory illness | <input checked="" type="checkbox"/> | 4 | 5 | 2 | 11 | 4 | 5 | 11 | 60% | 40% | 18 | 4.5.1 The Construction Manager must ensure that adequate PPE is used and the appropriate mandatory warning signage displayed | 60% | 40% | 18 | |
| | | | <input checked="" type="checkbox"/> | 4 | 5 | 2 | 11 | 4 | 5 | 11 | 60% | 40% | 18 | 4.5.1 The Construction Manager must ensure that the MSDS for the applied primer/paint is on hand and all workers are aware of the risks of paint inhalation | 60% | 40% | 18 | |

395



| | | | | | | | | | | | | |
|--|---|---|-------------------------------------|--|----|---|---|----|---|-----|-----|----|
| | c) Paint exposed to a heat source | 4.5 Paint exposed to a heat source may result in fires | <input checked="" type="checkbox"/> | | 8 | 1 | 4 | 13 | 4.5.1 The Construction Manager must ensure that workers are instructed in the risks and where appropriate relevant warning signage displayed 4.5.2 The Construction Manager must ensure that an adequate number of workers are trained in basic firefighting | 60% | 40% | 22 |
| | d) Failure to have a basic, site specific emergency management plan | 4.5 Failure to have a basic, site specific Emergency Management Plan may result in injury or further damage to property | <input checked="" type="checkbox"/> | | 16 | 1 | 2 | 19 | 4.5.1 The Construction Manager must ensure that a site specific Emergency Management Plan is developed for implementation | 60% | 40% | 32 |
| | e) Ergonomics | 4.5 Poor ergonomics may result in muscular skeletal injuries | <input checked="" type="checkbox"/> | | 4 | 5 | 4 | 13 | 4.5.1 The Construction Manager must ensure that a SWP is developed, implemented and that all employees are instructed in the content of the task specific risk assessment | 60% | 40% | 22 |
| | f) Inhalation of dust and paint fumes | 4.5 Inhalation of dust and/ or paint fumes may cause respiratory illness | <input checked="" type="checkbox"/> | | 2 | 5 | 1 | 8 | 4.5.1 The Construction Manager must ensure that appropriate mandatory warning signage displayed, employees trained and adequate personal respiratory protection is utilized | 60% | 40% | 13 |

386 384 386



| | | | | | | | | | | | | |
|---|---|---|-------------------------------------|--|---|---|---|----|----|-----|-----|----|
| | g) The use of defective hand tools | 4.5 The use of defective hand tools may result in injuries | <input checked="" type="checkbox"/> | | | 2 | 5 | 4 | 11 | 60% | 40% | 18 |
| | h) Employees struck by falling material | 4.5 Employee being struck by falling materials will result in injuries | <input checked="" type="checkbox"/> | | 2 | 5 | 4 | 11 | | 60% | 40% | 18 |
| 4.6 Electrical Installation and/ or connections, perimeter lighting and security control measures | a) Employee Competency | 4.6 Utilizing incompetent electricians may result in shock | <input checked="" type="checkbox"/> | | 4 | 1 | 1 | 6 | | 60% | 40% | 10 |
| | b) Working from a fall risk position | 4.6 Working from a fall risk position may result in falls and critical injuries | <input checked="" type="checkbox"/> | | 4 | 4 | 2 | 10 | | 60% | 40% | 17 |

387005

[Signature]



Department of Health
PROVINCE OF KWAZULU-NATAL

Client: Department of Health
Project: Murchison Staff Accommodation
Document: Client Baseline Risk Assessment



| | | | | | | | | | | | | | |
|--------------------------------|--|--|--|-------------------------------------|--|---|---|---|----|--|-----|-----|----|
| | | c) No lockout procedure for connecting into existing electrical supply | 4.6 No lockout procedure implemented could result in electrocution | <input checked="" type="checkbox"/> | | 8 | 2 | 2 | 12 | 4.6.1 The Construction Manager must ensure that a lockout procedure is developed and a site specific risk assessment developed for implementation | 60% | 40% | 20 |
| | | d) Ergonomics | 4.6 Poor ergonomics may result in muscular skeletal injuries | <input checked="" type="checkbox"/> | | 4 | 5 | 4 | 13 | 4.6.1 The Construction Manager must ensure that a SWP is developed, implemented and that all employees are instructed in the content of the site specific risk assessment | 60% | 40% | 22 |
| 4.6 Bricklaying and Plastering | | a) Working from height | 4.6 Working from height may result in falls and critical injuries | <input checked="" type="checkbox"/> | | 4 | 4 | 2 | 10 | 4.6.1 The Construction Manager must ensure that all personnel working from a fall risk positions are deemed medical fit by an Occupational Health Practitioner and a Fall Protection Plan developed and implemented | 60% | 40% | 17 |
| | | b) Ergonomics | 4.6.1 Poor ergonomics may result in muscular skeletal injuries | <input checked="" type="checkbox"/> | | 4 | 2 | 4 | 10 | 4.6.1.1 The Construction Manager must ensure that a SWP is developed, implemented and that all employees are instructed in the content of the task specific risk assessment | 60% | 40% | 17 |
| | | c) The use of unsafe scaffolding | 4.6.1 The use of unsafe Scaffolding can result in critical injury in the event of a collapse or a fall | <input checked="" type="checkbox"/> | | 8 | 5 | 3 | 16 | 4.6.1 The Construction Manager must ensure that the Scaffolding conforms to SANS 10085 and has been declared safe to work on. This must be noted by a "safe for use" green tag attached to the scaffolding and signed off by the competent Scaffolding Inspector | 80% | 20% | 20 |

388 506 387

Document No: ORM/20200406/01
Revision: 00
Date: 2020-09-14



| | | | | | | | | | | | | |
|------------|---|--|-------------------------------------|--|----|---|---|----|--|-----|-----|----|
| | d) Falling Hazards | 4.6.1 Falling hazards may result in severe to critical injuries | <input checked="" type="checkbox"/> | | 4 | 2 | 1 | 7 | 4.6.1 The Construction Manager must ensure that scaffolding bays used to place equipment is equipped with toe boards and erectors trained in the task specific risk assessment 4.6.2 The Construction Manager must ensure that adequate warning signage is displayed ie. "working at height hazard" and a drop zone established | 80% | 20% | 9 |
| | e) Overloading Scaffolding | 4.6.1 Overloading Scaffolding may result in scaffolding collapse and multiple injuries | <input checked="" type="checkbox"/> | | 16 | 5 | 4 | 25 | 10.1.1 The competent Scaffolding Inspector must ensure that the Scaffolding conforms SANS 10085 and the loading of structure per m ² | 60% | 40% | 42 |
| 4.7 Tiling | a) Removing existing tiles/ wooden flooring | 4.7 Removing existing tiles/wooden flooring could result in minor cuts or scratches | <input checked="" type="checkbox"/> | | 1 | 5 | 1 | 7 | 4.7.1 The Construction Manager must ensure that all employees are made aware of the inherent risks of the activity | 60% | 40% | 12 |
| | b) Dust inhalation | 4.7 Dust inhalation may cause respiratory illness | <input checked="" type="checkbox"/> | | 2 | 5 | 1 | 8 | 4.7.1 The Construction Manager must ensure that appropriate mandatory warning signage displayed, employees trained and adequate personal dust protection is utilized | 60% | 40% | 13 |
| | c) Noise | 4.7 Excessive continuous noise may result in NIHL | <input checked="" type="checkbox"/> | | 4 | 5 | 2 | 11 | 4.6.1 The Construction Manager must ensure that adequate noise protection is utilized and mandatory warning signage displayed | 80% | 20% | 14 |
| | d) Ergonomics | 4.7 Poor ergonomics may result in muscular skeletal injuries | <input checked="" type="checkbox"/> | | 4 | 2 | 4 | 10 | 4.7.1 The Construction Manager must ensure that a SWP is developed, implemented and that all employees are instructed in the content of this risk assessment | 60% | 40% | 17 |

3897



| | | | | | | | | | | | | |
|--------------------------|--------------------------------------|---|-------------------------------------|-------------------------------------|---|---|---|----|---|-----|-----|----|
| 4.8 Ceiling Installation | a) Unsafe Ladder(s) | 4.8 The use of unsafe ladder(s) could result in injuries | <input checked="" type="checkbox"/> | | 4 | 5 | 2 | 11 | 4.8.1 The Construction Manager must ensure that all ladders used on site complies with the General Safety Regulations and that a competent employee is appointed to inspect the ladder(s) | 80% | 20% | 14 |
| | b) Working from a fall risk position | 4.8 Working from a fall risk position may result in falls and critical injuries | <input checked="" type="checkbox"/> | | 4 | 4 | 2 | 10 | 4.8.1 The Construction Manager must ensure that all personnel working from a fall risk positions are deemed medical fit by an Occupational Health Practitioner and a Fall Protection Plan developed and implemented | 60% | 40% | 17 |
| | c) Ergonomics | 4.8 Poor ergonomics may result in muscular skeletal injuries | <input checked="" type="checkbox"/> | | 4 | 5 | 4 | 13 | 4.8.1 The Construction Manager must ensure that a SWP is developed, implemented and that all employees are instructed in the content of the task specific risk assessment | 60% | 40% | 22 |
| 4.9 Handling of Cement | a) Cement | 4.9 Employees continuous inhalation of cement may result in respiratory illnesses | <input checked="" type="checkbox"/> | | 4 | 4 | 3 | 11 | 4.9.1 The Construction Manager must ensure that all employees are instructed of the risk of inhaling cement 4.9.2 All employees handling cement must be provided with an appropriate level dust mask | 60% | 40% | 18 |
| | b) Cement package | 4.9 Cement packages could enter the water course and cause environmental damage | | <input checked="" type="checkbox"/> | 2 | 5 | 3 | 10 | 4.9.1 The Construction Manager must ensure that a site specific Waste Management Plan is developed and implemented | 60% | 40% | 17 |

390



| | | | | | | | | | | | | | |
|--|--|---|---|-------------------------------------|--|---|---|---|----|--|-----|-----|----|
| | | c) Ergonomics | 4.9 Poor ergonomics may result in muscular skeletal injuries | <input checked="" type="checkbox"/> | | 4 | 5 | 4 | 13 | 4.9.1 The Construction Manager must ensure that a SWP is developed, implemented and that all employees are instructed in the content of this risk assessment | 60% | 40% | 22 |
| | 4.10 Placement of Formwork and Support Work for suspended floor slab | a) Incompetent Erector, Designer and Supervisor or b) Defective Formwork and Support Work | 4.10 Incompetent personnel may result in severe injuries or collapses 4.10 Defective Formwork and Support Work may result in equipment failure and severe injuries | <input checked="" type="checkbox"/> | | 4 | 2 | 3 | 9 | 4.10.1 The Construction Manager must ensure that the personnel are deemed competent as per the requirements of the Construction Regulations 12 (Temporary Works) | 60% | 40% | 15 |
| | | c) Installation of steel mesh | 4.10 employees handling steel mesh could result in cuts or puncture wounds | <input checked="" type="checkbox"/> | | 1 | 5 | 3 | 9 | 4.10.1 The Construction Manager must ensure that all the equipment is carefully examined by a competent persons before use | 80% | 20% | 11 |
| | 4.11 Pouring Ready Mix Concrete | a) Concrete Truck tipping over | 4.11 The Concrete Truck tipping over could result in serious injury to the Operator and damage to the Plant | <input checked="" type="checkbox"/> | | 8 | 2 | 1 | 11 | 4.10.1 The Construction Manager must ensure that employees are trained in their task specific risk assessment | 60% | 40% | 15 |
| | | b) Concrete splashing on skin and eyes | 4.11 Employees could sustain chemical burns and eye injuries | <input checked="" type="checkbox"/> | | 8 | 2 | 1 | 11 | 4.10.1 The Construction Manager must ensure that safe access to pouring platform is created before the truck arrives on site | 80% | 20% | 14 |
| | | | | <input checked="" type="checkbox"/> | | 8 | 2 | 1 | 11 | 4.10.1 The Construction Manager must ensure that all staff are trained in the MSDS and are issued with the correct PPE | 80% | 20% | 14 |

391



| | | | | | | | | | | | | | | |
|---|-----------------------|---|---|-------------------------------------|--|--|---|---|---|-----|---|-----|-----|----|
| | | | | | | | | | | 870 | | | | |
| 5 | Excavation Works | | | | | | | | | | | | | |
| | 5.1 Excavating | a) Open Excavations | 5.1 Open excavations could result in employees falling into it | <input checked="" type="checkbox"/> | | | 4 | 2 | 3 | 9 | 5.1.1 The Construction Manager must ensure that only excavations necessary for the day is dug and backfilled by end of day 5.1.2 The Construction Manager must ensure that open excavations (if necessary) are barricaded with a barrier or fence-like structure of at least 1m in height. (Requirements of CR 13 must be met) | 80% | 20% | 11 |
| | 5.2 Manual Excavation | a) The use of Hand tools (Picks, spades etc) b) Working in natural elements, sun, rain, glare & wind c) Poor Ergonomics | 5.2 An employee using a pick could strike the employee in front/rear resulting in injury 5.2 Extreme heat may result in heat strokes 5.2 Poor ergonomics may result in muscular skeletal injuries | <input checked="" type="checkbox"/> | | | 4 | 5 | 3 | 12 | 5.2.1 The Construction Manager must ensure that employees are instructed in the contents of the task specific risk assessment 5.2.1 The Construction Manager must ensure that all employees have undergone medical examinations by an Occupational Health Practitioner and the requirements of the Environmental Regulations for Workplaces 2 are adhered to | 60% | 40% | 20 |
| | | | | <input checked="" type="checkbox"/> | | | 8 | 2 | 3 | 13 | 5.2.1 The Construction Manager must ensure that a SWP is developed, implemented and that all employees are instructed in the content of the site specific risk assessment | 60% | 40% | 22 |
| | | | | <input checked="" type="checkbox"/> | | | 4 | 5 | 4 | 13 | | 60% | 40% | 22 |

392 310 356



| | | | | | | | | | | | | |
|---------------------------|--|---|-------------------------------------|--|----|---|---|----|---|-----|-----|----|
| 5.3 Mechanical Excavation | a) The use of Defective Plant/ machinery | 5.3 The use of a defective plant/ machinery may result in accidents | <input checked="" type="checkbox"/> | | 4 | 1 | 1 | 6 | 5.3.1 The Construction Manager must verify that all plant/ machinery utilized on site has a recent service inspection register in place and signed off by the relevant Technical Manager | 60% | 40% | 10 |
| | b) The use of an Incompetent Operator | 5.3 The use of an incompetent Operator may result in accidents | <input checked="" type="checkbox"/> | | 8 | 3 | 1 | 12 | 5.3.1 The Construction Manager must verify that the Operator is deemed competent to operate that specific plant and is medically fit 5.3.2 The H&S Officer must take cognisance of the requirements of Driven Machinery Regulations 2015 | 60% | 40% | 20 |
| | c) Accessing Excavations >1.5m | 5.3 Accessing Excavations > 1.5m may result in multiple fatalities due to cave-ins | <input checked="" type="checkbox"/> | | 16 | 5 | 4 | 25 | 5.3.1 The Construction Manager must ensure that excavations are shored/braced or vertical walls sloped to 45 degrees where reasonably practicable and the excavation declared safe for use by the competent appointed Excavation Supervisor before employees are allowed access | 80% | 20% | 31 |
| | d) Stagnant Water | 5.3 Stagnant water could result in water contamination and health risk to employees | <input checked="" type="checkbox"/> | | 4 | 3 | 4 | 11 | 5.3.1 The Construction Manager must ensure that temporary drainage is implemented | 80% | 20% | 14 |
| | e) Defective dewatering machinery | 5.3 Defective dewatering machinery may result in ground contamination | <input checked="" type="checkbox"/> | | 1 | 4 | 2 | 7 | 5.3.1 The Contract Manager must ensure that all dewatering machinery is inspected before use and the recent maintenance history on file | 80% | 20% | 9 |

3934



| | | | | | | | | | | |
|----------------------------------|--|--|-------------------------------------|----|---|---|----|-----|-----|----|
| 5.4 Water and Sewer Reticulation | a) Employee Competency | 5.4 Utilizing incompetent Plumbers may result in water leaks and property damage | <input checked="" type="checkbox"/> | 4 | 1 | 1 | 6 | 60% | 40% | 10 |
| | b) No valid Letter of Good Standing for local Subcontractors | 5.4 No valid Letters of Good Standing for local Subcontractors may result in injured employees not being treated at the nearest Hospital | <input checked="" type="checkbox"/> | 4 | 5 | 3 | 12 | 60% | 20% | 20 |
| 188 | | | | | | | | | | |
| 6 | Emergency Management | | | | | | | | | |
| | 6.1 Development and Implementation of an Emergency Management Plan for all anticipated emergency scenarios | a) Failure to have a site specific Emergency Management Plan | <input checked="" type="checkbox"/> | 16 | 5 | 5 | 26 | 60% | 40% | 43 |
| | | 6.1 Failure to have a site specific Emergency Management Plan may result in injury or damage to property | | | | | | | | |

394 *[Handwritten signature]*



| | | | | | | | | | | | |
|------------|--|---|-------------------------------------|----|---|---|----|--|-----|-----|----|
| | b) Workers not trained in the Emergency Plan | 6.2 Workers not trained in the Emergency Plan may result in their inability to effectively respond to emergencies | <input checked="" type="checkbox"/> | 8 | 2 | 5 | 15 | 6.2.1 The Construction Manager must ensure that workers are adequately and regularly trained to respond to emergencies | 60% | 40% | 25 |
| | c) Insufficient or no emergency equipment or personnel | 6.3 Insufficient or no emergency equipment or personnel on site may result in emergencies being critical | <input checked="" type="checkbox"/> | 16 | 2 | 3 | 21 | 6.3 The Construction Manager must ensure that a suitable number of employees are appointed to the Emergency Team and that First Aid boxes, First Aiders, Fire team members and any other equipment as identified during a risk assessment process is on site | 60% | 40% | 35 |
| 103 | | | | | | | | | | | |
| 7 | Subcontractor Management | | | | | | | | | | |
| | a) Failure to adequately assess Subcontractor S.H.E Management System before work commences and at regular intervals | 7.1 Failure to manage subcontractor may result in injury and non-compliance to legislation | <input checked="" type="checkbox"/> | 8 | 5 | 3 | 16 | 7.1.1 The H&S Officer must ensure that the appointed subcontractor S.H.E system is audit monthly and on site activities supervised or monitored | 60% | 40% | 27 |

395243

1083



| | | | | | | | | | | |
|---|--|--|-------------------------------------|---|---|---|----|-----|-----|----|
| | b) Inadequate Supervision | 7.2 Inadequate Supervision may result in a high level of employee unsafe behaviour | <input checked="" type="checkbox"/> | 8 | 1 | 2 | 11 | 80% | 20% | 14 |
| | c) Utilizing incompetent Subcontractors | 7.3 Utilizing incompetent Subcontractors may result in accidents | <input checked="" type="checkbox"/> | 8 | 1 | 2 | 11 | 60% | 20% | 18 |
| | | 7.3 Utilizing incompetent Subcontractors may result in damage to the environment | <input checked="" type="checkbox"/> | 2 | 2 | 2 | 6 | 60% | 20% | 10 |
| | d) No valid Letter of Good Standing for local Subcontractors | 7.4 No valid Letters of Good Standing for local Subcontractors may result in injured employees not being treated at the nearest Hospital | <input checked="" type="checkbox"/> | 4 | 5 | 3 | 12 | 60% | 20% | 20 |
| 8 | Community Risk Management | | | | | | | | | 89 |

396



| | | | | | | | | | | | | |
|--|---|---|-------------------------------------|--|----|---|---|----|---|-----|-----|----|
| | a) Failure to adequately monitor and manage the multi-faced social issues | 8.1 Failure to manage social issues could result in violence protest and injury to employees | <input checked="" type="checkbox"/> | | 16 | 3 | 5 | 24 | 8.1.1 The Construction Manager must ensure that a Community Liaison Officer (CLO) and Project Steering Committee is appointed to manage social issues | 60% | 40% | 40 |
| | b) No regular Project Steering Committee meeting held | 8.1 Failure to manage social issues could result in violence protest and damage to property and environment 8.2 No regular monthly Project Steering Committee meetings held may cause H&S/Social issues to be overlooked resulting in violent protest and injuries | <input checked="" type="checkbox"/> | | 16 | 1 | 3 | 20 | 8.1.1 The Construction Manager must ensure that a Community Liaison Officer (CLO) and Project Steering Committee is appointed to manage social issues | 60% | 40% | 33 |
| | c) Project Steering Committee not regularly briefed on Health and Safety | 8.3 Project Steering Committee not briefed on Health and Safety may result in work stoppages and an aggrieved workforce | <input checked="" type="checkbox"/> | | 8 | 3 | 5 | 16 | 8.2.1 The Contracts Manager must ensure that monthly Project Steering Committee meetings are held with all the relevant role-players present | 60% | 40% | 40 |
| | d) Robbery & High jacking of Contractor's vehicles and personal possessions | 8.4 High jacking/Robberies may result in injuries | <input checked="" type="checkbox"/> | | 4 | 2 | 3 | 9 | 8.3.1 The Construction Manager must ensure that Project Steering Committee are regularly briefed on project Health and Safety risks | 60% | 40% | 27 |
| | | | <input checked="" type="checkbox"/> | | 4 | 2 | 3 | 9 | 8.4.1 The Construction Manager must ensure that adequate Security is deployed to site and that the Project Steering Committee is appraised regularly | 60% | 40% | 15 |

397 JTS



| | | | | | | | | | 155 | | |
|-----|--|---|---|-------------------------------------|----|---|---|----|-----|-----|----|
| 9. | Occupational Health - COVID 19 | | | | | | | | | | |
| 9.1 | Development and Implementation of a Workplace Plan | a) Failure to have a site/ company specific COVID-19 Workplace Plan | 9.1 Failure to have a site/ company specific COVID-19 Workplace Plan may result in spreading of the virus | <input checked="" type="checkbox"/> | 16 | 5 | 5 | 26 | 60% | 40% | 43 |
| | | b) Workers not trained in the COVID-19 Workplace Plan | 9.2 Workers not trained in the COVID-19 Workplace Plan may result in their inability to effectively understand the pandemic and the associated dangers and/ or control measures | <input checked="" type="checkbox"/> | 16 | 3 | 5 | 24 | 60% | 40% | 40 |
| | | c) Insufficient/ inadequate or no PPE | 9.2 Insufficient/ inadequate or no PPE on site may result in infections and spread of the virus | <input checked="" type="checkbox"/> | 16 | 2 | 3 | 21 | 60% | 40% | 35 |
| | | d) Incorrect use or disposal of PPE | 9.1 Incorrect use or disposal of PPE may result in contamination or spreading of the virus | <input checked="" type="checkbox"/> | 16 | 2 | 3 | 21 | 60% | 40% | 35 |

398 516



| | | | | | | | | | | | | |
|--|------------------------------------|---|--|-------------------------------------|----|---|---|----|--|-----|-----|----|
| | 9.2 Employee Public Transportation | a) Employees utilizing public transportation may be exposed to contracting COVID - 19 | 9.2 Continuous exposure to COVID -19 without adequate protection may result in employees contracting the virus | <input checked="" type="checkbox"/> | 16 | 5 | 5 | 26 | <p>9.2.1 The Construction Manager must ensure that Office support staff to remain working from home and consider the following in their Workplace Plan ie.</p> <ol style="list-style-type: none"> 1) Provide transportation from designated non congested pick stop where feasible and where not possible to avoid, use of public transport to comply with COVID-19 transport regulations and specified limitations 2) Provide employees with information on the virus and precautions to take during travel ie: if possible, maintain social distancing (at least 2 m) between yourself and anyone else when travelling 3) Frequently clean hands by using alcohol-based hand rub or soap and water 4) Avoid touching eyes, nose or mouth 5) Always wear a suitable face mask 6) Cancel travel for employees experiencing symptoms of the virus 7) Regular testing of body temperature | 80% | 20% | 33 |
| | 9.3 Site Access | a) Accessing site by employees & non-employees | 9.3 Accessing site by employees & non-employees may result in COVID-19 spreading | <input checked="" type="checkbox"/> | 8 | 2 | 2 | 12 | <p>9.3.1 The Construction Manager must ensure that their Workplace Plan considers the following ie.</p> <ol style="list-style-type: none"> 1) The prohibition/stopping of all | 80% | 20% | 15 |

399



| | | | | | |
|--|--|---------------------|--|--|--|
| | | and/ or contraction | <p>non-essential visitors which should include the screening of all employees and non-employees with non-contact thermometers</p> <p>2) The body temperature check with a thermometer must be conducted upon employee's and non-employees/ visitors arrival as well as at departure</p> <p>3) Further it is recommended that the Contractor introduces staggered start and finish times to reduce congestion and contact at all times</p> <p>4) The H&S Officer must ensure that the site access points are monitored to enable social distancing</p> <p>5) Change the number of access points, either increase to reduce congestion or decrease to enable monitoring</p> <p>6) Disinfectant is to be placed in the trough and all shoes coming onto site or leaving site will be disinfected</p> <p>7) Require all workers to wash or clean their hands before entering or leaving the site</p> <p>8) Allow plenty of space (two metres) between people waiting to enter site</p> <p>9) Regularly clean common contact surfaces in reception, office, access control and delivery areas e.g. scanners, turnstiles, screens,</p> | | |
|--|--|---------------------|--|--|--|

100 918 [Signature]



| | | | | | | | | | | | | |
|--|--------------|-------------------------------|--|-------------------------------------|---|---|---|----|--|-----|-----|----|
| | 9.6 Meetings | a) Regular Meeting Attendance | 9.6 Attendance of regular meetings may result in COVID - 19 infections | <input checked="" type="checkbox"/> | 8 | 5 | 3 | 16 | 9.6.1 The Construction Manager must ensure that their Workplace Plan considers the following ie. 1) Reduce frequency of meetings 2) Only necessary meeting participants should attend 3) Attendees should be two metres apart from each other 4) Rooms should be well ventilated / windows opened to allow fresh air circulation or consider holding meetings in open areas where possible | 80% | 20% | 20 |
| | | b) H&S Compliance Training | 9.6.2 H&S compliance training may result in COVID-19 transmission and infections | <input checked="" type="checkbox"/> | 8 | 5 | 3 | 16 | 9.6.2 The Construction Manager must ensure that only mandatory on-site H&S training be undertaken in smaller groups (<8) and adequately spaced in outside areas with the appropriate face masks worn throughout | 80% | 20% | 20 |

403
851



| | | | | | | | | | | | | |
|---------------------------------|--|--|--|-------------------------------------|----|---|----|--|---|-----|-----|----|
| | 9.7 Monitoring and enforcement | a) No competent Manager appointed to monitor and enforce COVID - 19 precautionary measures | 9.7.1 No designated person appointed to monitor and enforce government H&S measures may result in transmissions and infections | <input checked="" type="checkbox"/> | 16 | 5 | 5 | 26 | 9.7.1 The Construction Manager must ensure that the responsible appointee enforces COVID-19 policies, procedures and precautionary measures | 80% | 20% | 33 |
| | b) COVID-19 warning, informative and prohibitive posters & signage not displayed around the site | 9.7.1 COVID-19 posters & signage not displayed around the site may result in the risk not being reinforced and overlooked resulting in unsafe behaviour and possible transmission of the virus | <input checked="" type="checkbox"/> | 8 | 2 | 2 | 12 | 9.7.2 The Construction Manager must ensure that only applicable prohibitive, warning and informative signage and posters are placed around the site | 60% | 40% | 20 | |
| 9.7 Employee Exposure & Tracing | a) Exposure to an infected person | 9.7 Exposure to an infected person could result in the contracting and/ or spreading of the virus | <input checked="" type="checkbox"/> | 8 | 5 | 5 | 18 | 9.7.1 The Construction Manager must ensure that their Workplace Plan considers the following ie. 1) That security personnel or H&S Officer include a site register in order to contact trace employees or visitors that were exposed to the infected person | 60% | 40% | 30 | |

404352 398

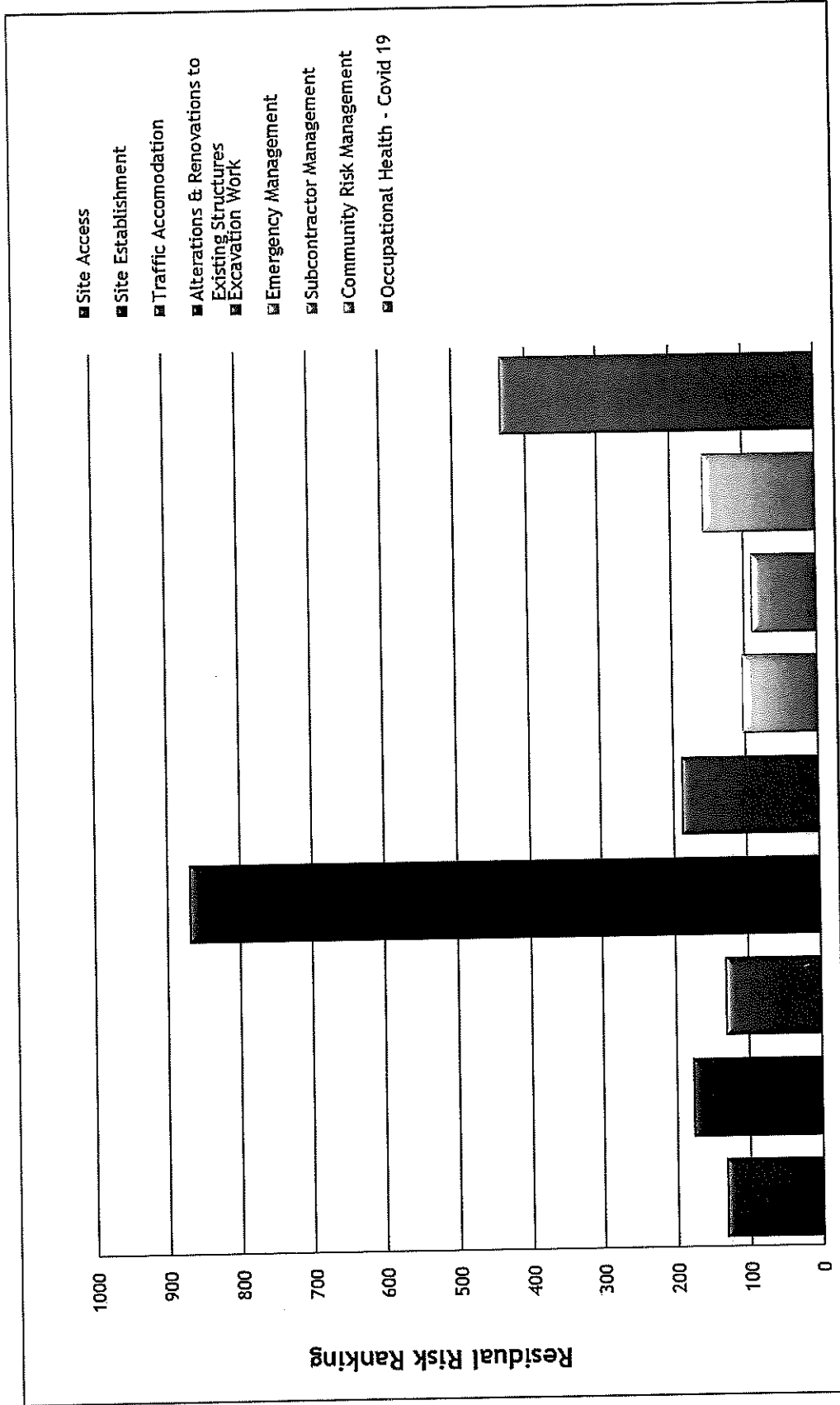


| | | | | | | | | | | |
|----------------------------|--|---|-------------------------------------|----|---|---|----|---|-----|----|
| 9.9 Risk adjusted strategy | a) Level 2 to 1 risk adjusted strategy | 9.9 Phase 1 risk adjusted strategy not adequately considered resulting in an increase in of risk exposure | <input checked="" type="checkbox"/> | 16 | 5 | 5 | 26 | 9.9.1 The Construction Manager must ensure that their Workplace Plan considers governments risk adjusted strategic approach | 60% | 43 |
| | | | | | | | | | 434 | |

405



6. Project Risk Profile: - Murchison Staff Accommodation



406
152
POF

PROJECT SPECIFIC OCCUPATIONAL HEALTH AND SAFETY SPECIFICATION

FOR

THE ALTERATIONS AND RENOVATIONS TO STAFF
ACCOMMODATION AT MURCHISON MISSION



health

Department:
Health
PROVINCE OF KWAZULU-NATAL

LOCATED AT

Ray Nkonyeni Municipality

DEVELOPED BY:



Mark Heuer
CHSM
☎ 033 3961 481
☎ 033 3963 079
✉ mark@ormsa.co.za
☎ 072 949 1279
🌐 www.ormsa.co.za
BBBEE Level 1 Contributor

ISSUED BY:



SACPCMP REGISTRATION: CHSM/600/2018

407 353 #915

DOCUMENT CONTROL SHEET

| | |
|------------------|---|
| CLIENT | Department of Health Kwazulu-Natal |
| PROJECT NAME | Murchison Staff Accommodation |
| DOCUMENT TITLE | OH&S Specification for the Renovation and Alteration of Murchison Staff Accommodation |
| ORM REFERENCE NO | ORM/20200407/01 |

DOCUMENT HISTORY

| DATE | REVISION | COMPILED BY | REVIEWED BY | COMMENTS |
|---------------|----------|--------------|----------------|----------|
| 07 April 2020 | 00 | Mr. M. Heuer | Mr. D. Francis | |
| | | | | |

APPROVAL:- Designer and Project Manager

| NAME | POSITION | SIGNATURE |
|------|----------|-----------|
| | | |
| | | |
| | | |

INDEX

| | |
|--|----|
| 1. LIST OF ABBREVIATIONS..... | 5 |
| 2. DEFINITIONS | 5 |
| 3. KEY REFERENCES | 6 |
| 4. INTRODUCTION | 7 |
| 4.1 Project Description | 7 |
| 4.2 Purpose of the Occupational Health & Safety Specification | 9 |
| 4.3 Implementation of the Project Specific Occupational Health & Safety Specification .. | 10 |
| 4.4 Requirements at Tender Stage | 10 |
| 5. GENERAL REQUIREMENTS | 11 |
| 5.1 Specified Hazardous Chemical Substances | 11 |
| 6. OCCUPATIONAL HEALTH & SAFETY MANAGEMENT | 11 |
| 6.1 Structure and Organization of H&S Responsibilities | 11 |
| 6.1.1 Notification of Commencement of Construction Work | 11 |
| 6.1.2 Health and Safety Plan Framework | 11 |
| 6.1.3 Appointment of Competent Site Personnel..... | 12 |
| 6.1.4 Construction Manager | 12 |
| 6.1.5 Construction Health and Safety Officer | 12 |
| 6.1.6 H&S Representatives and H&S Meetings | 13 |
| 6.1.7 Appointment of Competent Contractors | 13 |
| 7. GENERAL RISK MANAGEMENT..... | 14 |
| 7.1 Physical, Ergonomical, Behavioural and Task Orientated Risk | 14 |
| 7.2 Medical Surveillance | 14 |
| 7.3 Asbestos Risks | 14 |
| 7.4 Noise Risks | 14 |
| 7.5 Emergency Management | 15 |
| 7.6 First Aiders and First Aid Equipment | 15 |
| 7.7 Incident Management and Compensation Claims | 15 |
| 7.8 Personal Protective Equipment (PPE) and Clothing..... | 16 |
| 7.9 Occupational Health and Safety Signage | 16 |
| 7.10 Induction of Employees and Visitors, General H&S Training..... | 17 |
| 7.11 Transportation of Personnel | 17 |
| 7.12 Management of Plant and Equipment | 17 |
| 7.13 Crane and Lifting Equipment | 17 |
| 7.14 Working from a Fall Risk Position | 18 |
| 7.15 Excavations | 18 |
| 7.16 Services | 18 |
| 7.17 Auditing and Inspections | 19 |
| 7.18 Communication on site | 19 |
| 7.19 Care of Workers on Site | 19 |
| 7.20 Discipline, Alcohol and Substance Abuse | 19 |

409357 

| | |
|--|----|
| 7.21 HIV and AIDS Programme | 20 |
| 7.22 Safety Conflict | 20 |
| 7.23 Environmental Management | 20 |
| 7.24 Occupational Health - Health Related Epidemic and Pandemics | 21 |
| | |
| 8. HEALTH AND SAFETY FILE | 22 |
| 9. NON-CONFORMANCES | 22 |
| 9.1 Failure to Comply with Provisions | 23 |

ANNEXURE A: CLOSE OUT REQUIREMENTS

ANNEXURE B: CONTRACTORS MONTHLY HEALTH AND SAFETY REPORT

ANNEXURE C: 37(2) MANDATARY AGREEMENT

ANNEXURE D: CONTRACTOR APPOINTMENT (CR 5(1)(k))

410 ~~55B~~ ~~604~~

1. LIST OF ABBREVIATIONS

| | |
|---------|---|
| AIA | Approved Inspection Authority |
| BoQ | Bill of Quantities |
| CC | Compensation Commissioner |
| CR | Construction Regulations |
| DMR | Driven Machinery Regulations |
| DoL | Department of Labour |
| FEMA | Federated Employers Mutual Association |
| GAR | General Administration Regulations |
| GSR | General Safety Regulations |
| HCSR | Hazardous Chemical Substances Regulations |
| HIRA | Hazard Identification Risk Assessment |
| H&S | Health and Safety |
| MSDS | Material Safety Data Sheet |
| OH | Occupational Health |
| OHSA | Occupational Health and Safety Act No. 85 of 1993 (as amended) |
| OHSS | Occupational Health and Safety Specification |
| PSHSS | Project Specific Health and Safety Specification |
| PC | Principal Contractor |
| PPE | Personal Protective Equipment |
| SANS | South African National Standards (Authority) |
| SACPCMP | South African Council for the Project and Construction Management Professions |
| SMME | Small, Medium and Micro-sized Enterprises |
| SWP | Safe Work Procedure |

2. DEFINITIONS

The definitions used will be those set out in the Construction Regulations, Gazette No 37305 of 7 February 2014 which are hereunder further emphasised with the following additions:

Client: Department of Health - Kwazulu-Natal

Construction Site:

Means a work place where construction work is being performed

Construction Supervisor:

Means a competent person responsible for supervising construction activities on a construction site

Designer: Means a competent person appointed by the Client as Agent to design, supervise and monitor construction on their behalf.

Fall Risk: Means any potential exposure to falling either from, off or into

Hazard: Source of or exposure to danger

Hazard Identification and Risk Assessment (HIRA) and Risk Control:

Means a documented plan, which identifies hazards, assesses the risks and details the control measures and safe working procedures which are to be used to mitigate and control the occurrence of hazards and risks during construction or operation phases.

Health and Safety Agent:

Means any competent person who acts as a representative for the Client in managing the projects health and safety and who is registered with the South African Council for the Project and Construction Management Profession (SACPCMP).

Health and Safety Plan:

Means a site, activity or project specific documented plan in accordance with the Clients Health and Safety Specification.

Induction Training:

Means once off introductory training on general health and safety issues given to all employees and visitors to the site before commencement of work on site.

Risk: Means the probability or likelihood that a hazard can result in injury or damage.

Regulation/s: Shall mean the relevant regulation/s promulgated in terms of the Occupational Health and Safety Act, No. 85 of 1993.

The Act: Means, unless the context indicates otherwise, the Occupational Health and Safety Act, No. 85 of 1993 and Regulations promulgated thereunder, as amended.

3. KEY REFERENCES

- Occupational Health and Safety Act No. 85 of 1993 and Regulations (as amended)
- Compensation for Injury and Occupational Diseases Act No. 100 of 1993 (as amended)
- South African Road Traffic Signs Manual, Chapter 13, Volume 2 (SARTSM)
- National Road Traffic Regulations (*as amended*)
- Asbestos Regulations, 2002
- Project Environmental Management Plan
- Department of Employment and Labour - Workplace Preparedness COVID-19 Guidelines

4. INTRODUCTION

The Department of Health is a state-owned business enterprise and operates within the South African legislative parameters of the Occupational Health and Safety Act 85 of 1993. With the promulgation of the revised Construction Regulations, Regulation Gazette 10113, Government Notice 84, dated 7 February 2014, the Department of Health Kwazulu-Natal seeks to fulfil its duties as espoused in clause 5.

Each year fatalities, serious injuries and poor attitudes of Contractors mar the reputation of the Construction Industry therefore the Department of Health has a responsibility to limit its risk by ensuring a zero tolerance and better practice approach to Contractors and those affiliated to this project. Thus, a high premium is placed on the health and safety (H&S) of the Department of Health, which include its employees, professional service providers, public and its physical assets. The responsibilities that the Department of Health and relevant stakeholders have toward its employees are captured in, but not limited to this document. The responsibilities stem from both moral, civil and a variety of legal obligations. The Principal Contractor is to take due cognisance of the above statement.

The Department of Health, as the Client has appointed a H&S Agent to develop this project specific Health & Safety Specification (PSHSS) for the project in order to provide the Principal Contractor making a bid or appointed to perform construction work for the project with all the relevant requirement pertaining to H&S.

4.1 Project Description

Murchison staff accommodation property is located approximately 650 metres across the road from Murchison Hospital. The site is highly vegetated in between and around the houses with direct access into the site from the N2 -22 at 18,2N.

Listed below is an overview of the work, provided to ensure that the PC's OH&S Plan and associated risk assessments developed for implementation are site specific.

In particular the works comprises:

- the removal and safe disposal of all existing roof sheeting and other asbestos containing materials
- Upgrades and additions to the staff accommodation
- Sewer and water reticulation of the entire site including connection to the municipality mains if necessary
- Electrical works including necessary upgrades and connections

4.1.1 Project Specific Restrictions and Requirements

| Site Establishment | |
|--|--|
| Restrictions / requirements | Temporary buildings and fencing are to be neat and presentable and the surrounding areas must at all times be kept in a neat, clean and sanitary condition. The Contractor must not make any excavation without the written permission of the Engineer and will be required to restore the site to its original condition on completion of the Works |
| Storage areas | In container(s) or appropriate temporary sheds |
| Security | Full time Security must be provided by the Contractor |
| Restrictions on times, access or other restrictions by Client | Normal working hours will be - 07:00 - 17:00 |
| Arrangements for access, parking, deliveries, etc | |
| Access to site by Construction Vehicles | Access to site is generally fair to good and accessible by vehicle |
| Access to site by Construction Workers and Visitors | Access is prohibited unless formal induction has been undertaken, COVID-19 disclosure questionnaire completed, adherence to COVID-19 rules/ guidelines/ precautionary measures and proof available on request |
| Speed restrictions | A maximum of 30km/hr must be adhered to on gravel roads |
| Ablutions and Welfare Arrangements | |
| Toilets & Washing facilities | Contractor to supply their own ablution and washing facilities within the allocated site camp or unless otherwise directed |
| Health & Hygiene | Contractor to supply hand wash liquid soap, sanitizer and relevant PPE for all employees and visitors |
| Drinking Water | The Contractor shall make his own arrangements for potable water or unless otherwise directed |
| Shelter | Contractor shall supply their own facilities within the allocated site camp and temporary, suitable shelter. Under no circumstances will workers be allowed to eat or rest in the bushy areas and under poorly constructed make-shift shelter |

103

414 ~~362~~ #08