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PURPOSE

GENERAL

1. THE FOLLOWING GUIDELINES AND RECOMMENDATIONS ARE PROVIDED TO ASSIST THE PRIMARY DESIGN ENGINEER, IN THE PREPARATION OF PRIMARY DESIGN DRAWINGS. THE INFORMATION CONTAINED IN THESE NOTES IS IN ACCORDANCE WITH WATER CORPORATION DESIGN STANDARDS AND IS BASED ON NORMAL PRACTICES AND REQUIREMENTS ESTABLISHED FROM PRACTICAL EXPERIENCE GAINED OVER MANY DECADES
2. THESE GUIDELINES AND RECOMMENDATIONS DO NOT SUPERSEDE ANY STATUTORY OR REGULATORY REQUIREMENTS
3. IF SPECIFIC PROJECT DESIGN REQUIREMENTS ARE SIGNIFICANTLY DIFFERENT FROM THESE GUIDELINES AND RECOMMENDATIONS, THE PRIMARY DESIGNER SHALL SEEK ADVICE FROM THE SENIOR PRINCIPAL ENGINEER, ELECTRICAL, ENGINEERING. A WRITTEN REQUEST FOR DISPENSATION TO VARY FROM THESE GUIDELINES MAY BE REQUIRED

ELECTRICAL SITE LAYOUTS

INCOMING MAINS CABLING

1. FOR SITES WHERE THE POINT OF SUPPLY (CONNECTION) IS FROM A SUPPLY AUTHORITY SERVICE PILLAR, THE UNDERGROUND CONDUIT CONTAINING THE CONSUMER MAINS CABLING SHALL BE PATHED TO TERMINATE DIRECTLY UNDER THE INCOMER CUBICLE OF THE MAIN SWITCHBOARD, UTILISING THE MOST DIRECT ROUTE POSSIBLE.
2. FOR SITES WHERE THE POINT OF SUPPLY (CONNECTION) IS FROM A SOLE–USE GROUND–MOUNT TRANSFORMER CONTIGUOUS WITH THE MAIN SWITCHBOARD, THE UNDERGROUND CONDUIT CONTAINING THE CONSUMER MAINS CABLING SHALL BE PATHED TO TERMINATE DIRECTLY UNDER THE INCOMER CUBICLE OF THE MAIN SWITCHBOARD, UTILISING THE MOST DIRECT ROUTE POSSIBLE
3. FOR SITES WHERE THE POINT OF SUPPLY (CONNECTION) IS FROM A SUPPLY AUTHORITY SERVICE PILLAR, THE MAXIMUM ROUTE LENGTH OF THE UNDERGROUND CONDUIT CONTAINING THE CONSUMER MAINS CABLING IS 30 METRES AND THE USE OF CABLE PITS OR JOINTING OF CONSUMER MAINS CABLING IS NOT PERMITTED. IN ADDITION, THE DESIGN SHALL INCLUDE ALL OTHER REQUIREMENTS OF THE SUPPLY AUTHORITY
4. CAREFUL PLANNING OF THE MAIN SWITCHBOARD LOCATION IS REQUIRED TO ENSURE A DIRECT PATH FOR THE UNDERGROUND CONDUIT CONTAINING THE CONSUMER MAINS CABLING IS MAINTAINED

SUBMAIN CABLING

1. FOR SITES WHERE A SUPPLY FROM AN OUTDOOR MAIN SWITCHBOARD FEEDS AN OUTDOOR SUB–SWITCHBOARD (E.G. PUMP STATION SWITCHBOARD), THE UNDERGROUND CONDUIT CONTAINING THE SUBMAINS CABLING SHALL BE PATHED TO TERMINATE DIRECTLY UNDER THE FEEDER CUBICLE OF THE MAIN SWITCHBOARD AND THE INCOMER CUBICLE OF THE PUMP STATION SWITCHBOARD

ALTERNATE POWER SUPPLY CABLING

1. FOR SITES WITH A MAXIMUM DEMAND OF 100A, WHERE AN ALTERNATE POWER SUPPLY IS FROM A PERMANENT STANDBY SUPPLY GENERATOR AND/OR AN INVERTER ENERGY SYSTEM, THE UNDERGROUND CONDUIT/S CONTAINING THE ALTERNATE POWER SUPPLY CABLING SHALL BE PATHED TO TERMINATE DIRECTLY UNDER THE INCOMER CUBICLE OF THE MAIN SWITCHBOARD
2. FOR SITES WITH A MAXIMUM DEMAND OF 220A, WHERE AN ALTERNATE POWER SUPPLY IS FROM A PERMANENT STANDBY SUPPLY GENERATOR, THE UNDERGROUND CONDUIT CONTAINING THE ALTERNATE POWER SUPPLY CABLING SHALL BE PATHED TO TERMINATE DIRECTLY UNDER THE TRANSFER CUBICLE OF THE MAIN SWITCHBOARD
3. FOR SITES WITH A MAXIMUM DEMAND OF 220A, WHERE AN ALTERNATE POWER SUPPLY IS FROM AN INVERTER ENERGY SYSTEM, THE UNDERGROUND CONDUIT/S CONTAINING THE ALTERNATE POWER SUPPLY CABLING SHALL BE PATHED TO TERMINATE DIRECTLY UNDER THE MAIN SWITCH/ES AND DISTRIBUTION CUBICLE OF THE MAIN SWITCHBOARD
4. FOR SITES WITH A MAXIMUM DEMAND OF 440A, WHERE AN ALTERNATE POWER SUPPLY IS FROM A PERMANENT STANDBY SUPPLY GENERATOR AND/OR AN INVERTER ENERGY SYSTEM, THE UNDERGROUND CONDUIT/S CONTAINING THE ALTERNATE POWER SUPPLY CABLING SHALL BE PATHED TO TERMINATE DIRECTLY UNDER THE MAIN SWITCHES AND MAINS CHANGEOVER CUBICLE OF THE MAIN SWITCHBOARD

INCOMER CUBICLE LOCATION WITHIN AN OUTDOOR MAIN SWITCHBOARD

1. FOR OUTDOOR MAIN SWITCHBOARDS (100A MAXIMUM DEMAND) CONSISTING OF Mk8 STANDARD CUBICLES, THE INCOMER CUBICLE IS PERMANENTLY LOCATED IN THE FIRST CUBICLE POSITION AT THE LEFT HAND END OF THE MAIN SWITCHBOARD
2. FOR OUTDOOR MAIN SWITCHBOARDS (100A MAXIMUM DEMAND) CONSISTING OF A POST MOUNTED MINI CUBICLE, THE INCOMING SPD AND SUPPLY AUTHORITY METERING IS PERMANENTLY LOCATED WITHIN THIS CUBICLE
3. FOR OUTDOOR MAIN SWITCHBOARDS (220A MAXIMUM DEMAND) CONSISTING OF Mk8 STANDARD CUBICLES, THE SUPPLY AUTHORITY METERING CUBICLE IS PERMANENTLY LOCATED IN THE FIRST CUBICLE POSITION AT THE LEFT HAND END OF THE MAIN SWITCHBOARD
4. FOR OUTDOOR MAIN SWITCHBOARDS (220A MAXIMUM DEMAND) CONSISTING OF Mk8 STANDARD CUBICLES, THE INCOMER CUBICLE IS PERMANENTLY LOCATED IN THE SECOND CUBICLE POSITION TO THE RIGHT THE SUPPLY AUTHORITY METERING CUBICLE
5. FOR OUTDOOR MAIN SWITCHBOARDS (440A MAXIMUM DEMAND) CONSISTING OF Mk9 STANDARD CUBICLES, THE SUPPLY AUTHORITY METERING CUBICLE IS PERMANENTLY LOCATED IN THE FIRST CUBICLE POSITION AT THE LEFT HAND END OF THE MAIN SWITCHBOARD
6. FOR OUTDOOR MAIN SWITCHBOARDS (440A MAXIMUM DEMAND) CONSISTING OF Mk9 STANDARD CUBICLES, THE INCOMER CUBICLE IS PERMANENTLY LOCATED IN THE SECOND CUBICLE POSITION TO THE RIGHT OF THE SUPPLY AUTHORITY METERING CUBICLE
7. FOR ALL OUTDOOR SWITCHBOARDS THE ARRANGEMENT (POSITIONING) OF ALL CUBICLES IS NOT OPTIONAL AND SHALL NOT BE VARIED, WITHOUT REFERENCE TO THE SWITCHBOARD MANUFACTURER AND WRITTEN DISPENSATION FROM THE SENIOR PRINCIPAL ENGINEER, ELECTRICAL, ENGINEERING

ORIENTATION OF SWITCHBOARDS AT WASTEWATER OUTDOOR WETWELL PUMPING STATIONS

1. FOR WASTEWATER SITES HAVING ONE ONLY MAIN SWITCHBOARD, THE MAIN SWITCHBOARD SHALL BE LOCATED ADJACENT THE WETWELL AND ORIENTATED SUCH THAT THE FRONT DOORS OF THE SWITCHBOARD FACE THE WETWELL, SO THAT OPERATORS AND MAINTENANCE PERSONNEL CAN MONITOR THE WETWELL
2. FOR WASTEWATER SITES HAVING BOTH A MAIN SWITCHBOARD AND A PUMPING STATION SWITCHBOARD, THE PUMPING STATION SWITCHBOARD SHALL BE LOCATED ADJACENT THE WETWELL AND ORIENTATED SUCH THAT THE FRONT DOORS OF THE SWITCHBOARD FACE THE WETWELL, SO THAT OPERATORS AND MAINTENANCE PERSONNEL CAN MONITOR THE WETWELL

LOCATION OF CONTROL CUBICLES WITH RESPECT TO SWITCHBOARDS

1. OPERATIONAL TECHNOLOGY (OT) ARE RESPONSIBLE FOR THE DEVELOPMENT AND DESIGN FUNCTIONS FOR CONTROL CUBICLES
2. FOR LARGE LOW VOLTAGE SWITCHBOARD APPLICATIONS THE CONTROL CUBICLE SHALL BE LOCATED OUTSIDE THE ARC FLASH BOUNDARY DETERMINED FOR EACH PARTICULAR PROJECT/INSTALLATION IN ACCORDANCE WITH DESIGN STANDARDS DS20 AND DS29
3. FOR MINOR LOW VOLTAGE SWITCHBOARD APPLICATIONS THE CONTROL CUBICLE SHALL NOT BE PHYSICALLY CONNECTED TO THE SWITCHBOARD AND A SPACING OF NOT LESS THAN 100mm SHALL BE MAINTAINED BETWEEN THE ELECTRICAL SWITCHBOARD AND THE CONTROL CUBICLE, IN ACCORDANCE WITH DESIGN STANDARD DS20

ENVIRONMENTAL CONDITIONS FOR SWITCHBOARDS UTILISING VARIABLE SPEED CONTROLLERS

1. VARIABLE SPEED CONTROLLERS AND ASSOCIATED FILTERS ARE SENSITIVE TO THE ENVIRONMENT AND ARE AFFECTED BY HEAT, DUST AND MOISTURE. WASTEWATER WET–WELL SITES ARE CONSIDERED AS HAVING HARSH ENVIRONMENTAL CONDITIONS.
2. FOR ALL VARIABLE SPEED CONTROLLER APPLICATIONS AND ESPECIALLY FOR WASTEWATER SITES WHERE VARIABLE SPEED CONTROLLERS AND FILTERS ARE HOUSED IN AN OUTDOOR SWITCHBOARD WHICH IS LOCATED ADJACENT TO THE WETWELL, THE PRIMARY DESIGN SHALL CONSIDER THE ENVIRONMENTAL IMPACT ON THE VARIABLE SPEED CONTROLLER AND FILTERS AND WHERE POSSIBLE LOCATE THE SWITCHBOARD IN SUCH A POSITION AS TO MINIMISE OR ELIMINATE EXPOSURE FROM CORROSIVE GASES, DUST, EXCESSIVE HEAT SOURCES AND HIGH LEVELS OF MOISTURE

MOTOR STARTING

VARIABLE SPEED CONTROLLERS AS STARTERS

1. THE USE OF VARIABLE SPEED CONTROLLERS AS STARTERS CAN INTRODUCE COMPLEX TECHNICAL ISSUES INTO A PROJECT ELECTRICAL DESIGN, DUE TO THE COMPLEX NATURE OF VARIABLE SPEED CONTROLLER FUNCTIONALITY AND OPERATION. AN IN–DEPTH INVESTIGATION AND ASSESSMENT IS REQUIRED AS PART OF THE PRIMARY DESIGN PROCESS TO ENSURE ALL OF THE TECHNICAL ISSUES ARE ADDRESSED AND APPROPRIATE MITIGATION STEPS ARE TAKEN IN ACCORDANCE WITH WITH THE MANUFACTURERS RECOMMENDATIONS AND DESIGN STANDARD DS22
2. THE COMPLEX TECHNICAL ISSUES CAN INCLUDE, BUT ARE NOT LIMITED TO HARMONIC CURRENT AND VOLTAGE DISTORTION OF THE ELECTRICAL SUPPLY, ELECTROMAGNETIC INTERFERENCE, EXCESSIVE HEAT AND EXCESSIVE NOISE.
3. IT IS ESSENTIAL THAT THE MOTOR CHARACTERISTICS OF A NEW OR EXISTING MOTOR USED IN CONJUNCTION WITH A VARIABLE SPEED CONTROLLER BE INVESTIGATED TO ESTABLISH ITS SUITABILITY, PARTICULARLY dV/dT (VOLTAGE SPIKES) FOR EXSITING INSTALLATIONS. STANDARDS AND MANUFACTURERS RECOMMENDATIONS FOR MOTOR INSULATION TO BE CONSIDERED
4. SUBMERSIBLE BOREHOLE MOTORS DRIVEN BY PWM VARIABLE SPEED CONTROLLERS (VSC) SHALL EMPLOY SINUSOIDAL FILTERS ON THE OUTPUT OF THE VSC
5. VARIABLE SPEED CONTROLLERS FOR OUTDOOR PUMPING STATION APPLICATIONS HAVE BEEN SPECIFICALLY SELECTED AND TESTED TO PERFORM IN HARSH ENVIRONMENTAL CONDITIONS AND SHALL NOT BE SUBSTITUTED FOR OTHER MAKES OR MODELS
6. VARIABLE SPEED CONTROLLER FILTERS FOR OUTDOOR PUMPING STATION APPLICATIONS HAVE BEEN SPECIFICALLY SELECTED FOR HIGH AMBIENT TEMPERATURE ENVIRONMENTAL CONDITIONS AND SHALL NOT BE SUBSTITUTED FOR OTHER MAKES OR MODELS
7. VARIABLE SPEED CONTROLLERS FOR OUTDOOR PUMPING STATION APPLICATIONS IN THE OUTPUT CURRENT RANGE 1.1–150.5A REQUIRE SPECIALLY VENTILATED CUBICLES AND SHALL NOT BE HOUSED IN SEALED (IP56 RATED) CUBICLES
8. VARIABLE SPEED CONTROLLERS FOR OUTDOOR PUMPING STATION APPLICATIONS IN THE OUTPUT CURRENT RANGE 150.6–263A REQUIRE A TEMPERATURE CONTROLLED ENVIRONMENT AND SHALL NOT BE HOUSED IN OUTDOOR CUBICLES
9. THE USE OF A LINE REACTOR IS CONSIDERED A RARE PROJECT SPECIFIC REQUIREMENT AND DOES NOT FORM PART OF THIS STANDARD DESIGN
10. VARIABLE SPEED CONTROLLERS AND FILTERS PRODUCE ACOUSTIC NOISE, FOR OUTDOOR APPLICATIONS THE PRIMARY DESIGN ELECTRICAL ENGINEER SHALL ASSESS ACCEPTABLE NOISE LEVELS FOR EACH PROJECT AND TAKE ACOUSTIC NOISE LIMITING MEASURES, WHICH MAY INCLUDE LIMITING VSC OPERATIONAL TIMES. (ESPECIALLY IN BUILT UP AREAS AFTER 7 P.M.)

MOTOR STARTING (CONT'D)

VARIABLE SPEED CONTROLLERS AS STARTERS (CONT'D)

11. *FOR INDOOR VSC AND FILTER APPLICATIONS THE ELECTRICAL DESIGN ENGINEER SHALL ASSESS ACCEPTABLE NOISE LEVELS CREATED BY BUILDING AIR CONDITIONERS FOR EACH PROJECT AND TAKE ACOUSTIC NOISE LIMITING MEASURES, WHICH MAY INCLUDE LIMITING VSC OPERATIONAL TIMES. (ESPECIALLY IN BUILT UP AREAS AFTER 7 P.M.) – [FUTURE–UNDER DEVELOPMENT]*
12. AGRESSIVE ATMOSPHERES DAMAGE VARIABLE SPEED CONTROLLER AND FILTER COMPONENTS, THE ELECTRICAL DESIGN ENGINEER SHALL ASSESS ENVIRONMENTAL CONDITIONS AND TAKE MEASURES TO REDUCE CORROSIVE ATMOSPHERE ATTACK OF THE VSC AND FILTERS. WHERE MEASURES CANNOT BE TAKEN TO AVOID AGRESSIVE ATMOSPHERES VARIABLE SPEED CONTROLLERS SHALL NOT BE EMPLOYED IN ACCORDANCE WITH MANUFACTURERS ENVIRONMENTAL SPECIFICATIONS
13. VARIABLE SPEED CONTROLLERS FOR OUTDOOR PUMPING STATION APPLICATIONS INCLUDED IN THE STANDARD DESIGNS, HAVE CONFORMAL COATINGS (CLASS 3C3) IN ACCORDANCE WITH IEC 60721–3.3 : 2019 FOR HARSH AND AGGRESSIVE ENVIRONMENTS
14. VARIABLE SPEED CONTROLLERS FOR OUTDOOR APPLICATIONS INSTALLED IN SPECIALLY VENTILATED CUBICLES DO NOT REQUIRE ACCESS BY OPERATORS AND SHALL BE SECURED WITH EL–2 BILOCK KEYED PADLOCKS FOR ACCESS BY ELECTRICAL MAINTENANCE PERSONNEL ONLY
15. FOR VARIABLE SPEED CONTROLLER MONITORING BY OPERATIONS PERSONNEL, THE VSC LOCAL CONTROL PANEL IS LOCATED IN THE VARIABLE SPEED CONTROLLER FEEDER CUBICLE
16. LINE CONTACTORS ARE NOT STANDARD FEATURES OF VARIABLE SPEED CONTROLLER STANDARD DESIGNS. ONLY INCLUDE VARIABLE SPEED CONTROLLER LINE CONTACTOR FOR APPLICATIONS REQUIRING MOTOR DECONTACTORS AND/OR EMERGENCY STOP PUSHBUTTONS OTHERWISE THE VARIABLE SPEED CONTROLLER TO REMAIN CONTINUOUSLY ENERGISED
17. VARIABLE SPEED CONTROLLERS FOR OUTDOOR PUMPING STATION APPLICATIONS REQUIRING SPECIALLY VENTILATED CUBICLES SHALL ONLY BE MOUNTED ON SPECIALLY VENTILATED SWITCHBOARD BASES. AIR FLOW THROUGH THE VENTILATED BASE AIR INLET VENTS SHALL NOT BE OBSTRUCTED
18. THE SPECIALLY VENTILATED CUBICLES FOR VARIABLE SPEED CONTROLLERS, FOR OUTDOOR PUMPING STATION APPLICATIONS, INCORPORATE AN UPPER AIR OUTLET VENT. THE AIR FLOW THROUGH THE AIR OUTLET VENT SHALL NOT BE OBSTRUCTED
19. THE VARIABLE SPEED CONTROLLER CUBICLES FOR OUTDOOR PUMPING STATION APPLICATIONS DO NOT INCLUDE ISOLATION SWITCHES, ISOLATION OF THESE CUBICLES IS OBTAINED FROM THE UPSTREAM FEEDER CUBICLE/S
20. THE VARIABLE SPEED CONTROLLERS INCLUDED IN THE STANDARD DESIGNS FOR OUTDOOR PUMPING STATION APPLICATIONS ARE SUPPLIED WITH IN–BUILT RFI FILTERS, REFER TO MANUFACTURERS DESIGN GUIDE
21. THE VARIABLE SPEED CONTROLLERS INCLUDED IN THE STANDARD DESIGNS FOR OUTDOOR PUMPING STATION APPLICATIONS UP TO 90kW ARE DESIGNED TO OPERATE WITH MOTOR SCREENED CABLES UP TO 150m WITHOUT THE NEED FOR dV/dT FILTERS OR SINE–WAVE FILTERS FOR NEW AND NON BORE APPLICATIONS. (THE MAXIMUM UNSCREENED CABLE LENGTH FOR THE VARIABLE SPEED CONTROLLER IS 300m)
22. THE MOTOR CABLES SHOULD BE KEPT AS SHORT AS POSSIBLE. FOR LONG CABLE DISTANCES AND SPECIALISED CABLE REQUIREMENTS REFER DESIGN STANDARD DS22 AND VSC MANUFACTURERS DESIGN GUIDE
23. MOTOR SHIELDED CABLES ARE NOT NECESSARY WHEN VARIABLE SPEED CONTROLLER OPERATED WITH SINE–WAVE OUTPUT FILTERS
24. THE SEPARATION DISTANCE FOR VARIABLE SPEED CONTROLLER MOTOR CABLING AND CONTROL WIRING SHALL BE NO LESS THAN 200mm. MOTOR CABLING AND CONTROL WIRING SHALL BE HOUSED IN SEPARATE CONDUITS
25. SPECIALISED MARECHAL DECONTACTORS RATED FOR ELECTROMAGNETIC COMPATIBILITY AND DESIGNED FOR VSC APPLICATIONS SHALL BE USED. THE EMC DECONTACTORS ARE IP65 RATED AND NOT SUITABLE FOR SUBMERSION IN WATER. DECONTACTORS FOR VSC APPLICATIONS LOCATED UNDERGROUND (E.G. IN A PIT) ARE NOT RECOMMENDED IF THERE IS A POTENTIAL RISK OF FLOODING
26. THERE ARE NO EQUIVALENT SPECIALISED EMC DECONTACTORS AVAILABLE MATCHING THE MARECHAL DSN6 RANGE OF DECONTACTORS USED IN CONVENTIONAL PUMPING STATION APPLICATIONS. FOR MOTORS WITH FLC ≤ 63A THE DS6 EMC RANGE REPLACES THE DSN6 RANGE. EXISTING MOTORS FITTED WITH DSN6 PLUGS ARE NOT COMPATIBLE WITH DS6 DECONTACTOR SOCKETS
27. MOTOR THERMAL PROTECTION IS PROVIDED BY THE ELECTRONIC THERMAL RELAY (ETR) PARAMETER WITHIN THE VARIABLE SPEED CONTROLLER FOR APPLICATIONS REQUIRING MOTOR PROTECTION TRIPPING CLASS 10 IN ACORDANCE WITH AS/NZS IEC 60947.4.1 : 2015
28. ENHANCED MOTOR THERMAL PROTECTION IS PROVIDED BY THE ELECTRONIC THERMAL RELAY (ETR) PARAMETER COMBINED WITH MOTOR TORQUE LIMIT PARAMETERS WITHIN THE VARIABLE SPEED CONTROLLER TO ACHIEVE MAXIMUM PROTECTION OF THE MOTOR

SWITCHBOARD CONSTRUCTION

SIGNAGE

1. IN ACCORDANCE WITH ELECTRICAL DESIGN STANDARD DS20 ATTACHING SIGNS AND LABELS TO ELECTRICAL OUTDOOR SWITCHBOARDS BY DRILLING AND FIXING USING RIVETS OR BOLTS IS NOT PERMITTED
2. APPROVED SIGN MATERIAL, LABEL MATERIAL AND METHOD OF ADHESION TO THE EXTERNAL SURFACES OF THE ELECTRICAL OUTDOOR SWITCHBOARDS ARE PROVIDED WITHIN THIS SET OF DRAWINGS
3. THE SITE ASSET IDENTIFICATION ADHESIVE SIGN FOR APPLICATION TO THE EXTERIOR OF THE SWITCHBOARD DOES NOT REPLACE THE ALUMINIUM SIGN ATTACHED TO SITE BUILDINGS, FENCES AND GATES
4. THE SITE ASSET IDENTIFICATION ALUMINIUM SIGN FOR ATTACHMENT TO SITE BUILDINGS, FENCES AND GATES SHALL NOT BE ATTACHED TO THE SWITCHBOARD

SWITCHBOARD LIFTING AND TRANSPORT OPTIONS

1. THE STANDARD CUBICLES FORMING AN OUTDOOR SWITCHBOARD ARE DESIGNED WITH REINFORCEMENT TO ALLOW THE OPTION OF LIFTING THE ASSEMBLED SWITCHBOARD USING EYEBOLTS. ALTERNATELY, THE SWITCHBOARD MANUFACTURER MAY CHOOSE TO LIFT THE SWITCHBOARD BY OTHER METHODS, SUCH AS SLINGING THE SWITCHBOARD FROM BELOW.
2. IF LIFTING EYEBOLTS ARE USED, AFTER TRANSPORT AND INSTALLATION OF THE SWITCHBOARD, THE LIFTING EYEBOLTS SHALL BE REMOVED AND REPLACED WITH AN EYEBOLT HOLE SEALING ASSEMBLY, TO ENSURE CUBICLE INGRESS PROTECTION RATING IS MAINTAINED
3. IF LIFTING EYEBOLTS ARE NOT USED, THE EYEBOLT HOLES IN EACH CUBICLE SHALL BE SEALED WITH AN EYEBOLT HOLE SEALING ASSEMBLY, TO ENSURE CUBICLE INGRESS PROTECTION RATING IS MAINTAINED

ISSUE	DATE	GRID	REVISION	DRN	REC	APPD

DESIGN SURVEY NONE | VERTICAL DATUM NONE | COORDINATE SYS NONE | ASCON SURVEY NONE | DES REF | DES CALC S GILMOUR | DES CHD T LIU | DRN SA MEMORY | Q.C. CHD P HARVEY | NORTH POINT

SUBMITTED 16/06/2023 SA MEMORY (SIGNED) SENIOR TECHNICAL ADVISOR – ELECT

RECOMMENDED 16/06/2023 S GILMOUR (SIGNED) SENIOR ENGINEER – ELECTRICAL

APPROVED 16/06/2023 T LIU (SIGNED) PRINCIPAL ENGINEER – ELECTRICAL

ENGINEERING

WATER CORPORATION

ELECTRICAL STANDARD SWITCHBOARD DESIGNS
SMALL PUMP STATIONS
PRIMARY DESIGN PROCESS
GUIDELINES AND RECOMMENDATIONS

FILE | PROJECT | PLAN MN01–0–2 | CAD | ISSUE A | ORIGINAL SHEET SIZE A1 | MF

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