A1

BOARD: NEW SUB DISTRIBUTION BOARD (NSDB.05)
LOCATION: STORE ON THE FIRST FLOOR
FORM: FORM 2B (TYPE 1)
TYPE: WALL MOUNTED

32A TP MCCB SPARE | 40A TP MCCB SPARE | 50A TP MCCB
20no1x20A RCBO (SP) 3x3x20A RCBO (TP) — POWER/GENERAL SERVICES
12x1x10 AMP MCB (SP) 1no CENTRAL TEST UNIT — LIGHTING/EMERGENCY LIGHTING
50A TP MCCB
40A TP MCCB
BUSBAR IN SEALABLE CHAMBER TO ESB REQUIREMENTS.
63A TP MCCB
SURGE ARRESTOR TYPE 2: 400V TP&N
6A BS88
"HEALTHY" PHASE INDICATION LAMPS

INTRUDER ALARM PANEL LINKED TO FIRE ALARM PANEL FOR MONITORING PURPOSES (2C x 2.5mm2 PH 120 FIRE RATED CABLE)

MRCS — TO THE MAIN DISABLED REFUGE CONTROL PANEL FOR THE BUILDING
MIAP — TO EXISTING MAIN INTRUDER ALARM PANEL FOR BUILDING
MFAP — TO NEW MAIN FIRE ALARM PANEL FOR BUILDING
TO PASSENGER LIFT ELECTRICAL EQUIPMENT
TO ELECTRIC COOKER BOARD

BOARD: NEW SUB DISTRIBUTION BOARD (NSDB.01)
LOCATION: STORE ON THE GROUND FLOOR
FORM: FORM 3A
TYPE: WALL MOUNTED

PHOTOCELL
7-DAY TIMECLOCK
HAND-OFF-AUTO HOA
2C x 2.5mm2 LSF IN CONDUIT
4C x 1.5mm2 PH120 FIRE RATED CABLE
1 x 4C x 16mm2 LSF/SWA/XLPE+EARTH
SURGE ARRESTOR TYPE 2: 230V SP&N
SURGE ARRESTOR TYPE 2: 400V TP&N

15x1x10A MCB (SP) 1no CENTRAL TEST UNIT — GENERAL LIGHTING AND EMERGENCY LIGHTING
3x1x32A MCB (SP) 1no CENTRAL TEST UNIT — COOKER
30x1x20A RCBO (SP) 3x1x25A RCBO (SP) 3x1x50A RCBO (SP) 3x2x25A RCBO (SP) — POWER/GENERAL SERVICES
12x1x10A MCB (SP) — EXTERNAL LIGHTING
PASSENGER LIFT
COOKER BOARD
32A TP MCCB SPARE | 40A TP MCCB SPARE | 50A TP MCCB SPARE
50A TP MCCB
63A TP MCCB
32A TP MCCB
20A SP MCCB — LOCKABLE (ON) WITH ENGRAVED LABEL "DISABLED REFUGE: DO NOT SWITCH OFF"
25A SP MCCB — LOCKABLE (ON) WITH ENGRAVED LABEL "INTRUDER ALARM: DO NOT SWITCH OFF"
25A SP MCCB — LOCKABLE (ON) WITH ENGRAVED LABEL "FIRE ALARM: DO NOT SWITCH OFF"
BUSBAR IN SEALABLE CHAMBER TO ESB REQUIREMENTS.
80A TP MCCB
6A BS88
"HEALTHY" PHASE INDICATION LAMPS
SURGE ARRESTOR TYPE 2: 400V TP&N

BOARD: NEW SUB DISTRIBUTION BOARD (NSDB.02)
LOCATION: COMPUTER ROOM ON THE GROUND FLOOR
FORM: FORM 2B (TYPE 1)
TYPE: WALL MOUNTED
6x1x20A RCBO (SP) — POWER/GENERAL SERVICES
3x1x10 AMP MCB (SP) 1no CENTRAL TEST UNIT — LIGHTING/EMERGENCY LIGHTING
63A TP MCCB
50A TP MCCB
BUSBAR IN SEALABLE CHAMBER TO ESB REQUIREMENTS.
SURGE ARRESTOR TYPE 2: 400V TP&N
6A BS88
"HEALTHY" PHASE INDICATION LAMPS

BOARD: NEW SUB DISTRIBUTION BOARD (NSDB.03)
LOCATION: STORE ROOM GOUND FLOOR
FORM: FORM 2B (TYPE 1)
TYPE: WALL MOUNTED
32A TP MCCB SPARE | 40A TP MCCB SPARE | 50A TP MCCB SPARE | 63A TP MCCB
30x1x20A RCBO (SP) 3x1x25A RCBO (SP) 3x1x50A RCBO (SP) — POWER/GENERAL SERVICES
12x1x10 AMP MCB (SP) 1no CENTRAL TEST UNIT — LIGHTING/EMERGENCY LIGHTING
50A TP MCCB
63A TP MCCB
BUSBAR IN SEALABLE CHAMBER TO ESB REQUIREMENTS.
SURGE ARRESTOR TYPE 2: 400V TP&N
6A BS88
"HEALTHY" PHASE INDICATION LAMPS

BOARD: NEW SUB DISTRIBUTION BOARD (NSDB.04)
LOCATION: STORE ROOM GOUND FLOOR
FORM: FORM 2B (TYPE 1)
TYPE: WALL MOUNTED
32A TP MCCB SPARE | 40A TP MCCB SPARE | 50A TP MCCB
20x1x20A RCBO (SP) 3x1x25A RCBO (SP) 3x1x50A RCBO (SP) — POWER/GENERAL SERVICES
12x1x10 AMP MCB (SP) 1no CENTRAL TEST UNIT — LIGHTING/EMERGENCY LIGHTING
50A TP MCCB
63A TP MCCB
BUSBAR IN SEALABLE CHAMBER TO ESB REQUIREMENTS.
SURGE ARRESTOR TYPE 2: 400V TP&N
6A BS88
"HEALTHY" PHASE INDICATION LAMPS

BOARD: NEW SUB DISTRIBUTION BOARD (NSDB.06)
LOCATION: ASD STORE ROOM GOUND FLOOR
FORM: FORM 2B (TYPE 1)
TYPE: WALL MOUNTED
32A TP MCCB SPARE | 40A TP MCCB SPARE | 50A TP MCCB
30x1x20A RCBO (SP) 3x1x25A RCBO (SP) 3x1x50A RCBO (SP) — POWER/GENERAL SERVICES
12x1x10 AMP MCB (SP) 1no CENTRAL TEST UNIT — LIGHTING/EMERGENCY LIGHTING
50A TP MCCB
63A TP MCCB
BUSBAR IN SEALABLE CHAMBER TO ESB REQUIREMENTS.
SURGE ARRESTOR TYPE 2: 400V TP&N
6A BS88
"HEALTHY" PHASE INDICATION LAMPS

NEW SUB-MAINS CABLE TO CONNECT TO THE EXISTING PV INVERTER FOR THE PV SYSTEM. THE INVERTOR IS INSTALLED IN THE SAME PRESS AS THE NEW MAIN DISTRIBUTION ELECTRICAL BOARD.

NEW 1no x 5core x 16mm2 THREE-PHASE LSF/SWA/XLPE SUB-MAINS CABLE WITH EARTH FROM THE NEW MAIN DISTRIBUTION ELECTRICAL BOARD (NMDB.01) TO THE EXISTING PV INVERTER WHICH IS INSTALLED BESIDE THE NEW MAIN DISTRIBUTION ELECTRICAL BOARD. THE APPROXIMATE LENGTH OF CABLE REQUIRED IS 25METRES SO ALLOW FOR A CABLE OF THAT LENGTH. ALLOW FOR CONNECTING THE SUB-MAINS CABLING AT EACH END.

1 x 4C x 35mm2 LSF/SWA/XLPE+EARTH

BOARD: NEW MAIN DISTRIBUTION BOARD (NMDB.02) (SCHOOL)
LOCATION: CORRIDOR
FORM: FORM 3A
TYPE: WALL MOUNTED

CM — PV CHECK METER
1no 3Px32A RCBO (TP) PV CHECK METER
PV INVERTOR
40A TP MCCB
63A TP MCCB | 80A TP MCCB | 63A TP MCCB | 80A TP MCCB | 100A TP MCCB | 80A TP MCCB | 80A TP MCCB | 80A TP MCCB | 80A TP MCCB
BUSBAR IN SEALABLE CHAMBER TO ESB REQUIREMENTS. RATED AT 1000A – 50kA FOR 1 SECOND.
FIRE MANS SWITCH
SURGE ARRESTOR TYPE 1 & 2: 400V TP&N
100 TP MCCB
EARTH BLOCK
TEST LINK
50sq mm EARTH (LSF)
50 sq mm EARTH (LSF)
SPARE | SPARE | SPARE | SPARE | MAINS INCOMER

NOTE:
SURGE PROTECTION PROVIDED ON ALL INCOMING SUPPLIES AT MAIN BOARD

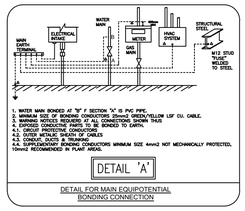
TO EXISTING SENIOR SCHOOL MAIN DISTRIBUTION BOARD

NEW 1 x4C x 25 mm2 LSF/SWA/XLPE+EARTH
SUBMAINS CABLE FOR RATOATH JUNIOR SCHOOL
NEW 1 x4C x 95 mm2 LSF/SWA/XLPE+EARTH
CONCRETE EARTH PIT
BOARD: NEW MAIN METERED DISTRIBUTION BOARD (NMDB.01) (ESB)
LOCATION: ESB EXTERNAL STORE ROOM
TYPE: WALL MOUNTED
EXISTING 1 x 4C x 70mm2 LSF/SWA/XLPE+EARTH SUBMAINS CABLE FOR RATOATH JUNIOR SCHOOL

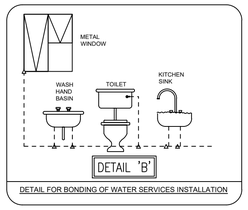
TO EXISTING BOARD IN THE ESB EXTERNAL STORE



125A 3 PHASE ISOLATOR FOR RATOATH JUNIOR SCHOOL AFTER ESB METER
125 TP MCCB
ESB METER
ESB METER FOR RATOATH JUNIOR SCHOOL
125A 3 PHASE ISOLATOR FOR RATOATH JUNIOR SCHOOL
ISOLATOR TO ISOLATE POWER FOR BOTH SCHOOLS
125A 3 PHASE ISOLATOR FOR RATOATH SENIOR SCHOOL AFTER ESB METER
ESB METER FOR RATOATH SENIOR SCHOOL
125A 3 PHASE ISOLATOR FOR RATOATH SENIORSCHOOL
160 TP MCCB
CABLE TO BE PROVIDED BY THE ESB
E.S.B. FUSES (400A)
THREE-PHASE E.S.B. INCOMING CABLES



DETAIL FOR MAIN EQUIPOTENTIAL BONDING CONNECTION



DETAIL FOR BONDING OF WATER SERVICES INSTALLATION

MCB'S SHALL BE TYPE B,C,D TO ISEN 60898 TO THE FOLLOWING TABLE

TYPE	INSTANTANEOUS TRIP CURRENT	APPLICATION
B	5 x In	RESISTIVE LOADS
C	10 x In	DISCHARGE LIGHTING, SMALL MOTORS ETC.
D	20 x In	LARGE INDUCTIVE LOADS, LARGE MOTORS, WELDING PLANT, ETC.

NOTE: SIZES OF EARTHS TO CONFORM WITH THE FOLLOWING TABLE.

CROSS SECTIONAL AREA OF CONDUCTOR. S sqmm	CROSS SECTIONAL AREA OF CORRESPONDING PROTECTIVE CONDUCTOR.
S ⩽ 16	S
16 ⩽ S < 35	16
S > 35	0.5S

SCHEMATIC SYMBOLS

- MCB — MINIATURE CIRCUIT BREAKER
- MCCB — MOULDED CASE CIRCUIT BREAKER
- RCB — RESIDUAL CURRENT DEVICE
- SWA — STEEL WIRED ARMOURED
- XLPE — CROSS-LINKED POLYETHYLENE
- LSF — LOW SMOKE FLAME
- A — AMP
- ** MCCB — THREE-PHASE MCCB (** INDICATES SIZE OF MCCB)
- ** MCCB — SINGLE-PHASE MCCB (** INDICATES SIZE OF MCCB)
- HOA — HAND-OFF AUTO SWITCH
- MET — MAIN EARTH TERMINAL
- MAIN EARTH ELECTRODES
- CONTACTOR C/W OVERLOAD PROTECTION
- CM — DIGITAL CHECK METER
- EARTHING
- ELTU — EMERGENCY LIGHTING TEST UNIT
- P — PHOTOCELL
- 7-DAY DIGITAL TIMECLOCK
- CONTACTOR C/W OVERLOAD PROTECTION
- FAP — FIRE ALARM PANEL
- IAP — INTRUDER ALARM PANEL
- THREE-PHASE BUSBAR
- C — CONTACTOR
- 3-PHASE ISOLATOR

GENERAL NOTES:

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE PARTICULAR SPECIFICATIONS.
2. THE CONTRACTOR SHALL CO-ORDINATE FULLY WITH ALL OTHER TRADES BEFORE COMMENCING WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CO-ORDINATION OF ALL SERVICES AND WORKS REQUIRED FOR THE PROJECT. THE CONTRACTOR SHALL CO-ORDINATE FULLY WITH ALL OTHER TRADES BEFORE COMMENCING WORK.
3. EXTRA COSTS INCURRED DUE TO THE CO-ORDINATION EXERCISE NOT BEING COMPLETED WILL NOT BE ACCEPTED BY THE ENGINEER.
4. DO NOT SCALE THIS DRAWING. ALL DIMENSIONS TO BE TAKEN ON SITE. ALL DIMENSIONS IN mm, UNLESS STATED OTHERWISE
5. EXACT LOCATIONS OF ALL SERVICES TO BE AGREED ON SITE. FINAL LOCATIONS OF ALL SERVICES TO BE CO-ORDINATED ON SITE WITH EXISTING LOOSE AND FIXED FURNITURE LAYOUTS IN THE ROOM.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ELECTRICAL WORKS AND BUILDERS WORKS AS IDENTIFIED ON THE DRAWINGS AND IN THE SPECIFICATIONS.
7. THE MAJORITY OF THE EXISTING ELECTRICAL INSTALLATION IN THE BUILDING SHALL BE DECOMMISSIONED AND REMOVED AND REPLACED WITH NEW ELECTRICAL INSTALLATIONS. THE CONTRACTOR SHALL ALLOW FOR DECOMMISSIONING THE FOLLOWING ITEMS IN THE BUILDING AS INDICATED ON THE DRAWINGS:
   - THE EXISTING ELECTRICAL BOARDS IN THE BUILDING SHALL BE DECOMMISSIONED AND REMOVED (APART FROM THE NEW COOKER BOARDS).
   - THE EXISTING POWER AND GENERAL SERVICES INSTALLATION THROUGHOUT THE BUILDING (APART FROM THE NEW COOKER BOARDS) SHALL BE DECOMMISSIONED AND REMOVED. INCLUDING ALL SOCKETS, SPURS, ISOLATORS, CABLING, ETC.
   - THE EXISTING GENERAL LIGHTING SERVICES INSTALLATION THROUGHOUT THE BUILDING (APART FROM THE ASD CENTRAL BLOCK WHICH IS TO BE RE-WIRED ONLY AS INDICATED ON THE DRAWINGS) AND ALL THE EXTERNAL LIGHTING SHALL BE DECOMMISSIONED AND REMOVED INCLUDING ALL LIGHT FITTINGS, CABLING, CONTAINMENT, ETC.
   - THE EXISTING EMERGENCY LIGHTING SERVICES INSTALLATION THROUGHOUT THE BUILDING SHALL BE DECOMMISSIONED AND REMOVED INCLUDING ALL EMERGENCY LIGHT FITTINGS, CABLING, CONTAINMENT, ETC.
   - THE EXISTING FIRE ALARM SERVICES INSTALLATION THROUGHOUT THE BUILDING SHALL BE DECOMMISSIONED AND REMOVED INCLUDING ALL SMOKE DETECTORS, HEAT DETECTORS, PANELS, ETC.
8. THE CONTRACTOR SHALL BE RESPONSIBLE TO IDENTIFY SUITABLE FINAL ROUTES FOR ALL CONTAINMENT AND TRAY THROUGHOUT THE BUILDING FOR THE NEW ELECTRICAL SERVICES AND CABLING. NEW MAIN RUNS OF ELECTRICAL TRUNKING/TRAY SHALL BE INSTALLED IN THE AREAS AS INDICATED ON THE DRAWINGS BUT THIS IS INDICATIVE ONLY AND IF THE CONTRACTOR FINDS A MORE CONVENIENT ROUTE FOR ELECTRICAL CONTAINMENT ON SITE THEN THAT WILL BE ACCEPTABLE.

ELECTRICAL SCHEMATIC SERVICES NOTES:

9. THE CONTRACTOR SHALL ALLOW FOR DECOMMISSIONING AND REMOVAL OF ALL THE EXISTING ELECTRICAL BOARDS THROUGHOUT THE BUILDING AND REPLACING ALL THESE ELECTRICAL BOARDS WITH NEW ELECTRICAL BOARDS. SEE DRAWINGS FOR LOCATIONS, QUANTITIES AND REQUIREMENTS FOR ALL THE NEW ELECTRICAL BOARDS.
10. REFER TO THIS DRAWING FOR DETAILS ON THE ELECTRICAL BOARDS TO BE SUPPLIED AND INSTALLED IN THE BUILDING, SIZE OF SUB-MAINS CABLE TO BE SUPPLIED FROM THE MAIN BOARD TO ELECTRICAL BOARDS AND ALL INFORMATION ON THE ELECTRICAL BOARDS.
11. REFER TO THIS DRAWING FOR THE SIZE OF THE SUB-MAINS CABLE TO BE SUPPLIED FROM THE NEW MAIN BOARD TO THE ELECTRICAL BOARDS IN THE BUILDING AND ALL INFORMATION ON THE ELECTRICAL BOARDS ARE HIGHLIGHTED ON THIS SCHEMATIC.
12. NEW SUB-MAINS CABLE SHALL BE INSTALLED BETWEEN THE NEW MAIN DISTRIBUTION ELECTRICAL BOARD AND ALL THE NEW SUB-DISTRIBUTION ELECTRICAL BOARDS AS INDICATED ON THE ELECTRICAL SCHEMATIC
13. EIGHT NEW ELECTRICAL BOARDS SHALL BE SUPPLIED AND INSTALLED IN THE BUILDING AS INDICATED ON THE DRAWING. REFER TO DRAWINGS FOR LOCATIONS AND MAKE-UP OF EACH NEW ELECTRICAL BOARD.
14. THE CONTRACTOR SHALL ALLOW OF THE EFFECTIVE BONDING AND EARTHING OF THE ELECTRICAL INSTALLATION AND THE ELECTRICAL CABLE CONTAINMENT SYSTEM. ALL EARTHING AND BONDING SHALL COMPLY WITH CURRENT ETCI REGULATIONS.
15. ANY SINGLE PHASE CIRCUIT FED DIRECTLY FROM A THREE-PHASE DISTRIBUTION BOARD SHALL HAVE THE APPROPRIATE PHASE COLOUR EXTENDED INTO THE SINGLE PHASE CIRCUITS FED FROM THAT PHASE.
16. REFER TO TABLE 51C COLOUR CODE FOR CABLE CORES AND INSULATED CONDUCTORS OF ET10101 OF THE NATIONAL RULES FOR ELECTRICAL INSTALLATIONS.
17. SURGE PROTECTION TO BE INSTALLED ON ALL NEW ELECTRICAL BOARDS AS INDICATED. SEE SPECIFICATION FOR FURTHER DETAILS.
18. REFER TO THE SCHEMATIC FOR THE FORM OF ALL NEW ELECTRICAL BOARDS.
19. MAIN INCOMING ACB SHALL HAVE A RATED PROSPECTIVE SHORT CIRCUIT CURRENT OF NOT LESS THAN 40 kA AT A POWER FACTOR OF 0.2, AND SHALL BE TESTED TO P2 CATEGORY IEC157-1.
20. BUSBARS SHALL BE HDHC COPPER OF UNIFORM CROSS SECTION AND SHALL COMPLY FULLY WITH BS 159. THE BUSBAR SYSTEM SHALL BE TYPE TESTED IN ACCORDANCE WITH IEC 439 AND BE CAPABLE OF CARRYING THE CONTINUOUS LOAD CURRENT AS SPECIFIED.
21. BUSBARS CONNECTIONS UP TO 63 AMP MAY BE EFFECTED BY MEANS OF CABLE. BRACED AND SUPPORTED AS NECESSARY, WHEREAS CONNECTIONS ABOVE 63 AMP SHALL BE MADE BY MEANS OF HDHC RECTANGULAR SECTION COPPER BUSBAR, INSULATED AND SUPPORTED AS NECESSARY.
22. INSTALLATION RADII ON MEDIUM VOLTAGE CABLING SHALL BE AS LARGE AS POSSIBLE AND SHALL IN NO INSTANCE BE LESS THAN 18 TIMES THE OVERALL CABLE DIAMETER.
23. THE ENGINEERS APPROVAL/ COMMENT/ VERIFICATION OF WORKING OR MANUFACTURING DRAWINGS SUBMITTED BY THE CONTRACTOR SHALL NOT IN ANY WAY RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITY IN RESPECT OF THE ACCURACY OF ALL SUCH DRAWINGS NOR FROM HIS RESPONSIBILITY FOR PROVIDING EQUIPMENT SUITABLE IN DIMENSIONS, CONSTRUCTION AND FINISH.
24. THE BOARD SUPPLIER SHALL GUARANTEE AND DEMONSTRATE THAT FULL DISCRIMINATION IS ACHIEVED THROUGHOUT THE SWITCHGEAR SYSTEM.
25. THE CONTRACTOR SHALL ALLOW FOR DECOMMISSIONING THE EXISTING ELECTRICAL BOARDS THAT ARE IN PLACE IN THE BUILDING AND REPLACING THESE WITH NEW ELECTRICAL BOARDS. THE CONTRACTOR SHALL ALLOW FOR SUPPLYING AND INSTALLING NEW ELECTRICAL BOARDS IN REPLACEMENT OF THE EXISTING BOARDS THAT WILL BE DECOMMISSIONED. THE NEW ELECTRICAL BOARDS SHALL BE INSTALLED IN THE SAME LOCATIONS AS THE EXISTING ELECTRICAL BOARDS.

REV	DATE	PREPARED BY/PROJECT ENGINEER	QUALITY CHECK BY:
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Drawing Status: TENDER

Job Title: RATOATH JUNIOR N.S. RATOATH, CO. MEATH. A85 P296

Drawing Title: NEW ELECTRICAL SCHEMATIC FOR THE NEW BOARDS AND NEW ELECTRICAL INSTALLATION IN THE BUILDING.

Architect:

Drawing No: 61(E001)

Job No.	Drawn by:	Scale:	Rev.
26-066	R.W.	N.T.S.	T1