

| 110kV STATION MINIMUM ALL YEAR ROUND RATINGS | | |
|--|----------------|----------------------|
| | NOMINAL RATING | SHORT CIRCUIT RATING |
| BUSBAR | 2500A | 31.5kA (1s) |
| FEEDER BAY | 1250A | 31.5kA (1s) |
| TRANSFORMER BAY | 1250A | 31.5kA (1s) |
| COUPLER BAY | 2500A | 31.5kA (1s) |
| SECTIONALISER BAY | 2500A | 31.5kA (1s) |

HV BAY CONDUCTOR RATINGS SHALL OUTLINE RATINGS FOR SUMMER, WINTER & AUTUMN.

| STANDARD IEC/ESB DESIGNATORS - AIS | |
|------------------------------------|--------------------------------|
| IEC DESIGNATOR (ESB DESIGNATOR) | DESCRIPTION |
| QA1(CB) | CIRCUIT BREAKER |
| QB1(DA) | BUSBAR DISCONNECT |
| QB2(DB) | LINE DISCONNECT |
| QB9(DL) | TRAF/DISCONNECT |
| QC1(DEM1) | BAY EARTH SWITCHES |
| QC2(DEM2) | |
| QC3(DEM3) | |
| QC9(DE) | |
| QC9(DEM4) | |
| QC5(DEM5) | |
| QC1(DEA1) | BUSBAR EARTH SWITCHES |
| QC2(DEB1) | |
| QC12(DEA2) | |
| QC22(DEB2) | |
| QB1(SA1-2 SA1) | SECTIONALISER DISCONNECT |
| QB2(SA1-2 SA2) | |
| QB2(SB1-2 SB1) | |
| QB2(SB1-2 SB2) | SECTIONALISER CIRCUIT BREAKER |
| QA1(SA1-2 CB, SB1-2 CB) | |
| QB1(K1-DA, K2-DA) | WING COUPLER BUSBAR DISCONNECT |
| QB2(K1-DB, K2-DB) | WING COUPLER BUSBAR DISCONNECT |
| QA1(K1-CB, K2-CB) | WING COUPLER CIRCUIT BREAKER |

| LEGEND | |
|--------|---------------------|
| LT | LINE TRAP |
| SA | SURGE ARRESTOR |
| VT | VOLTAGE TRANSFORMER |
| CT | CURRENT TRANSFORMER |

| KEY | |
|---|----------------------|
| ■ | NEW |
| ■ | FUTURE |
| ■ | CUSTOMER |
| ○ | MULTICORE VT |
| ○ | MULTICORE CT |
| ▲ | (OHL) OVER HEAD LINE |
| △ | CABLE SEALING END |
| | CABLE |

NOTE 1:
THIS SLD IS AN ELECTRICAL REPRESENTATION OF A STANDARD 110kV C TYPE AIS STATION SHOWING EXAMPLE BAY ALLOCATIONS, FEEDER CONFIGURATIONS AND CUSTOMER INTERFACES. FOR PHYSICAL LAYOUT REQUIREMENTS REFER TO EIRGRID GENERAL FUNCTIONAL SPECIFICATION XDS-GFS-00-001.

NOTE 2:
THE SPECIFIC MINIMUM 3 PHASE SHORT CIRCUIT BAY RATING 31.5kA (1s). APPLIES TO BOTH ELECTRICAL AND MECHANICAL FORCES.

NOTE 3:
HIGHER SHORT CIRCUIT RATING MAY BE REQUIRED DEPENDING ON LOCATION OF THE SUBSTATION.

NOTE 4:
THIS IS AN SCS/RTU STATION TBC. THIS IS AN AIS STATION.

NOTE 5:
ALL NEW DISCONNECTS AND EARTH SWITCHES SHALL BE MOTORISED.

NOTE 6:
SOME POINT ON WAVE CONTROLLERS REQUIRE A VOLTAGE REFERENCE FROM BOTH SIDES OF THE CIRCUIT BREAKER. IN SUCH CASES A SUITABLE VOLTAGE SELECTION SCHEME SHALL BE INSTALLED TO PROVIDE THE REFERENCE ON THE BUSBAR SIDE OF THE CIRCUIT BREAKER.

NOTE 7:
REFER TO PROJECT SPECIFIC PROTECTION SPEC FOR:
1. SPECIFIC BAY CT & VT CONFIGURATIONS, RATINGS, BURDEN & ACCURACY CLASS REQUIREMENTS.
2. TELEPROTECTION CHANNEL REQUIREMENTS
3. TX NEUTRAL EARTH REQUIREMENTS

NOTE 8:
A PROTECTION SLD SHALL BE SUBMITTED FOR DETAILED DESIGN & AS-BUILT PURPOSES INCLUDING THE FOLLOWING:
1. HV PLANT RATINGS FOR ALL HV COMPONENTS INCLUDING PROTECTION REQUIREMENTS AS OUTLINED IN NOTE 7.
2. A LEGEND OUTLINING PROTECTION RELAY DETAILS USED INCLUDING RELAY TYPE, ANSI DEVICE NUMBERS AND LONG RELAY MLFB/ORDER CODE.
3. PROTECTION RELAY INPUTS SHOWN WIRED TO INSTRUMENT TRANSFORMER CORES.

NOTE 9 (AS ILLUSTRATED ON DRAWING):
MANDATORY REQUIREMENT FOR SA PRIOR TO EIRGRID/CUSTOMER BOUNDARY.

NOTE 10:
ALL SA REQUIREMENTS TO BE CONFIRMED BASED ON INSULATION COORDINATION STUDY.

NOTE 11:
THE DASHED LINE IS A GENERAL INDICATION OF THE BOUNDARY BETWEEN THE TRANSMISSION SYSTEM AND THE CUSTOMER'S INSTALLATION. THE OWNERSHIP OF EQUIPMENT HOWEVER IS INDICATED BY COLOUR, FOR EXAMPLE CUSTOMER OWNED EQUIPMENT IS SHOWN IN: THERE SHALL NOT BE ANY CUSTOMER OWNED HV EQUIPMENT LOCATED ON THE EIRGRID SIDE OF THE DASHED LINE.

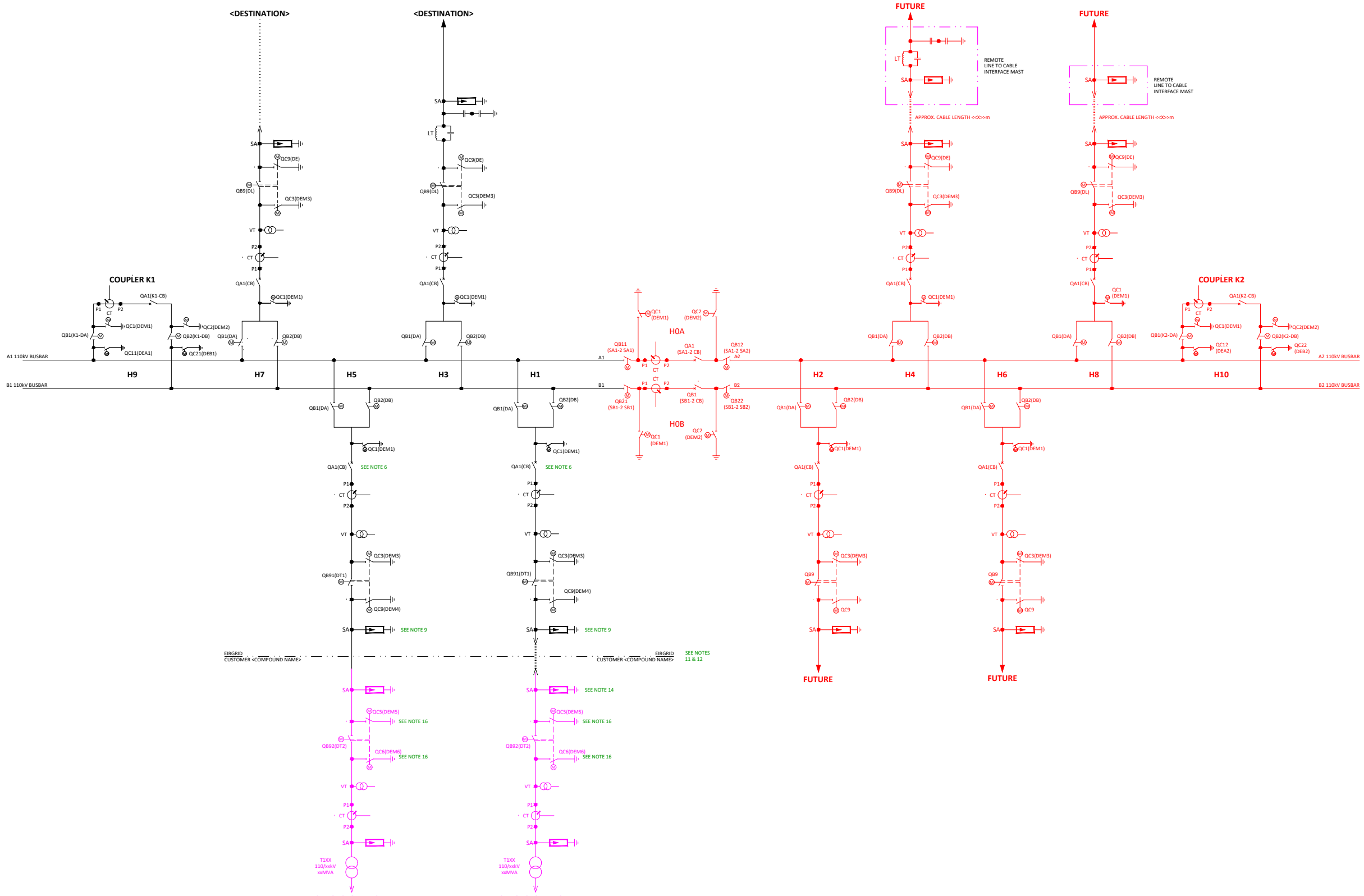
NOTE 12:
CUSTOMER EQUIPMENT TBC. OWNERSHIP BOUNDARIES TBC.

NOTE 13:
INSTRUMENT TRANSFORMER CORES & WINDINGS ARE NOT TO BE SHARED ACROSS THE PROPERTY BOUNDARY FENCE WITH THE EXCEPTION OF A CT CORE FOR DIFFERENTIAL PROTECTION AND A VT WINDING FOR VOLTAGE SYNCHRONISATION WHERE APPLICABLE.

NOTE 14 (AS ILLUSTRATED ON DRAWING):
MANDATORY REQUIREMENT FOR SA AT CUSTOMER END OF TAO CABLE. CUSTOMER TO DEMONSTRATE THAT TAO CABLE IS SUITABLY PROTECTED FROM OVERVOLTAGES. THE REQUIREMENT AND POSITION OF OTHER SAs IN THE CUSTOMER COMPOUND TO BE DETERMINED BY THE CUSTOMER.

NOTE 15:
REQUIREMENT AND POSITION OF CT/VT IN CUSTOMER COMPOUND TO BE DETERMINED BY THE CUSTOMER.

NOTE 16:
THE EARTH SWITCH ON THE TAO SIDE OF THE DISCONNECTOR IS MANDATORY. THE EARTH SWITCH ON THE CUSTOMER SIDE OF THE DISCONNECTOR IS OPTIONAL AND A MATTER FOR THE CUSTOMER.



| | | | | | |
|-----|--|-------|-------|-------|------------|
| 07 | THE NAMES DEMA1, DEMB1, DEMA2, DEMB2 WERE CHANGED TO DEA1, DEB1, DEA2, DEB2 RESPECTIVELY. QB11(SA2-2 SA1) WAS MODIFIED TO QB11(SB1-2 SA1). UPDATED: NOTE 5, NOTE 14 AND NOTE 15. | CRC | NMcM | NC | 20/11/2024 |
| 06 | ADDED FIXED EARTH SWITCHES: 1) QC1(DEM1), QC12(DEMA2), QC21(DEMB1) AND QC22(DEMB2) TO BUSBARS (ON COUPLER BAYS). 2) QC1(DEM1) TO ALL BAYS BETWEEN BUSBAR DISCONNECT AND CB. 3) QC3(DEM3) TO ALL BAYS BETWEEN CB AND CIRCUIT DISCONNECT. 4) QC1(DEM1) AND QC2(DEM2) TO SECTIONALISER BAYS. DURATION ADDED TO SHORT CIRCUIT RATING. UPDATES TO VT SYMBOL, LEGEND. GENERAL UPDATE TO NOTES. BAY H1 & H5: DISCONNECTS RENAMED. CUSTOMER DISCONNECTS & EARTH SWITCHES MOTORISED. | CHC | NMcM | NC | 17/09/2024 |
| REV | DESC | DRAWN | CHK'D | APP'D | DATE |

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PROJECT
**STANDARD 110kV
SINGLE LINE DIAGRAMS**

DRAWING TITLE
**110kV 8-BAY AIS
ENHANCED RING BUSBAR STATION
WITH CUSTOMER CONNECTIONS**

| | | | | | | |
|----------------|--------------------|------|-------|-------|-----|----|
| No of Shts | 1 | SIZE | A3 | SCALE | N/A | |
| DRAWING NUMBER | XDN-SLD-STND-H-005 | | SHEET | 001 | REV | 07 |

DRAWING IS NOT TO SCALE - IF IN DOUBT, ASK