

NOTES

1. EXTENT OF WORKS

THE ELECTRICAL SERVICES SUB-CONTRACT INCLUDES BUT IS NOT LIMITED TO THE FOLLOWING:
- SUPPLY AND INSTALLATION OF ALL COMPONENTS FORMING PART OF THE ELECTRICAL SERVICES.
- CO-ORDINATION.
- INSPECTIONS.
- TESTING AND COMMISSIONING.
- MAINTENANCE.
- UPDATE THE EXISTING AS BUILT DRAWINGS.
- UPDATE THE EXISTING MAINTENANCE MANUAL.
- CABLING, CABLE SUPPORT SYSTEMS AND ACCESS.
- POWER DISTRIBUTION.
- LIGHTING.
- COMMUNICATIONS CABLING.
- PITS AND CONDUITS.
- ALL MINOR COMPONENTS AND INCIDENTAL WORKS NOT SPECIFICALLY REFERRED TO, HOWEVER NECESSARY TO COMPLETE THE ELECTRICAL SERVICES INSTALLATION SUCH THAT IT IS HANDED OVER COMPLETE, OPERATIONAL AND FIT FOR THE INTENDED USE.

SUPPLY ALL LABOUR, MATERIALS, EQUIPMENT, AND ALL OTHER ITEMS, WHETHER MENTIONED IN DETAIL OR NOT, REQUIRED FOR THE SATISFACTORY COMPLETION OF THE ELECTRICAL SERVICES INSTALLATION, LEAVING IN FULL WORKING ORDER TO THE SATISFACTION OF THE PROJECT MANAGER.

ACCEPT FULL RESPONSIBILITY FOR LIASING, ARRANGING AND CO-ORDINATION OF ALL WORKS THAT HAVE AN EFFECT ON OR WILL BE AFFECTED BY THE ELECTRICAL SERVICES.

CONFIRM THE POSITION OF ALL OUTLETS ON SITE WITH THE SCHOOL PRIOR TO ROUGH-IN.

UPDATE THE COLLEGES EXISTING AS BUILT DOCUMENTS AND MAINTENANCE MANUAL TO INCLUDE THE NEW WORKS.

2. WORKMANSHIP

ENSURE THAT THE WORK IS PERFORMED BY THE HOLDER OF A CURRENT ELECTRICAL SUB CONTRACTOR LICENSE. ENSURE THE INSTALLATION AND ALL COMPONENTS, FIXTURES, FITTINGS, OUTLETS AND CABLES ARE SUPPLIED AND INSTALLED TO A HIGH STANDARD THROUGHOUT, AND INSTALLED IN A NEAT AND TRADESMAN LIKE MANNER, TO THE CURRENT INDUSTRY STANDARDS. ENSURE ALL MATERIALS AND COMPONENTS OF A SIMILAR TYPE ARE OF THE SAME MANUFACTURER AND INSTALLED IN A UNIFORM MANNER.

IT IS THE ELECTRICAL SUB CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT THE INSTALLATION IS FIT FOR PURPOSE AND IS PROVIDED AS A COMPLETE WORKING INSTALLATION. IT IS THE ELECTRICAL SUB CONTRACTOR'S RESPONSIBILITY TO PROVIDE ALL COMPONENTS, FITTINGS, FIXTURES, SYSTEMS, PROGRAMMING ETC IRRESPECTIVE OF THE LEVEL DETAILED IN THE DOCUMENTS SUCH THAT THE INSTALLATION IS PROVIDED AS A COMPLETE WORKING INSTALLATION.

CONCEAL ALL WIRING AND CONDUITS. EXPOSED CABLING OR CONDUITS ARE GENERALLY NOT ACCEPTABLE. IT IS NOTED THAT CONDUITS WILL NEED TO BE INCLUDED WITHIN THE PRECAST PANELS. ENSURE ALL COMPONENTS, EQUIPMENT AND MATERIALS SUPPLIED ARE NEW, UNUSED, DESIGNED AND SELECTED TO ENSURE SATISFACTORY OPERATION UNDER VARYING ATMOSPHERIC, CLIMATIC, HUMID TROPICAL CONDITIONS WITHOUT DISTORTION AND DETERIORATION IN ANY PART AFFECTING EFFICIENCY AND RELIABILITY OF THE SYSTEMS. DESIGN AND SELECT ALL EQUIPMENT TO PROVIDE THE NECESSARY SAFETY TO HUMAN LIFE AND PROPERTY DURING OPERATION AND MAINTENANCE WITH PARTICULAR ATTENTION GIVEN TO ELECTRICAL SAFETY AND SEGREGATION PRECAUTIONS.

CHECK THE FINISHED PAINTWORK AROUND THE AREA OF EACH INSTALLATION AND TOUCH UP ALL DAMAGED PARTS AND FINISHES AFTER THE INSTALLATION OF THE ELECTRICAL SERVICES.

ALL WORKS ARE TO BE CARRIED OUT IN ACCORDANCE WITH THE BUILDER'S PROGRAM. ENSURE ALL FINAL LOCATIONS OF OUTLETS AND FITTINGS ARE CO-ORDINATED ONSITE WITH THE ARCHITECT AND ALL OTHER SERVICES, TO THE APPROVAL OF THE PROJECT MANAGER. ALLOW TO CO-ORDINATE THE FINAL LOCATION OF ALL EQUIPMENT, FITTINGS, & OUTLETS, SUCH THAT THEY ARE INSTALLED IN ACCORDANCE WITH THE AS3000 RESTRICTED ZONES, AND ARE NOT COVERED INAPPROPRIATELY.

ENSURE THAT ALL METAL SURFACES ARE SUITABLY PROTECTED AGAINST CORROSION, AND THAT ALL PLASTIC MATERIALS ARE UV STABILISED.

PROVIDE ALL MATERIALS AS NEW, AND OF THE HIGHEST CLASS AVAILABLE FOR THEIR RESPECTIVE TYPES. ENSURE ALL ASPECTS OF THE WORK ARE OF A HIGH STANDARD THROUGHOUT, AND INSTALLED IN A NEAT AND TRADESMAN LIKE MANNER, TO THE CURRENT INDUSTRY STANDARDS.

ALL WORK IS TO BE UNDERTAKEN IN SUCH A MANNER THAT THE OPERATION OF THE REMAINING SCHOOL AREAS ARE NOT UNDULY EFFECTED BY THE WORKS.

3. STANDARDS

IRRESPECTIVE OF INFORMATION CONTAINED IN THE ELECTRICAL SERVICES DOCUMENTS OR IN INSTRUCTIONS, IT IS THE ELECTRICAL SUB CONTRACTOR'S RESPONSIBILITY TO ENSURE ALL ELECTRICAL SERVICES WORKS ARE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF THE FOLLOWING. REFER ANY DISCREPANCIES BETWEEN THE REQUIREMENTS OF THE FOLLOWING AND/OR THE ELECTRICAL SERVICES DOCUMENTS AND INSTRUCTIONS TO THE PROJECT MANAGER FOR CLARIFICATION PRIOR TO THE PLACING OF ORDERS, FABRICATION OR INSTALLATION OF THE ITEMS/METHODS IN DISCREPANCY.

- NCC BUILDING CODE OF AUSTRALIA.
- ELECTRICITY ACT.
- ELECTRICAL SAFETY ACT.
- AS/NZS3000.
- AS3008.
- WORKPLACE HEALTH AND SAFETY ACT.
- TELECOMMUNICATIONS ACT.
- ACMA REQUIREMENTS.

4. AUTHORITIES

ENSURE ALL OF THE ELECTRICAL SERVICES COMPLY WITH THE REQUIREMENTS OF ALL REGULATORY AUTHORITIES HAVING JURISDICTION OVER THE SITE INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
- ACMA.
- LOCAL COUNCIL.
- LOCAL SUPPLY AUTHORITY.
- STATE GOVERNMENT WORKPLACE, HEALTH AND SAFETY AUTHORITY.
- LOCAL FIRE AND RESCUE AUTHORITY.

5. CABLES

UNLESS OTHERWISE SPECIFIED, INSTALL AND TERMINATE CABLES IN ACCORDANCE WITH THE MANUFACTURERS' RECOMMENDATIONS. DETERMINE THE FINAL ROUTES TO SUIT THE BUILDING STRUCTURE AND SITE CONDITIONS. UNLESS NOTED OTHERWISE, PROVIDE ALL 240 VOLT POWER AND LIGHTING WIRING AS 2.5mm² TWIN & EARTH STRANDED COPPER CONDUCTORS, PVC INSULATED 0.6/1kV V75 GRADE TO AS3174, PROTECTED BY A 20 AMP CIRCUIT BREAKER. ALL CONDUIT AND FITTINGS TO BE RIGID UPVC TO AS2053, UNLESS NOTED OTHERWISE.

6. POWER DISTRIBUTION

THE POWER DISTRIBUTION COMPONENT OF THIS CONTRACT INCLUDES REPLACING THE EXISTING MSB AND THE PROVISION OF NEW UNDERGROUND SUBMAINS TO A NEW DISTRIBUTION BOARD DB-10. PROVIDE DB-10 WITH MCCBS TO SUPPLY THE NEW DISTRIBUTION BOARD DB-10P AND DB-10L, THE MECHANICAL SWITCHBOARD MSSB-10 AND A 150kW INVERTER. PROVIDE A 150kW SOLAR PV INSTALLATION INCLUDING A WIRELESS NETWORK PROTECTION SYSTEM TO ALLOW THE SITES SOLAR INSTALLATION TO BE INCREASED TO 650KW. THE ELECTRICAL COMPONENT OF THIS CONTRACT INCLUDES, BUT IS NOT LIMITED TO THE FOLLOWING EXTENT OF WORK:

- POWER DISTRIBUTION.
- EARTHING.
- NEW MSB.
- NEW SUBMAINS FROM THE MSB TO DB-10.
- DISTRIBUTION BOARDS DB-10, DB-10P AND DB-10L.
- SUBMAINS FROM DB-10 TO DB-10P, DB-10L, MSSB-10 AND THE INVERTER.
- PROVIDE A 150KW SOLAR PHOTOVOLTAIC SYSTEM IN ACCORDANCE WITH AS5033 WITH THE PV INSTALLATION UNDERTAKEN BY AN ACCREDITED INSTALLER MEMBER OF THE CLEAN ENERGY COUNCIL.
- PROVIDE AN INFRARED SCAN OF THE MSB AND ALL DISTRIBUTION BOARDS PROVIDED AS PART OF THE WORKS ONE WEEK AFTER PRACTICAL COMPLETION. PROVIDE A LOGGING CHART RECORDING OF THE MAINS CURRENT, VOLTAGE, FREQUENCY FOR THE FIRST 14 DAYS FOLLOWING PRACTICAL COMPLETION AND SUBMIT THE THERMOSCAN AND CHART RECORDING AND FOR APPROVAL.
- CIRCUITS.
- ISOLATORS AND OUTLETS.
- TESTING AND COMMISSIONING.
- SWITCHBOARD SHOP DRAWING.

THE MSB IS TO BE REPLACED DURING 2025 2026 SUMMER SCHOOL HOLIDAYS.

THE POWER SUPPLY TO THE REMAINDER OF THE SCHOOL MUST BE MAINTAINED AT ALL TIMES THE SCHOOL IS OPEN INCLUDING THE AFTER HOURS CARE. ANY INTERRUPTION TO THE POWER SUPPLY MUST BE ADVISED TO THE SCHOOL IN WRITING TWO WEEKS PRIOR.

NOTES

6. POWER DISTRIBUTION (CONTINUED)

REFER TO THE POWER SCHEMATIC AND DISTRIBUTION BOARD SCHEDULES FOR ADDITIONAL REQUIREMENTS AND CIRCUIT DETAILS.

ENSURE ALL OUTLETS AND ISOLATORS ARE POSITIONED SUCH THAT THEY ARE NOT COVERED BY THE EQUIPMENT. THE FINAL POSITION OF ALL OUTLETS AND ISOLATORS ARE TO BE CONFIRMED ON SITE BY THE COLLEGE.

PROVIDE 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. PROVIDE AN INVERTER THAT HAS A W1 FT INTERNET CONNECTION. LOSS OF LESS THAN 5% A MANUFACTURERS PRODUCT WARRANTY OF 5 YEARS. PROVIDE THE PV SYSTEM DC AND AC CABLING THAT HAS A LOSS LESS THAN 3%. PROVIDE SHOP DRAWINGS AND TECHNICAL DETAILS OF THE PV SYSTEM INCLUDING ALL COMPONENTS AND THE PV PANEL LAYOUT FOR APPROVAL.

7. LIGHTING

THE LIGHTING COMPONENT OF THIS CONTRACT INCLUDES INTERNAL LIGHTING TO ALL AREAS OF THE BUILDING, EXTERNAL LIGHTING, GENERAL LIGHTING CONTROL, EMERGENCY AND EVACUATION LIGHTING AND THE LIGHTING SUB CIRCUIT WIRING. ALL OF THE LIGHT FITTINGS AND ACCESSORIES ARE TO BE PROVIDED AS PART OF THIS CONTRACT. ALL LIGHT SOURCES ARE TO BE SOLID STATE LED WITH A 5-YEAR MANUFACTURERS WARRANTY. ALL OF THE LIGHT FITTINGS, LAMP AND ACCESSORIES ARE TO BE PROVIDED AS PART OF THIS CONTRACT. THE LIGHTING COMPONENT OF THIS CONTRACT INCLUDES, BUT IS NOT LIMITED TO THE FOLLOWING EXTENT OF WORK:
- INTERNAL AND EXTERNAL LIGHTING.
- EMERGENCY AND EXIT LIGHTING.
- EARTHING OF THE LIGHTING INSTALLATION.
- LIGHTING CONTROL.
- LIGHTING SUBCIRCUITS.
- TESTING AND COMMISSIONING.

PROVIDE A SINGLE POINT EMERGENCY LIGHTING SYSTEM THAT COMPLIES WITH THE LATEST ISSUE OF ALL PARTS AS2293 AND THE RELEVANT PARTS OF THE NCC BCA. INSTALL EMERGENCY LIGHT FITTINGS NOMINATED AS MAINTAINED WITH THE LAMP PERMANENTLY ON SUPPLY VIA AN UNSWITCHED ACTIVE MAINS SUPPLY WHEN THE MAINS SUPPLY IS AVAILABLE. WHEN THE MAINS SUPPLY IS NOT AVAILABLE, THE LAMP IS TO REMAIN ON SUPPLIED BY THE EMERGENCY PACK. SINGLE LAMP MAINTAINED EMERGENCY LIGHTS ARE NOT SWITCHED WITH THE LOCAL GENERAL AREA LIGHTING. (THE LAMP IS ALWAYS ON.)

INSTALL EMERGENCY LIGHT FITTINGS NOMINATED AS NON-MAINTAINED AS FOLLOWS:
- IF THE FITTING IS NOT BEING SWITCHED, THE LAMP IS TO REMAIN OFF WHEN THE MAINS SUPPLY IS AVAILABLE. WHEN THE MAINS SUPPLY IS NOT AVAILABLE THE LAMP IS TO BE SWITCHED ON SUPPLIED BY THE EMERGENCY PACK. UNSWITCHED SINGLE LAMP NON-MAINTAINED EMERGENCY LIGHTS ARE NOT SWITCHED WITH THE LOCAL GENERAL AREA LIGHTING. (THE LAMP IS ON ONLY WHEN THE MAINS SUPPLY IS NOT AVAILABLE.)
- IF THE FITTING IS BEING SWITCHED, THE LAMP IS TO BE SUPPLIED AND CONTROLLED WITH THE LOCAL GENERAL AREA LIGHTING WHEN THE MAINS SUPPLY IS AVAILABLE. WHEN THE MAINS SUPPLY IS NOT AVAILABLE THE LAMP IS TO BE SWITCHED ON, SUPPLIED BY THE EMERGENCY PACK. (THE LAMP IS ON WHEN TURNED ON WITH THE LOCAL GENERAL LIGHTING OR THE MAIN SUPPLY IS NOT AVAILABLE.)

INSTALL EMERGENCY LIGHTS SUCH THAT THE STATUS INDICATOR L.E.D. IS CLEARLY VISIBLE AND THE TEST BUTTONS ARE READILY ACCESSIBLE. LABEL EACH CIRCUIT BREAKER WHICH CONTROLS THE UNSWITCHED ACTIVE TO EXIT LIGHTS WITH A LABEL FIXED ADJACENT; ENGRAVED PLASTIC LAMINATE, GREEN BACKGROUND WITH WHITE CHARACTERS: -

WARNING
INTERRUPTING SUPPLY WILL DISCHARGE
EMERGENCY LIGHTING BATTERIES

PROVIDE WRITTEN EVIDENCE OF THE INITIAL COMMISSIONING AND TESTING AND TESTING FOR THE DURATION OF THE MAINTENANCE PERIOD IN ACCORDANCE WITH AS 2293.2.

PROVIDE MAINTENANCE OF THE EMERGENCY AND EXIT LIGHTING INSTALLATION INCLUDING RECORDS IN ACCORDANCE WITH THE LATEST ISSUE OF ALL PARTS AS2293 AND THE RELEVANT PARTS OF THE NCC BCA.

8. LIGHT POLES

PROVIDE POLES WITH A TAMPER RESISTANT ACCESS PANEL WITHIN THE POLE BASE AND BASE PLATE THAT INCORPORATES A MINIMUM OF FOUR HOLD DOWN BOLTS. PROVIDE POLES AND INSITU CONCRETE FOOTINGS DESIGNED SPECIFICALLY TO SUIT THE LOCAL CONDITIONS AND BE ABLE TO WITHSTAND WIND GUSTS OF 150KM/H. THE DESIGN OF THE POLE AND THE FOOTING IS TO BE UNDERTAKEN BY A RESISTED STRUCTURAL ENGINEER. PROVIDE A CERTIFICATE FROM THE STRUCTURAL ENGINEER INDICATING THE POLES AND FOOTINGS MEET THE SPECIFIED DESIGN CRITERIA. PROVIDE DETAILED DRAWINGS OF ALL POLES AND FOOTINGS FOR APPROVAL. PROVIDE A FUSED CONNECTION WITHIN EACH POLE LOCATED BEHIND THE POLE BASE ACCESS PANEL. CONNECT THE POLE TO THE ELECTRICAL EARTH VIA A LUG FIXED TO A STUD WELDED TO THE POLE LOCATED WITHIN THE POLE LOCATED BEHIND THE POLE BASE ACCESS PANEL. TRIM THE HOLD DOWN BOLTS SUCH THAT THEY DO NOT PROTRUDE MORE THAN 15MM ABOVE THE NUT. TREAT THE TIMED HOLD DOWN BOLT AGAINST CORROSION AND ENSURE IT DOES NOT CONTAIN SHARP EDGES THAT REPRESENT A HAZARD. ENSURE THE BASE PLATE IS BETWEEN 50 AND 100MM ABOVE THE FINISHED LANDSCAPE LEVEL. PROVIDE A NEAT SMOOTH FINISHED CONCRETE GROUT FILL UNDER THE BASE PLATE ENSURING ANY SPLATTER IS IMMEDIATELY WASHED OFF THE BASE PLATE AND POLE. EXTEND THE CONDUIT INTO THE POLE 50MM ABOVE THE BASE PLATE.

PROVIDE POLES THAT COMPLY WITH AS/NZS 1170.0 STRUCTURAL DESIGN ACTIONS PART 0: GENERAL PRINCIPLES - IMPORTANCE LEVEL 1 WITH A DESIGN WORKING LIFE OF 50 YEARS.

DESIGN THE POLES TO A WIND LOADING AS PER AS/NZS 1170.0 STRUCTURAL DESIGN ACTIONS PART 0: GENERAL PRINCIPLES. THE FRACTION OF CRITICAL DAMPING IS TO BE TAKEN AS 0.05 (ULTIMATE) AND 0.01 (SERVICEABILITY) FOR POLES WITH MORE THAN TWO- (2) OVERLAPS AND 0.02 (ULTIMATE) AND 0.005 (SERVICEABILITY) FOR ALL OTHERS. THE NATURAL FREQUENCY OF THE POLE IS TO BE CALCULATED CONSIDERING VARYING DIAMETERS AND THICKNESS OVER THE HEIGHT OF THE POLE AND USING A 1.1 SAFETY FACTOR FOR THE MASS AT THE TOP OF THE POLE. ENSURE POLE DEFLECTION AT SERVICEABILITY WIND SPEEDS HAVE A DEFLECTION LESS THAN 6.7%.

ENSURE ALL WELDS ARE BY A CONTINUOUS AUTOMATIC GAS SHIELDED ELECTRIC ARC PROCESS COMPLYING WITH THE RELEVANT PARTS OF AS/NZS 1554 STRUCTURAL STEEL WELDING. ENSURE THE LONGITUDINAL SEAM WELDS ON POLE SECTIONS CONFORMS TO GP STANDARDS WHILE BASEPLATE AND SPIGOT WELDS MUST CONFORM TO SP STANDARDS AS MENTIONED IN AS/NZS 1554. WELD SIZES ARE TO BE VERIFIED BY A QUALIFIED STRUCTURAL ENGINEER AND SPECIFIED IN THE ENGINEERING REPORT AND ON WORKSHOP DRAWINGS.

PROVIDE ALL POLES WITH A GALVANISED FOUNDATION BOLT ASSEMBLY COMPLETE WITH POSITIONING TEMPLATE AND TWO- (2) NUTS AND WASHERS PER BOLT PROVIDED TO SUIT THE POLE BASEPLATE. FOUNDATION BOLTS MUST BE MANUFACTURED FROM DEFORMED REINFORCING BARS WITH A NOMINAL YIELD STRESS OF 500 MPA. PROVIDE BOLTS THREADED IN ACCORDANCE WITH AS1275-1985 METRIC SCREW THREADS FOR FASTENERS AND FITTED WITH CLASS 5 NUTS IN ACCORDANCE WITH AS/NZS 1112 ISO METRIC HEXAGON NUTS. FOUNDATION BOLTS MUST BE TIED TO A SUITABLE REINFORCING CAGE. THE LENGTH OF EACH FOUNDATION BOLT MUST ALLOW FOR THE LENGTH OF THE THREAD ABOVE GROUND, A MINIMUM OF 100MM COVER AND A DEVELOPMENT LENGTH IN ACCORDANCE WITH AS3600-1994 CONCRETE STRUCTURES, TABLE 13.1.2.2(A). THE UNDERSIDE OF THE BASEPLATE IS TO BE GROUTED. THE SECTION CAPACITY OF THE POLE IS TO BE ANALYSED OVER A MINIMUM OF 100 INCREMENTS ACCORDING TO AS4100 STEEL STRUCTURES AND AS/NZS 4600 COLD-FORMED STEEL STRUCTURES. LUMINAIRES ARE TO BE ACCESSSED BY EXTERNAL MACHINERY E.G. CHERRY PICKERS. LUMINAIRE CROSSARMS SHALL BE DESIGNED TO ENSURE EASY ACCESS OF FITTINGS FOR RE-LAMPING AND AIMING. CLIMBING RUNGS AND MAINTENANCE PLATFORMS ARE NOT REQUIRED. THE POLE AND ALL STEEL ACCESSORIES ARE TO BE POWDER COATED BLACK HOT DIP GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH AS/NZS 4680 HOT-DIP GALVANIZED (ZINC) COATINGS ON FABRICATED FERROUS ARTICLES. THE POLES ARE TO BE SANDED AFTER GALVANIZING AND PREHEATED TO 220° C TO DRIVE OFF ANY TRAPPED GAS UNDER THE GALVANIZED SURFACE. A ZINC RICH PRIME COAT. INTERPON POLYZINC 660 OR EQUIVALENT SHALL BE APPLIED TO WITHIN 60UM AND 80UM WITHIN FOUR HOURS OF PREHEATING AND GREEN DURED TO 200° C FOR 3 MINUTES. PRIME COAT SHALL BE LIGHTLY SANDED BEFORE APPLICATION OF TOP COAT. COLOUR TOPCOAT SHALL BE A RIPPLE, HIGH BUILD FINISH TO WITHIN 50UM AND 70UM. ENSURE ALL MANUFACTURING TOLERANCES ARE IN ACCORDANCE WITH AS 1798 LIGHTING POLES AND BRACKET ARMS PREFERRED DIMENSIONS. IN PARTICULAR THE POLES SHALL BE CHECKED FOR COMPLIANCE WITH THE STRAIGHTNESS REQUIREMENTS OF THIS STANDARD: 0.3% OF HEIGHT.

ASSEMBLY AND ERECTION ARE TO BE CARRIED OUT ONLY BY QUALIFIED RIGGING PERSONNEL. GROUT THE UNDERSIDE OF ALL POLE BASEPLATES WITHIN SEVEN (7) DAYS OF INSTALLING THE POLE.

NOTES

9. COMMUNICATIONS CABLING

THE COMMUNICATIONS CABLING COMPONENT OF THIS CONTRACT INCLUDES A NEW COMMUNICATION RACK CR-10 TO SUPPORT CAT 6 RJ45 OUTLETS CABLED TO MODULAR PATCH PANELS IN THE COMMUNICATIONS RACK CR-10 VIA CAT 6 UTP CABLING. PROVIDE A NEW 12 CORE OS1 GEL FILLED UNDERGROUND OPTICAL FIBRE CABLE FROM THE EXISTING COMMUNICATIONS RACK CR-4 TO A NEW FIBOT IN CR-10. THE COMMUNICATIONS CABLING IS TO BE OF THE SAME EXISTING STRUCTURED CABLING SOLUTION USED AND BE PROVIDED WITH A MANUFACTURERS 15 YEAR WARRANTY.

THE COMMUNICATIONS CABLING COMPONENT OF THIS CONTRACT INCLUDES, BUT IS NOT LIMITED TO THE FOLLOWING EXTENT OF WORK:

- CAT 6 COMMUNICATIONS OUTLETS.
- CAT 6 CABLING.
- COMMUNICATIONS RACK CR-10.
- PATCH PANELS.
- FIBOT.
- OPTICAL FIBRE CABLE CONNECTION CR-4 TO CR-10.
- LABELLING.
- TESTING AND COMMISSIONING.

ALL COMMUNICATIONS CABLING IS TO BE UNDERTAKEN BY AN ACMA LICENCE HOLDER. THE PATCH LEADS, FLY LEADS, POE SWITCH AND UPS WILL BE PROVIDED BY THE SCHOOL.

10. PITS AND CONDUITS

THE NEW UNDERGROUND PIT AND CONDUITS MUST BE INSTALLED AND THE EXISTING SERVICES TO THE EXISTING MODULAR BUILDINGS RELOCATED THROUGH THE NEW PIT AND CONDUITS. THIS WORK MUST BE COMPLETE TO FACILITATE DEMOLITION OF THE EXISTING PIT AND CONDUITS IN THE VICINITY OF THE PROPOSED BUILDING PRIOR TO ANY EXCAVATION.

THE CONDUITS AND PITS DETAILED WITHIN THE ELECTRICAL SERVICES DOCUMENTATION HAVE BEEN INCLUDED AS THERE ARE SPECIFIC REQUIREMENTS THAT NEED TO BE ACCOMMODATED AND DO NOT COVER EVERY REQUIREMENT NECESSARY TO COMPLETE THE INSTALLATION. THE ELECTRICAL-SUB CONTRACTOR MUST ALLOW FOR ALL ADDITIONAL PITS AND CONDUITS NECESSARY TO COMPLETE THE ELECTRICAL INSTALLATION.

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.

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.

PROVIDE ALL TRENCHING, BEDDING, BACKFILLING AND REINSTATEMENT REQUIRED TO COMPLETE THE ELECTRICAL SERVICES.

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

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

SEAL THE BURIED ENTRIES TO DUCTS AND CONDUITS WITH A PLIABLE NON SETTING WATERPROOF COMPOUND. SEAL SPARE DUCTS OR CONDUITS IMMEDIATELY AFTER INSTALLATION, AND SEAL THE OTHER AFTER THE CABLE INSTALLATION.

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. IN CASES WHERE MULTIPLE CONDUITS HAVE BEEN SPECIFIED, INSTALL ALL INITIAL CABLING WITHIN THE FIRST CONDUIT. WRITTEN APPROVAL MUST BE OBTAINED FROM THE ENGINEER PRIOR TO INSTALLING ANY CABLING IN THE SUBSEQUENT CONDUITS. 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.

PROVIDE ALL CONDUITS AND PIPES ENTERING THE PITS WITH BELL MOUTHS OR A PIT BUSH FLUSH WITH AND SEALED TO THE SIDE OF THE PIT. SEAL AROUND ALL CONDUITS AND PIPES ENTERING THE PITS SUCH THAT MOISTURE DOES NOT ENTER THE PITS AROUND THE OUTSIDE OF THE CONDUITS OR PIPES.

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.

11. ABBREVIATIONS

- A - AMP CURRENT RATING
- AB - MOUNT ABOVE BENCH.
- AFFL - ABOVE FINISHED FLOOR LEVEL.
- BB - MOUNT BELOW BENCH.
- BH - MOUNT ON BULKHEAD.
- CEIL - MOUNT ON CEILING.
- CS - MOUNT WITHIN CEILING SPACE.
- C/W - COMPLETE WITH.
- DW - DISHWASHER.
- HP - HOT PLATE.
- MCB - MINIATURE CIRCUIT BREAKER.
- MCCB - MOUNDED CASE CIRCUIT BREAKER.
- MSB - MAIN SWITCHBOARD.
- WSSB - MECHANICAL SERVICES SWITCHBOARD.
- MW - MICROWAVE.
- N - NEON / LED INDICATOR WHEN ON.
- NTS - NOT TO SCALE.
- OV - OVEN.
- RCBO - CIRCUIT PROTECTED VIA A 30mA RESIDUAL CURRENT DEVICE INTEGRAL TO THE CIRCUIT BREAKER.
- REF - REFRIGERATOR.
- UNO - UNLESS NOTED OTHERWISE.
- WP - WEATHERPROOF TO IP56 UNO.
- 500 - NUMBER DENOTES MOUNTING HEIGHT AFFL.

D	CONSTRUCTION	01/04/2025
REV:	DESCRIPTION:	DATE:
DRAWING:	ELECTRICAL SERVICES NOTES	
SCALE:	PROJECT NO:	DRAWING NO:
NOT TO SCALE AT A1	C3232a	E03
		REVISION:
		D

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TRADING AS: ELECTRICAL DESIGN GROUP	USE FIGURED DIMENSIONS IN PREFERENCE TO SCALE.
	ALL DIMENSIONS TO BE VERIFIED ONSITE.



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PROJECT:
**KINGS CHRISTIAN COLLEGE
CHAMBERS FLAT, MIDDLE SCHOOL CHA10**

38-112 ANZAC AVENUE, CHAMBERS FLAT