

## NOTES

### 6. POWER DISTRIBUTION

ALL OF THE EXISTING ELECTRICAL SERVICES INCLUDING CIRCUITS, CABLING AND OUTLETS THAT BECOME REDUNDANT ARE TO BE REMOVED. ANY INTERRUPTION TO THE POWER SUPPLY TO ANY SERVICES OUTSIDE OF THE AREA OF WORKS MUST BE RESTRICTED TO OUTSIDE OF THE SANCTUARIES OPERATING HOURS AND MUST BE ADVISED TO THE OPERATOR IN WRITING TWO WEEKS PRIOR.

REDIRECT ANY OF THE EXISTING REMAINING SERVICES SUPPLIED FROM THE SHELKIE DISTRIBUTION BOARD TO THE NEW DB-T.

REMOVAL OF ALL EXISTING REDUNDANT SERVICES.  
REMOVE THE SHELKIE DISTRIBUTION BOARD AND ALL ASSOCIATED CABLING.

- PROVIDE DB-T AS WITH:
- SHOP DRAWINGS FOR APPROVAL.
  - IP 66 316 STAINLESS STEEL.
  - LIGHT GREY ENCLOSURE.
  - WHITE ESCUTCHEONS WITH LIFT OFF HINGES AND 1/4 TURN LATCHES TO SECURE THE ESCUTCHEON THAT REMAIN PART OF THE ESCUTCHEON.
  - 92268 KEY LOCKABLE DOOR.
  - FORM 2B1
  - ENSURE ALL CABLE CONNECTIONS CAN BE THERMALLY SCANNED WITHOUT ISOLATING THE POWER.
  - PLINTH MOUNTED.
  - ENSURE ALL CABLE CONNECTIONS CAN BE THERMALLY SCANNED WITHOUT ISOLATING THE POWER.
  - EACH CUBICAL CONTAINING SWITCHGEAR AND OR CONTROLS IS TO CONTAIN AN AUTOMATIC TEMPERATURE CONTROLLED ANTI CONDENSATION HEATER.
  - THE MAINS SUPPLY CIRCUIT BREAKER AND THE GENERATOR SUPPLY CIRCUIT BREAKERS ARE TO BE PROVIDED WITH AUXILIARY INPUTS TO ALLOW CONTROL BY THE GENERATOR CONTROL SYSTEM AND THE SOLAR PROTECTION RELAY. THE CIRCUIT BREAKERS ARE TO BE CONTROLLED VIA INTEGRATED MOTOR CONTROL UNITS.
  - ALL CIRCUIT BREAKER MOTOR CONTROL UNITS ARE TO BE 24 VOLT.
  - PROVIDE DB-T WITH A UPS AND POWER SUPPLY TO PROVIDE 200 WATTS AT 24 VOLT DC FOR SIXTY SECONDS TO POWER THE CONTROL SYSTEM.
  - DEDICATED CUBICAL TO HOUSE THE UPS AND CONTROL SYSTEM.
  - REFER TO THE CONTROL SECTION FOR THE CONTROL REQUIREMENTS.
  - ALL COMPONENTS ARE TO BE LABELLED WITH NON-STICK LABELS.
  - TWO FULL WIDTH HORIZONTAL DIN RAILS FOR FUTURE CONTROL EQUIPMENT.

PROVIDE THE DB-T ROOM AND GENERATOR WITH THE POWER OUTLETS AND LIGHTING AS NOTED.

### 7. CABLE ACCESS

PROVIDE ALL CABLE ACCESS NECESSARY TO COMPLETE THE ELECTRICAL INSTALLATION INCLUDING THOUGH NOT LIMITED TO:

- UNDERGROUND PITS.
- TRENCHED CONDUITS.
- BORED CONDUITS.
- PROVIDE FIBREGLASS SUPPORTS ON THE PIT FLOOR TO SUPPORT THE CABLING 50MM OFF THE PIT FLOOR.
- PIT 1 LID SUPPORT SYSTEM.
- PIT 1 LID.
- PIT 1 WITH AN AUTOMATIC SUMP PUMP THAT DRAINS TO STORM WATER.
- CABLE TRAYS AND CABLE LADDERS.

UNDERTAKE OPEN EXCAVATION BY VACUUM EXCAVATION IN ANY LOCATION EXISTING SERVICES CAN NOT BE ADEQUATELY LOCATED AND PROTECTED FROM MECHANICAL EXCAVATION.

PROVIDE THE PIT 1 LID SUPPORT SYSTEM AND PIT 1 LID WITH THE FOLLOWING FEATURES.

- GALVANIZED STEEL STRUCTURE MECHANICALLY FIXED TO THE PIT WALLS TO SUPPORT DB-T AND THE PIT LIDS.
- 25MM THICK MARINE PLY PIT LID C/W NON SLIP FINISH IN SECTIONS NO MORE THAN 25KG PER SECTION. DO NOT MECHANICALLY FIX THE SECTIONS OF LID IN PLACE. PROVIDE EACH SECTION WITH A 30MM DIA HOLE TO ALLOW THE SECTION TO BE LIFTED.

SEAL ALL CONDUITS TO THE PITS TO PREVENT EARTH AND MOISTURE FROM ENTERING THE PIT AROUND THE OUTSIDE OF THE CONDUITS.

PROVIDE ALL CONDUITS ENTERING A PIT WITH BELL MOUTHS OR CUT THE CONDUITS OFF FLUSH WITH THE PIT WALL AND FILE THE CONDUIT EDGES SUCH THAT THEY ARE ROUNDED WITH NO SHARP EDGES OR BURRS.

PROVIDE A NEW 600 x 600 PLASTIC PIT WITH A CLASS B LID ADJACENT TO THE EXISTING SHELKIE DISTRIBUTION BOARD. PROVIDE THE PIT WITH A 150 X 150 REINFORCED CONCRETE SURROUND COLLAR.

PROVIDE A NEW 100 DIA CONDUIT BORED UNDER THE LAKE FROM THE NEW SHELKIE PIT TO THE EXISTING MSB.

PROVIDE TWO NEW 100 DIA CONDUITS BORED FROM THE NEW SHELKIE PIT TO PIT 1.

PROVIDE A NEW 100 DIA CONDUIT FROM THE EXISTING WILD ISLAND PIT TO PIT 1.

PROVIDE A NEW 50 DIA CONDUIT FROM THE EXISTING WILD ISLAND DISTRIBUTION BOARD TO THE EXISTING WILD ISLAND PIT.

LOCATE AND REDIRECT TWO OF THE EXISTING 125 DIA CONDUITS FROM THE HOMESTEAD INTO PIT 1. CAP THE REMAINING CONDUITS AND LOCATE THE POSITION OF THE CAP DIMENSIONED OFF THE BUILDING ON THE AS CONSTRUCTED DOCUMENTS. BACKFILL ANY OPEN EXCAVATIONS.

PROVIDE CONDUITS FROM PIT 1 THROUGH THE STRUCTURE TO THE GENERATOR TO ACCOMMODATE THE GENERATOR MAINS, BATTERY CHARGER AND CONTROLS.

THE CLIENT WILL BE RESPONSIBLE FOR ANY LANDSCAPING.

UNDER NO CIRCUMSTANCES ARE BURIED DIRECT CABLES PERMITTED. RESTORE AREAS OUTSIDE THE LIMITS OF THE WORKS, WHICH HAVE BEEN DISTURBED BY THE WORKS, TO THEIR ORIGINAL CONDITION ON COMPLETION OF THE EXCAVATION. REINSTATE SURFACES TO THEIR ORIGINAL LEVEL WITHOUT SUBSIDENCE AND WITHOUT CRACKING AT JUNCTIONS WITH EXISTING SURFACES. RESTORE PAVEMENTS TO MATCH EXISTING. RE TURF ALL LAWN AREAS AFFECTED BY THE WORKS.

OTHER THAN FOR BORED CONDUITS PROVIDE A REINFORCED PLASTIC, 150MM WIDE, UNDERGROUND, YELLOW OR ORANGE COLOURED MARKING TAPE WITH THE WORDS 'WARNING - ELECTRIC CABLES BURIED BELOW' OR SIMILAR ABOVE ALL UNDERGROUND CONDUITS AT A DEPTH OF 200MM BELOW GROUND LEVEL FOR THE ENTIRE LENGTH OF ALL UNDERGROUND CONDUITS.

INSTALL ALL UNDERGROUND CONDUITS AT LEAST 500MM BELOW GROUND LEVEL AND PROVIDE EACH CONDUIT WITH A SPARE POLYPROPYLENE DRAW CORD.

OTHER THAN FOR BORED CONDUITS PROVIDE A MINIMUM SURROUNDING OF 75MM CLEAN SAND AROUND CABLES AND CONDUITS INSTALLED UNDERGROUND.

## NOTES

### 7. CONTINUED

INSTALL ALL CONDUITS EITHER STRAIGHT OR WITH LARGE RADIUS SWEEPING BENDS WITH A RADIUS 40 TIMES THE DIAMETER OF THE CONDUIT. ALL CONDUITS MUST BE INSTALLED IN SUCH A MANNER TO ALLOW SIMPLE REMOVAL AND INSTALLATION OF ADDITIONAL CABLES FOLLOWING THE COMPLETION OF THE PROJECT. WHERE UNDERGROUND CONDUIT RISE ABOVE GROUND, ENSURE THEY RISE VERTICALLY AND THEY ARE PROTECTED AT GROUND LEVEL BY A CONCRETE PLINTH EXTENDING 250MM BELOW GROUND, 100MM ABOVE GROUND. THE PLINTH IS TO EXTEND IN EACH DIRECTION BEYOND THE CONDUITS MORE THAN THREE TIMES THE DIAMETER OF THE LARGEST CONDUIT OTHER THAN THE SIDE OF THE PLINTH / CONDUIT THAT IS AGAINST A STRUCTURE. PROVIDE THE PLINTH WITH A FALL SUCH THAT WATER DOES NOT POOL AGAINST THE CONDUIT OR THE ADJACENT STRUCTURE.

PROVIDE DRAW IN PITS AS REQUIRED TO COMPLETE THE ELECTRICAL SERVICES INSTALLATION AND TO ALLOW ALL UNDERGROUND CABLING TO BE REMOVED AND REINSTALLED AFTER THE INSTALLATION IS COMPLETE. IRRESPECTIVE OF THE NUMBER OF PITS SHOWN ON THE DRAWINGS, PROVIDE ALL PITS NECESSARY TO COMPLETE THE ELECTRICAL INSTALLATION. ALL SIZES SHOWN REFER TO THE INSIDE DIMENSIONS AND ARE GIVEN AS AN ABSOLUTE MINIMUM.

WHERE INFILL LIDS ARE NOMINATED PROVIDE LIDS WITH A MINIMUM OF 50MM DEPTH TO ACCOMMODATE THE INFILL MATERIAL. ENSURE THE INFILL SECTION HAS REINFORCING WELDED TO THE PIT LID TO ALLOW PERMANENT BONDING OF THE INFILL MATERIAL TO THE LID. INFILL THE PIT LID TO THE SAME FINISH AS THE SURROUNDING HARDSCAPE.

ALL PITS ARE TO BE PROVIDED WITH KEYHOLES TO POSITIVELY LOCATE THE KEYS, AND ARE FITTED WITH PLASTIC PLUGS TO PREVENT ENTRY OF DIRT. ENSURE ALL PIT LIDS ARE CAPABLE OF BEING SECURED AND ARE NOT ACCESSIBLE WITHOUT THE USE OF A SPECIALIST TOOL. SEAL ALL PITS SUCH THAT THEY ARE VERMIN PROOF.

ENSURE ALL PITS ARE PROVIDED WITH A REINFORCED CAST INSITU CONCRETE SURROUND COLLAR A MINIMUM OF 250MM WIDE X 200MM DEEP. THE CONCRETE COLLAR IS TO FALL AWAY FROM THE PIT LIP BY 10MM OVER THE 250MM WIDTH. THE TOP OF THE COLLAR IS TO BE FLUSH SUCH THAT THE PIT CAN BE MOWED OVER AS PART OF NORMAL LAWN MOWING WITHOUT CHIPPING OR DAMAGE TO THE PIT. ALL PITS ARE TO BE A MINIMUM DIMENSION OF 350 X 350 X 700MM DEEP UNLESS NOTED OTHERWISE AND BEDDED ON A MINIMUM OF 300MM OF GRAVEL AGGREGATE.

PROVIDE EACH PIT WITH A 30MM DIAMETER WEEP HOLE IN THE BASE OF THE PIT TO ALLOW THE DISBURSEMENT OF ANY ACCUMULATED WATER. PROVIDE FIXED DRAINAGE TO THE PIT SYSTEM BY ONE OF THE FOLLOWING METHODS:

- DRAIN BACK TO THE EXISTING SYSTEM, IF PIPE WORK IS AN EXTENSION OF AN EXISTING SYSTEM.
- DRAIN FROM THE LOWEST POINT OF A PIT TO NEAREST STORMWATER DRAIN.
- DRAIN TO A SOAKAGE PIT OF ADEQUATE SIZE IF ABOVE IS NOT POSSIBLE.

LAY ALL CONDUITS WITH A DRAINAGE FALL OF AT LEAST 1:100 TO DRAIN THE PIT SYSTEM TO THE LOWEST PIT OR PITS.

IRRESPECTIVE OF THE ORIENTATION SHOWN ON THE DRAWINGS ORIENTATE THE PITS SUCH THAT THEY ARE TRUE AND SQUARE WITH THE SURROUNDING HARDSCAPE AND ARCHITECTURAL FINISHES.

ENSURE ALL CABLE ENTRIES AND EXITS WITHIN A PIT ARE LEVEL. CLEAN OUT ALL PITS PRIOR TO PRACTICAL COMPLETION. OPEN ALL OF THE PITS AT PRACTICAL COMPLETION FOR INSPECTION BY THE PROJECT MANAGER. SEAL ALL PIT LIDS ONCE THE INSPECTION IS COMPLETE. PROVIDE ELECTRONIC DIGITAL PHOTOGRAPHS FOR APPROVAL OF EACH PIT PRIOR TO ANY CABLING BEING INSTALLED THAT ALLOW THE CONDUITS TO BE CLEARLY IDENTIFIED, WITHIN FIVE WORKING DAYS AFTER THE PIT AND CONDUIT WORK HAS BEEN COMPLETED. PROVIDE ELECTRONIC DIGITAL PHOTOGRAPHS FOR APPROVAL OF EACH PIT ON COMPLETION OF ALL CABLING BEING INSTALLED THAT ALLOW THE CABLES TO BE CLEARLY IDENTIFIED, PRIOR TO PRACTICAL COMPLETION. EACH PHOTOGRAPH IS TO BE ELECTRONICALLY STAMPED WITH THE TIME AND DATE AND BE EITHER NAMED WITH DESCRIPTIVE NAME THAT ALLOWS THE LOCATION TO BE SIMPLY IDENTIFIED OR ACCOMPANIED WITH A TABULATED DESCRIPTION. INCLUDE A COPY OF THE PHOTOS IN THE OPERATIONS AND MAINTENANCE MANUAL.

### 8. CIRCUITS

IN ADDITION TO RECONNECTING THE EXISTING SHELKIE DISTRIBUTION BOARD CIRCUITS AND THE SUBMAINS AS PER THE POWER SCHEMATIC, PROVIDE DB-T WITH THE FOLLOWING CIRCUITS:

- P1 20A SINGLE PHASE RCBO PROTECTED BATTERY CHARGER.
- P2 20A SINGLE PHASE RCBO PROTECTED MAINTENANCE GPOS.
- P3 20A SINGLE PHASE RCBO PROTECTED SUMP PUMP.
- P4 20A SINGLE PHASE RCBO PROTECTED VENTILATION FAN.
- P5 20A SINGLE PHASE RCBO PROTECTED BATTERY CONTROL SYSTEM UPS.
- P6 20A SINGLE PHASE RCBO PROTECTED REFERENCE VOLTAGE.

## NOTES

### 9. CONTROL SYSTEM

PROVIDE A PROGRAMMABLE ELECTRICITY SUPPLY MONITORING AND CONTROL SYSTEM.

ENSURE ALL TIMES, VALUES, TRIGGERS AND SET POINTS ARE ADJUSTABLE.

THE CONTROL SYSTEM IS TO INCLUDE THOUGH NOT BE LIMITED TO:

- ENERGEX APPLICATION NEGOTIATIONS AND APPROVALS.
- CONTROL AND PROTECTION FUNCTIONAL DESCRIPTION.
- RPEQ DESIGN CERTIFICATION REPORT CERTIFIES THAT THE PROPOSED GENERATING SYSTEM COMPLIES WITH EQL STN1174 STANDARD FOR LOW VOLTAGE EMBEDDED GENERATING CONNECTIONS.
- PROTECTION LINE DIAGRAM CONTAINING INSTRUMENT/INVERTER AND GRID PROTECTION DEVICE SETTINGS AND INSTRUMENT TRANSFORMER DETAILS.
- PROTECTION LOGIC DIAGRAM.
- VOLTAGE RISE CALCULATIONS.
- GRID PROTECTION.
- COMMISSIONING PLAN.
- SYSTEM CONFIGURATION AND PROGRAMMING.
- POWER QUALITY TESTING, DATA ANALYSIS & POWER QUALITY COMPLIANCE REPORT INCLUDING THE PROVISION OF ALL REQUIRED RECORDING AND MEASUREMENT INSTRUMENTS.
- INTERFACES.
- CABLING.
- CABLE ACCESS.
- CONTROLLERS.
- HOUSINGS.
- RELAYS CONTACTORS
- UPS.

UPGRADE THE GENERATOR CONTROL SYSTEM WITH AN ENERGEX APPROVED BUMP LESS TRANSFER SYNCHRONISING CONTROL SYSTEM VIA THE DB-T MAINS SUPPLY AND GENERATOR MAINS SUPPLY CIRCUIT BREAKERS. MODIFY THE EXISTING GENERATOR AS NECESSARY TO ACCOMMODATE THE REQUIRED CONTROLS.

THE CIRCUIT BREAKERS ARE TO BE CONTROLLED VIA INTEGRATED MOTOR CONTROL UNITS.

UPGRADE THE GENERATOR CONTROL SYSTEM TO A DEEPEA ELECTRONICS DES8610 MK11 CONTROL MODULE INTERFACED TO THE GENERATOR TO CONTROL AND MONITOR THE GENERATOR SYSTEMS.

PROVIDE DB-T WITH A DEEP SEA ELECTRONICS DES8610 MK11 CONTROL MODULE INTERFACED TO THE GENERATOR CONTROLLER TO PROVIDE A MIMIC DISPLAY OF THE GENERATOR CONTROLLER. CONFIGURE THE CONTROL SYSTEM TO THE FOLLOWING OPERATION:

THE ELECTRICITY GENERATED BY THE SOLAR PV SYSTEM IS TO BE PRIORITISED.

WHEN THE BATTERY CAPACITY IS LESS THAN 100% AND THE DB-T DEMAND IS LESS THAN 160 AMPS LESS THE BATTERY CHARGING LOAD OR IF THE GENERATOR IS RUNNING THE BATTERIES ARE TO BE CHARGED. WHEN THE DB-T DEMAND REACHES 160 AMPS THE BATTERY IS TO BE USED TO SUPPLEMENT THE ENERGEX SUPPLY SUCH THAT IT DOES NOT EXCEED 180 AMPS UNTIL ONE OF THE FOLLOWING EVENTS AT WHICH TIME THE BATTERY IS TO CEASE SUPPLEMENTING THE LOAD.

- THE LOAD IS SUPPLIED BY THE GENERATOR.
- THE SUM OF THE ENERGEX DB-T DEMAND AND THE BATTERY OUTPUT FALLS BELOW 160 AMPS FOR 5 MINUTES. WHEN THE BATTERY IS SUPPLEMENTING THE ENERGEX SUPPLY AND ANY OF THE FOLLOWING EVENTS ARE EXPERIENCED THE GENERATOR IS TO START AND SUPPLY THE LOAD.
- THE BATTERY CAPACITY FALLS TO 10% - OR THE ENERGEX DB-T DEMAND EXCEEDS 200 AMPS FOR ONE MINUTE.
- OR THE ENERGEX DB-T DEMAND EXCEEDS 180 AMPS FOR FIVE MINUTES

IRRESPECTIVE OF THE LOAD AND SUPPLEMENTARY POWER SUPPLY CONDITIONS, WHEN THE ENERGEX MAINS SUPPLY FAILS THE GENERATOR IS TO START AND SUPPLY THE LOAD.

WHEN THE GENERATOR IS SUPPLYING THE LOAD, IT IS TO CONTINUE SUPPLYING THE LOAD UNTIL THE ENERGEX SUPPLY HAS BEEN AVAILABLE FOR 15 MINUTES AND THE DB-T DEMAND HAS REMAINED BELOW 160 AMPS FOR 5 MINUTES. ONCE THESE CONDITIONS HAVE BEEN ACHIEVED THE LOAD IS TO BE TRANSFERRED FROM THE GENERATOR TO ENERGEX.

CONFIGURE THE GENERATOR START AND STOP AS FOLLOWS:

STEP A. UPON RECEIVING A START SIGNAL, THE GENERATOR CONTROL SYSTEM IS TO COMMENCE A 15 SECOND COUNTDOWN.

IF STEP A HAS BEEN ACTIVATED SOLELY BY AN ENERGEX MAINS FAILURE AND THE ENERGEX MAINS SUPPLY RETURNS DURING THE INITIAL 15 SECOND TIMED DELAY THE GENERATOR IS TO START AND AUTOMATICALLY STEP INTO (STEP C) RUN ON BEFORE AUTOMATICALLY SHUTTING DOWN. IF DURING THIS PERIOD THE SUPPLY AUTHORITY SUPPLY FAILS THE INITIAL 15 SECOND COUNTDOWN IS TO RECOMMENCE.

STEP B1. ONCE THE GENERATOR START SIGNAL HAS NOT BEEN AVAILABLE FOR 15 SECONDS IF THE ENERGEX MAINS SUPPLY IS NOT AVAILABLE, THE MAINS SUPPLY IS TO BE ISOLATED AND THE GENERATOR IS TO AUTOMATICALLY START. AFTER RUNNING FOR 15 SECONDS THE LOAD IS TO BE CONNECTED TO THE GENERATOR.

OR

STEP B2. ONCE THE GENERATOR START SIGNAL HAS NOT BEEN AVAILABLE FOR 15 SECONDS AND THE ENERGEX MAINS SUPPLY IS AVAILABLE, THE GENERATOR IS TO AUTOMATICALLY START AND AFTER RUNNING FOR 15 SECONDS THE LOAD IS TO BE TRANSFERRED TO THE GENERATOR VIA THE BUMP LESS TRANSFER.

STEP C. WHEN THE GENERATOR IS RUNNING AND SUPPLYING THE LOAD, IT IS TO CONTINUE SUPPLYING THE LOAD UNTIL THE ENERGEX SUPPLY HAS BEEN AVAILABLE FOR 15 MINUTES AND THE DB-T DEMAND HAS REMAINED BELOW 160 AMPS FOR 5 MINUTES. ONCE THESE CONDITIONS HAVE BEEN ACHIEVED THE LOAD IS TO BE TRANSFERRED FROM THE GENERATOR TO ENERGEX VIA THE BUMP LESS TRANSFER.

## NOTES

### 10. SOLAR SYSTEM

PROVIDE A SOLAR SYSTEM AS FOLLOWS:

- 10 YEAR WARRANTY.
- PROVIDE 35KW OF PV PANELS WITH AN EFFICIENCY IN EXCESS OF 20% AND A MANUFACTURERS 15-YEAR PRODUCT WARRANTY AND A PERFORMANCE WARRANTY GUARANTEEING 80% OF THE PANELS RATED OUTPUT AFTER 25 YEARS.
- MOUNT THE PV PANELS ON THE HOMESTEAD BUILDING ROOF.
- PROVIDE A HOT DIPPED GALVANIZED PV PANEL SUPPORT SYSTEM.
- PROVIDE AN INVERTER THAT HAS A WI F1 INTERNET CONNECTION, A LOSS OF LESS THAN 5% AND A MANUFACTURERS PRODUCT WARRANTY OF 5 YEARS. PROVIDE THE SOLAR SYSTEM DC AND AC CABLING THAT HAS A LESS THAN COMBINED LOSS LESS THAN 3%.
- PROVIDE SHOP DRAWINGS AND TECHNICAL DETAILS OF THE SOLAR SYSTEM INCLUDING ALL COMPONENTS AND THE PV PANEL LAYOUT FOR APPROVAL.
- PROVIDE UP TO TWO WALL MOUNTED INVERTERS LOCATED WITHIN THE HOMESTEAD DB-A ROOM THAT ARE DESIGNED TO OPERATE IN AN AMBIENT TEMPERATURE RANGE OF 0 DEGREES TO 40 DEGREES.
- THE INVERTER CAPACITY MUST EXCEED 90% OF THE SUM OF THE PV PANELS RATED CAPACITY.
- PROVIDE A HARD COPY OF THE ENTIRE SYSTEM DESIGN AND ALL INFORMATION ASSOCIATED WITH THE SOLAR SYSTEM IN A PERMANENT DOCUMENT HOLDER WITHIN THE HOMESTEAD DB-A ROOM.
- SIGNAGE AND LABELS.
- AC AND DC CABLING.
- AC AND DC ISOLATORS.
- CONNECT THE INVERTERS TO DB-A VIA UP TO TWO THREE PHASE MCBS RATED AT 63 AMPS OR LESS.
- CONNECT THE SOLAR SYSTEM TO OPERATE AS DETAILED UNDER THE CONTROL SYSTEM DESCRIPTION.

### 11. BATTERY SYSTEM

PROVIDE A BATTERY SYSTEM AS FOLLOWS:

- 10 YEAR WARRANTY.
- DESIGNED TO OPERATE IN CHARGE MODE, DISCHARGE MODE AND IDOL MODE IN AN AMBIENT TEMPERATURE RANGE OF 0 DEGREES TO 40 DEGREES.
- FREE STANDING WEATHERPROOF ENCLOSURE MOUNTED ON A REINFORCED CONCRETE SLAB LOCATED IN THE SAME POSITION THE HOMESTEAD GENERATOR IS LOCATED. THE ENCLOSURE IS TO BE IP44 LOCKABLE AND CONTAIN INTEGRATED AUTOMATIC LIGHTING ALL NECESSARY CABLE ACCESS WAYS AND MOUNTING FACILITIES.
- PROVIDE A HARD COPY OF THE ENTIRE SYSTEM DESIGN AND ALL INFORMATION ASSOCIATED WITH THE BATTERY SYSTEM IN A PERMANENT DOCUMENT HOLDER WITHIN THE BATTERY SYSTEM ENCLOSURE.
- SIGNAGE AND LABELS.
- 3.2V PRISMATIC LiFePO4 CELL BATTERIES C/W INTEGRAL PASSIVE CELL BALANCING.
- ENSURE EACH BATTERY MODULE CAN BE REPLACED AND HAS A CAPACITY ABOVE 260 Ah AND LESS THAN 320 Ah WITH A NOMINAL VOLTAGE OF 48V DC
- 3 PHASE 60KW CONTINUOUS OUTPUT OVER A CONTINUOUS 120-MINUTE PERIOD.
- 80KWH CAPACITY AT 5 YEARS AFTER 2000 DISCHARGES TO 10%
- INVERTER / CHARGERS.
- AUTOMATIC BATTERY MANAGEMENT SYSTEM.
- INTEGRATED BATTERY TEMPERATURE SENSOR AND PROTECTION SYSTEM.
- SYSTEM EFFICIENCY AT LEAST 95%.
- SYSTEM IDOL LOAD OF LESS THAN 120 WATTS.
- INTEGRATED PASSIVE COOLING SYSTEM TO ACCOMMODATE THE FULL DISCHARGE / CHARGE RATE WITH AN AMBIENT TEMPERATURE OF 25 DEGREES.
- AUTOMATIC MECHANICAL COOLING SYSTEM TO ACCOMMODATE THE FULL DISCHARGE / CHARGE RATE WITH AN AMBIENT TEMPERATURE OF 25 TO 40 DEGREES.
- AC AND DC CABLING.
- AC AND DC ISOLATORS.
- CONNECT THE BATTERY SYSTEM TO DB-A VIA UP TO FOUR THREE PHASE MCBS RATED AT 63 AMPS OR LESS.
- UNDERGROUND CABLING FROM DB-A TO THE BATTERY ENCLOSURE.
- AN LCD DISPLAY TO ANALYSE ALL ASPECTS OF THE BATTERY SYSTEM.
- AN AMBER LED STROBE LIGHT MOUNTED ON THE BATTERY ENCLOSURE WITH THE POSITION AGREED TO ON SITE WITH THE CLIENT. THE STROBE LIGHT IS TO OPERATE AUTOMATICALLY UPON ANY FAULT WITHIN THE BATTERY SYSTEM.
- PROVIDE SHOP DRAWINGS AND TECHNICAL DETAILS OF THE BATTERY SYSTEM INCLUDING ALL COMPONENTS, SCHEMATICS, MOUNTINGS AND LAYOUT FOR APPROVAL.
- INTERFACE THE BATTERY CONTROL SYSTEM TO OPERATE AS DETAILED UNDER THE CONTROL SYSTEM DESCRIPTION.

### 12. BUILDING WORKS

THE FOLLOWING ASSOCIATED BUILDING WORKS WILL BE PROVIDED OUTSIDE OF THE ELECTRICAL CONTRACT:

- GENERATOR AND DB-T SUPPORT STRUCTURE, ACCESS STAIRS AND HAND RAILS.
- DB-T LIGHT WEIGHT STRUCTURE (WALLS, DOOR AND ROOF).
- PIT 1.
- REMOVAL OF VEGETATION.
- LANDSCAPING.

B	TENDER	24/02/2025
REV:	DESCRIPTION:	DATE:
DRAWING: <b>ELECTRICAL SERVICES</b> <b>NOTES CONTINUED</b>		
SCALE: NOT TO SCALE AT A1	PROJECT NO: <b>C3480a</b>	DRAWING NO: <b>E02</b>
		REVISION: <b>B</b>

ELECTRICAL DESIGN GROUP BRISBANE PTY LTD ACN 092 710 793	THE COPYRIGHT OF THIS DRAWING REMAINS THE PROPERTY OF THE ELECTRICAL DESIGN GROUP.
TRADING AS: ELECTRICAL DESIGN GROUP	USE FIGURED DIMENSIONS IN PREFERENCE TO SCALE.
	ALL DIMENSIONS TO BE VERIFIED ONSITE.

 <b>ELECTRICAL DESIGN GROUP</b>
ELECTRICAL BUILDING SERVICES CONSULTANTS
BRISBANE GOLD COAST
P.O.Box 15, Sherwood Q.4075 Phone: (07) 3278 4375 Email: brisbane@edg.net.au Web: www.edg.net.au

PROJECT: <b>CURRUMBIN WILDLIFE SANCTUARY</b> <b>SUPPLY UPGRADE</b>
28 TOMWIN STREET, CURRUMBIN, QUEENSLAND