

SAFETY IN DESIGN NOTES
 THE DESIGNER SAFETY REPORT PREPARED BY AUSGRID DESIGNERS IS INTENDED TO MEET THE REQUIREMENTS OF THE SAFE WORK AUSTRALIA CODE OF PRACTICE JULY 2012 AND THE APPLICABLE NSW WHS 2011 REGULATIONS FOR DESIGNER SAFETY REPORT - 295.

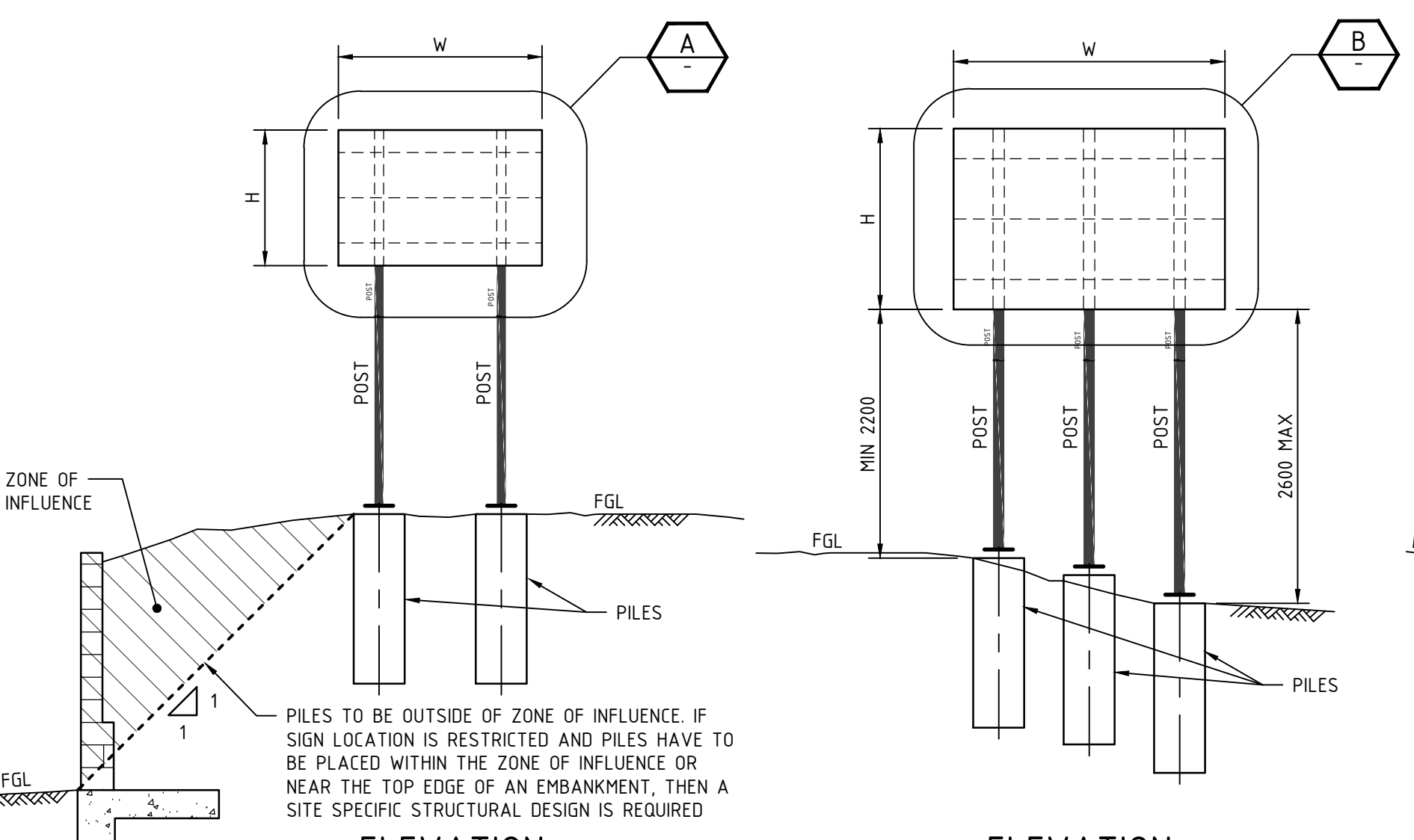
- S1. DESIGNER SAFETY REPORT - CIVIL/STRUCTURAL WORKS - TRIM REFERENCE D15/414538**
 THIS DESIGNER SAFETY REPORT CONSIDERS CIVIL/STRUCTURAL DESIGN ISSUES ONLY AND DOES NOT ADDRESS ELECTRICAL, EARTHING ETC WHICH SHOULD BE ADDRESSED BY THE RELEVANT DESIGNER.
S2. STANDARD INDUSTRY HAZARDS & RISKS WILL STILL EXIST WITH THESE DESIGNS BUT MAY NOT BE NOTED IN THE DESIGNER SAFETY REPORT. THE REPORT INCLUDES ONLY UNUSUAL OR ATYPICAL RISKS ASSOCIATED WITH THE DESIGN.
S3. ALL WORK TO BE UNDERTAKEN IN ACCORDANCE WITH WHS LEGISLATION, WORKCOVER REQUIREMENTS, AUSGRID'S ELECTRICAL SAFETY RULES, BE SAFE PROCEDURES, NETWORK STANDARDS AND ALL OTHER SAFETY PLANS/PROCEDURES AND SWMS.
S4. REFER TO AUSGRID'S ASBESTOS REGISTER PRIOR TO COMMENCING WORK.
S5. LEAD PAINT MAY BE PRESENT AT EXISTING INSTALLATION.
S6. MAINTAIN EARTHING GRID AT ALL TIMES. MAKING AND BREAKING OF EARTHING CONNECTIONS WILL BE BY AUSGRID ONLY.
S7. WARNING! CABLE LOCATIONS SHOWN ON THIS DRAWING ARE INCOMPLETE AND FOR DESIGN PURPOSES ONLY. COMPLY WITH AUSGRID NETWORK STANDARDS AND UNDERTAKE A SERVICES SEARCH PRIOR TO CONSTRUCTION.
S8. CERTIFICATION OF THE COMPLETED WORKS IS REQUIRED IN WRITING FROM THE AUSGRID DESIGN ENGINEER UNLESS OTHERWISE ADVISED IN WRITING BY DEVELOPMENT SERVICES - CIVIL & BUILDING SECTION. CERTIFICATION SHALL BE OBTAINED TO ENSURE COMPLIANCE WITH WHS & SAFETY IN DESIGN LEGISLATION AND NS 261 CERTIFICATION CANNOT BE PROVIDED UNLESS THERE IS COMPLIANCE WITH THE NOMINATED INSPECTIONS. REFER TO INSPECTION & CERTIFICATION NOTES. FOOTINGS TO BE INSPECTED BEFORE PLACING CONCRETE.
S9. IF SIGN IS TO BE INSTALLED WITHIN 3m OF AN EARTHING SYSTEM, CONSULT WITH AUSGRID EARTHING FOR ADDITIONAL EARTHING REQUIREMENTS.

- GENERAL NOTES**
G1. STABILITY OF THE BUILDINGS, TRANSFORMERS & OTHER EQUIPMENT & FOUNDATIONS DURING CONSTRUCTION & THE CONSEQUENCES OF EXCAVATION IN THE VICINITY OF ADJACENT STRUCTURES ARE THE BUILDER'S RESPONSIBILITY.
G2. ALL PROPRIETARY ITEMS ARE TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
G3. ALL WORKMANSHIP AND MATERIALS ARE TO BE IN ACCORDANCE WITH THE CURRENT STANDARDS AUSTRALIA CODES AND BUILDING CODE OF AUSTRALIA.
G4. DO NOT SCALE DRAWING ALL DIMENSIONS ARE IN MILLIMETRES.
G5. ALL LEVELS ARE IN METRES ON AUSTRALIAN HEIGHT DATUM UNLESS NOTED OTHERWISE.
G6. ELECTRICAL SAFETY SHALL BE IN ACCORDANCE WITH AUSGRID'S ELECTRICAL SAFETY RULES, NS WHS AND AS REQUIRED BY AUSGRID SUPERINTENDENT.
G7. HANDLE & DISPOSE OF ALL CONTAMINATED MATERIAL IN ACCORDANCE WITH RELEVANT O.H.S. ACTS & REGULATIONS AND EPA REQUIREMENTS.
G8. IN CASE OF DOUBT - ASK

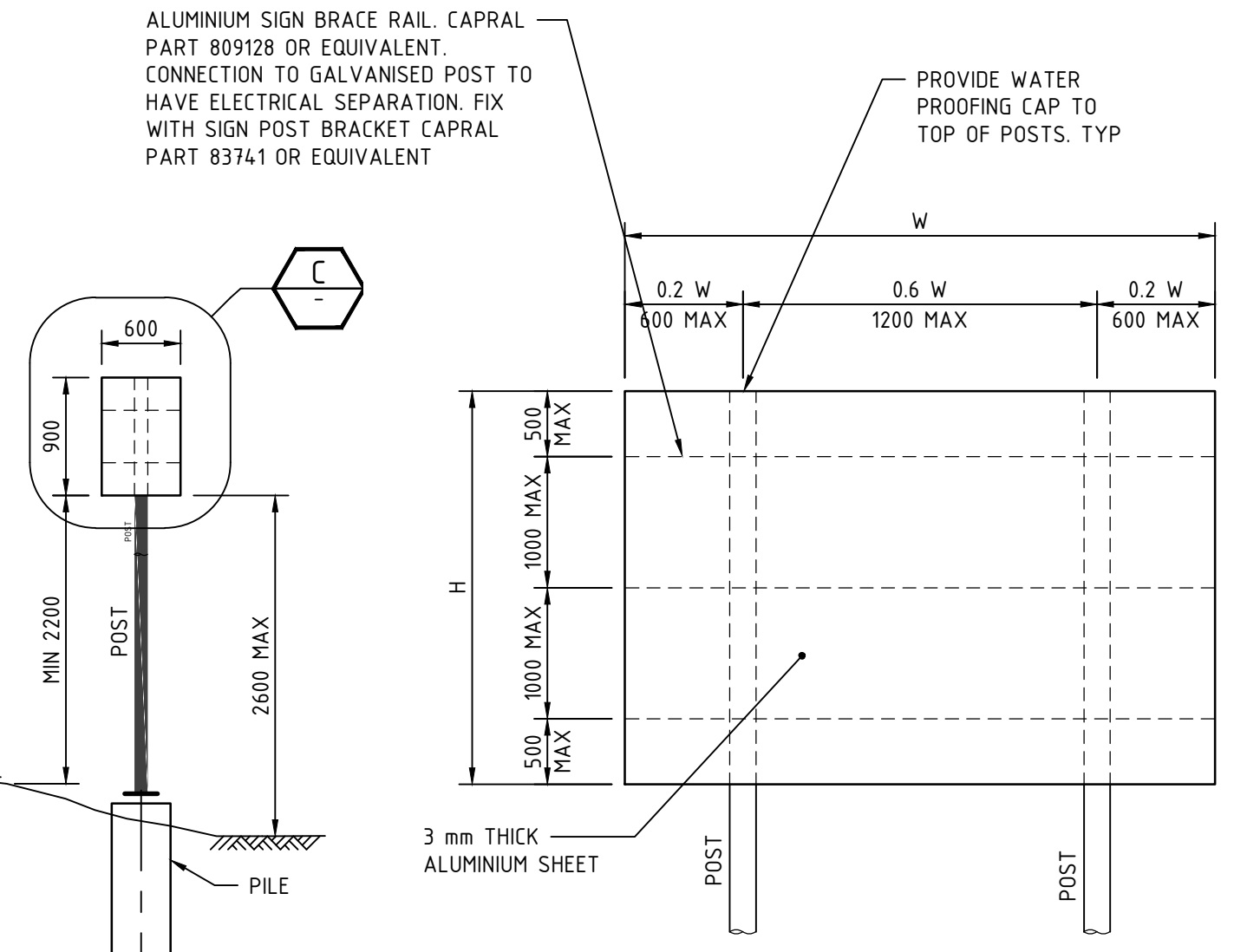
DESIGN CRITERIA
 25 YEAR DESIGN LIFE
 IMPORTANCE LEVEL 1 TO AS11700
 WIND RETURN PERIOD - 50 YEARS
 $V_{10} = 39 \text{ m/s}^{-1}$

- FOUNDATIONS**
F1. GROUND IS ASSUMED TO BE MEDIUM DENSE, WELL GRADED SAND (s 30), OR SOFT CLAY (Cu<20kPa) OR BETTER.
F2. FOOTING EXCAVATIONS SHALL BE CLEANED TO REMOVE ALL LOOSE OR SOFTENED MATERIAL PRIOR TO PLACING OF CONCRETE.
F3. CONCRETE SHOULD BE PLACED AS SOON AS POSSIBLE AFTER EXCAVATION. IF EXCAVATIONS ARE LIKELY TO REMAIN OPEN FOR MORE THAN 24 HOURS A BLINDING LAYER OF CONCRETE SHALL BE PLACED TO PROTECT THE FOUNDATION BASE.
F4. FOOTINGS/PILES TO BE LOCATED CENTRAL UNDER POSTS UNLESS NOTED OTHERWISE. THE CONTRACTOR SHALL PROVIDE GEOTECHNICAL INSPECTION & CERTIFICATION SERVICES BY A PRACTISING GEOTECHNICAL ENGINEER DURING THE WORKS. THE GEOTECH SHALL CONFIRM THAT THE FOUNDATION MATERIAL HAS THE MINIMUM BEARING CAPACITY AND A CERTIFICATE IS TO BE PRODUCED TO AUSGRID SUPERINTENDENT PRIOR TO PLACING CONCRETE FOUNDATIONS. ALL FOUNDATIONS SHALL BE CERTIFIED THAT THEY HAVE BEEN FOUNDED IN ACCORDANCE WITH THE DRAWINGS.

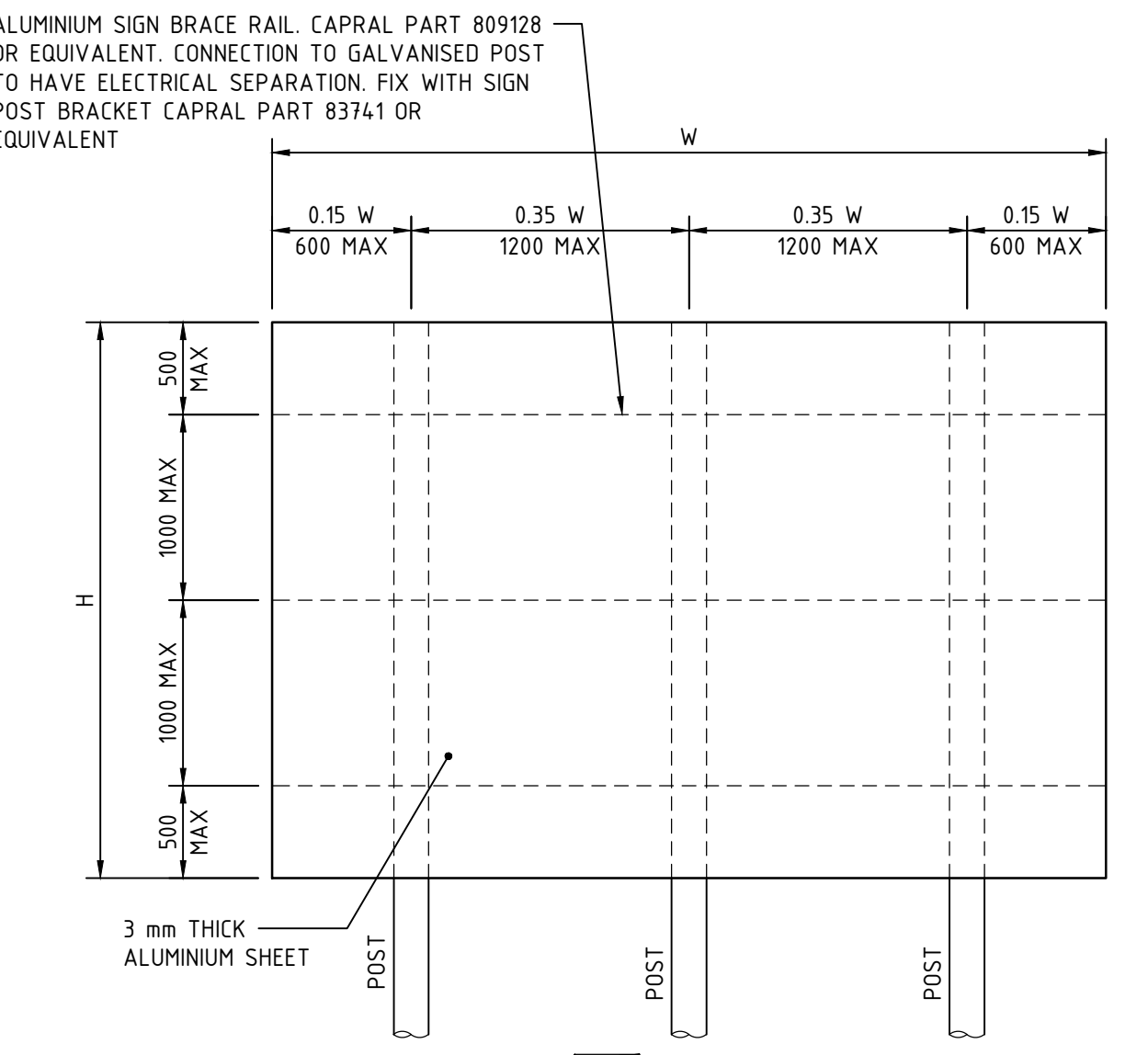
- STRUCTURAL STEELWORK NOTES**
GENERAL
S1. FABRICATE & ERECT ALL STRUCTURAL STEELWORK IN ACCORDANCE WITH AS 4100, AS 1554, AS 11013 & THE SPECIFICATION.
S2. SHOP DETAILS SHALL BE SUBMITTED FOR APPROVAL. 7 DAYS SHALL BE ALLOWED FOR APPROVAL. APPROVAL SHALL BE OBTAINED BEFORE FABRICATION COMMENCES.
S3. QUALIFICATIONS OF WELDING PROCEDURE AND PERSONNEL SHALL CONFORM TO SECTION 4 OF AS 1554.1 NON-DESTRUCTIVE TESTING OF WELDS SHALL INCLUDE 100% VISUAL INSPECTIONS AND ADDITIONAL TESTING AS SHOWN ON THE DRAWING. WELDING PROCEDURES SHALL BE SUBMITTED AND APPROVAL OBTAINED BEFORE FABRICATION COMMENCES. **HOLD POINT** ALL WELDS SHALL BE INSPECTED BY A QUALIFIED WELDING INSPECTOR IN ACCORDANCE WITH AS 1554 AND AN INSPECTION REPORT SHALL BE SUBMITTED TO THE AUSGRID SUPERINTENDENT AS EACH WELD IS COMPLETED. ANY UNSATISFACTORY WELDS SHALL BE RECTIFIED, RE-INSPECTED AND RE-REPORTED. A WELDING CERTIFICATE OF PERFORMANCE SHALL ALSO BE SUBMITTED AT COMPLETION OF WELDING.
S4. VERIFY ALL SETTING OUT DIMENSIONS BEFORE STARTING WORK.
S5. DO NOT OBTAIN DIMENSIONS BY SCALING THE STRUCTURAL ELEMENTS.
S6. IMMEDIATELY BEFORE ASSEMBLY, MATING SURFACES, CREVICES & AREAS PRONE TO THE RETENTION OF MOISTURE TO BE COATED WITH 'DOW CORNING' SILICONE SEALANT 780 OR EQUIVALENT.
S7. WHERE QUANTITIES ARE STATED, THEY ARE FOR ONE COMPLETE STRUCTURE.
S8. PROVIDE TEMPORARY BRACING TO MAINTAIN STABILITY OF STEELWORK DURING CONSTRUCTION.
MATERIALS
S9. UNLESS OTHERWISE NOTED STRUCTURAL STEEL TO BE USED IN ACCORDANCE WITH:
 AS 1163 HOLLOW SECTIONS - GRADE 350
 AS 1594 HOT ROLLED FLATS - GRADE 300
 AS 3678 HOT ROLLED SLABS - GRADE 300
 AS 3679 HOT ROLLED STRUCTURAL SECTIONS - GRADE 300
 UNLESS NOTED OTHERWISE USE:
 (a) 10mm THICK GUSSET, FIN & END PLATES WELDED ALL ROUND.
 (b) ALL FILLET WELDS TO BE 6mm CONTINUOUS, CATEGORY GP.
 (c) ALL BUTT WELDS SHALL BE FULL PENETRATION, CATEGORY SP.
 (d) ALL BOLTS TO BE 20mm DIAMETER.
 (e) ALL BOLTS GRADE 8.8/5 TO AS 1252 (INCLUDING PURLIN/GIRT BOLTS).
 (f) ALL HOLDING DOWN BOLTS ARE TO BE GRADE 4.6/5 TO AS 1111.
 (g) ALL BOLTS AND HOLDING DOWN BOLTS TO BE HOT DIP GALVANISED TO AS 1214.
 (h) ALL CONNECTIONS TO HAVE A MINIMUM OF 2 BOLTS.
 (i) ALL HOLLOW SECTIONS SHALL BE GRADE C350 U10.
 (j) ALL WELDING SHALL COMPLY WITH SAA STRUCTURAL STEEL WELDING CODE AS 1554 UNLESS OTHERWISE SPECIFIED.
 (k) ALL COMPOUND MEMBERS, BASE PLATES, CAP PLATES, END PLATES, GUSSET PLATES, FIN PLATES, STIFFENERS, BATTEN PLATES & LACINGS INCLUDING OTHER FITMENTS SHALL BE 6mm CONTINUOUS FILLET WELDED TO THEIR RESPECTIVE MEMBERS UNLESS OTHERWISE SPECIFIED. IF COMMERCIAL CLASS BOLTS ARE SPECIFIED, THEY SHALL BE HEXAGON HEAD.
S11. WELDS ARE TO BE GROUND FLUSH WHERE SURFACE IS TO BE UNUSABLE.
S12. CHIP ALL WELDS FREE OF SLAG.
S13. CONTRACTOR IS TO CONFIRM WITH SUPERINTENDENT WHERE EXPOSED WELDS ARE TO BE GROUND FLUSH.
S14. DO NOT GROUT UNDER BASE PLATES UNTIL ELECTRICAL EQUIPMENT ERECTION IS COMPLETE.
S15. AUSGRID MEMBER TAGGING SYSTEM IS TO BE INCLUDED ON SHOP DRAWINGS FOR CHECKING PURPOSES.
FINISHES
S17. ALL STEELWORK IS TO BE HOT DIP GALVANISED TO AS 4680 AFTER FABRICATION. ALL SECTIONS SEALED WITH END OR BASE PLATES TO BE PROVIDED WITH 25mm DIA VENT HOLE EACH END IN AN INCONSPICUOUS LOCATION.
S18. WELDS & AREAS WHERE GALVANISING HAS BEEN DAMAGED TO BE TREATED WITH ZINCIFIX OR EQUIVALENT APPROVED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.



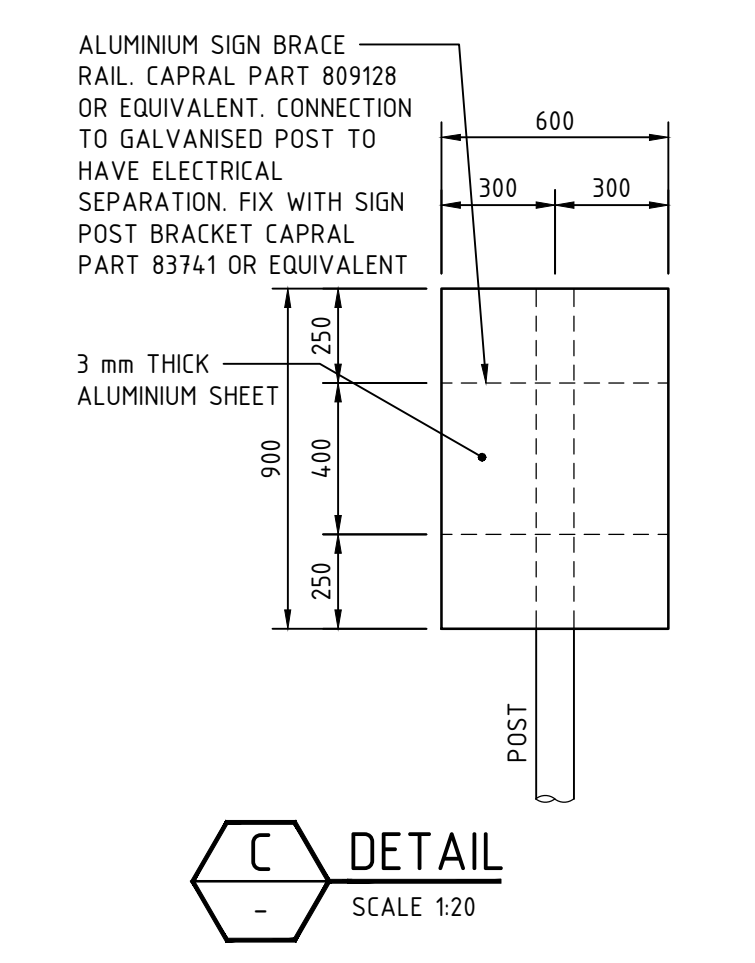
ELEVATION OPTION 1 - 2 POSTS SCALE 1:50
ELEVATION OPTION 2 - 3 POSTS SCALE 1:50
ELEVATION 900 x 600 SIGN SCALE 1:50



DETAIL OPTION 1 - 2 POST SIGN SETOUT SCALE 1:20



DETAIL OPTION 2 - 3 POST SIGN SETOUT SCALE 1:20



DETAIL 900 x 600 SIGN SETOUT (SINGLE POST) SCALE 1:20

GENERAL SIGN STRUCTURAL SCHEDULE						BASE PLATE		HD
SIGN AREA (H x W) m ²	MAX HEIGHT (H) m	POSTS	PILES	PAD FOOTING OPTION	A mm	T mm	BOLT SPEC	
2.25	1.5	2 x 80 NB HEAVY	Ø300 x 1600 DEEP	1.8 x 1.0 x 0.6 DEEP	100	20	*	
2.7	1.8	2 x 100 NB HEAVY	Ø450 x 2000 DEEP	1.8 x 1.2 x 0.5 DEEP	125	24	**	
3.0	1.8	3 x 80 NB HEAVY	Ø300 x 1600 DEEP	3.0 x 1.0 x 0.5 DEEP	100	20	*	
6.0	2.0	3 x 100 NB HEAVY	Ø450 x 2000 DEEP	3.0 x 1.5 x 0.5 DEEP	125	24	**	
8.0	2.0	3 x 125 NB HEAVY	Ø450 x 2200 DEEP	3.0 x 1.6 x 0.6 DEEP	175	24	**	

* M20 HIT-V-F 250 EMBEDMENT HILTI RE 500
 ** M24 HIT-V-F 300 EMBEDMENT HILTI RE 500

SPECIFIC WATER CROSSING SIGNS STRUCTURAL SCHEDULE						BASE PLATE		HD
REFER TO AS6947						A mm	T mm	BOLT SPEC
SIGN AREA (H x W) m ²	HEIGHT (H) m	WIDTH (W) m	POSTS	PILES	PAD FOOTING OPTION	A mm	T mm	
0.45	0.9	0.6	1 x 65 NB HEAVY	Ø300 x 1500 DEEP	1.0 x 1.0 x 0.45 DEEP	100	20	*
# 5.1	1.8	2.8	3 x 100 NB HEAVY	Ø450 x 2000 DEEP	3.0 x 1.5 x 0.5 DEEP	125	24	**
# 8.9	2.25	3.5	3 x 125 NB HEAVY	Ø450 x 2200 DEEP	3.0 x 1.6 x 0.6 DEEP	175	24	**

WITH COMPLEMENTARY FLOODING SIGN ATTACHED
 * M20 HIT-V-F 250 EMBEDMENT HILTI RE 500
 ** M24 HIT-V-F 300 EMBEDMENT HILTI RE 500



CONCRETE NOTES:
C9. ALL CONCRETE MUST BE MANUFACTURED AND SUPPLIED IN QUALITY CONTROLLED CERTIFIED PLANT, IN ACCORDANCE WITH AS 1379. NO SITE MIXING PERMITTED. CONCRETE TESTS AS REQUIRED BY AS 1379 - CERTIFICATES TO BE PROVIDED AS FOLLOWS:

ITEM	FORMED SURFACE FINISH (AS3610)	UNFORMED SURFACE FLATNESS (TOLERANCE CLASS)	UNFORMED SURFACE FINISH METHOD
FOOTINGS	CLASS 4	C	WOOD FLOAT

C16. UNFORMED SURFACE FLATNESS TOLERANCE SCHEDULE:

TOLERANCE CLASS	MEASUREMENT	MAXIMUM DEVIATION mm
A	3 m STRAIGHT EDGE	3
B	3 m STRAIGHT EDGE	6
C	600 mm STRAIGHT EDGE	6

C2. CONCRETE QUALITY WATER/CEMENT RATIO SHALL NOT BE GREATER THAN 0.45. NO WATER TO BE ADDED ON SITE.

ELEMENT	MAX. AGG SIZE	SLUMP	CHARACTERISTIC STRENGTH F _c (AS 3600) AT 28 DAYS	MAXIMUM SHRINKAGE STRAIN
PILES	20 mm	80 mm	32 MPa	µε

C3. CLEAR CONCRETE COVER IN mm TO REINFORCEMENT UNLESS NOTED OTHERWISE.

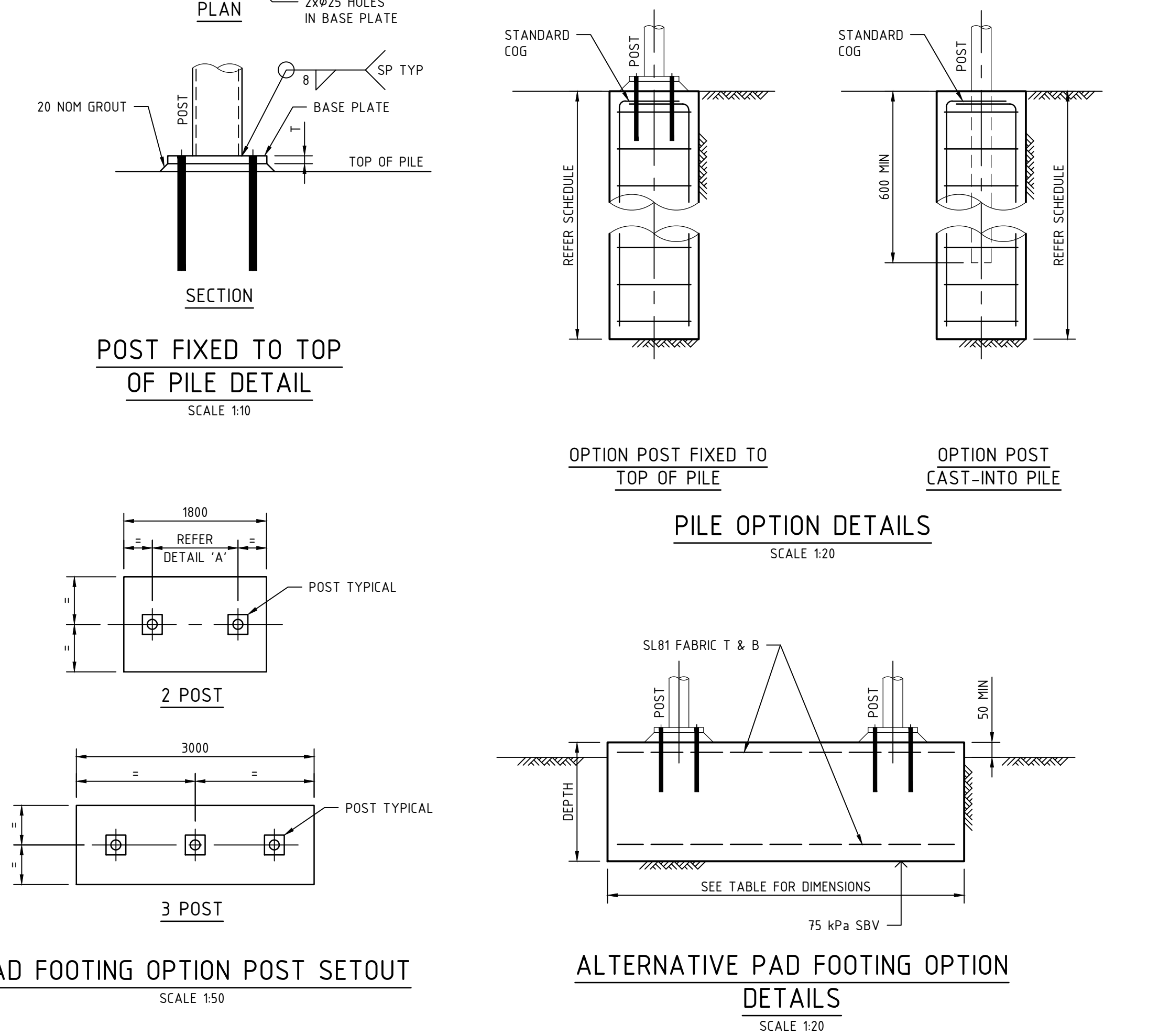
ELEMENT	FORMED & SHELTERED	FORMED & EXPOSED	AGAINST EARTH
PILES	40 mm	45 mm	65 mm

- CONCRETE NOTES CONTINUED:**
C9. ALL REINFORCEMENT TO BE ACCURATELY PLACED IN POSITION SHOWN & TIED & ADEQUATELY SUPPORTED TO GIVE SPECIFIED COVER.
C10. CONCRETE SIZES SHOWN DO NOT INCLUDE THICKNESS OF APPLIED FINISHES.
C11. DEPTH OF BEAM IS GIVEN FIRST & INCLUDES SLAB THICKNESS.
C12. CONDUITS PIPES ETC, MUST NOT BE PLACED IN CONCRETE COVER & NO HOLES OR CHASES OTHER THAN THOSE SHOWN ON THE STRUCTURAL DRAWINGS SHALL BE ALLOWED UNLESS APPROVED IN WRITING BY THE AUSGRID STRUCTURAL ENGINEER.
C13. ALL TIE RODS WHERE NOT SHOWN ON THE DRAWING SHALL BE N12-200. PROVIDE N12 TIES AS REQUIRED TO SUPPORT REINFORCEMENT BARS IF STANDARD BAR CHAIRS ARE OF INADEQUATE HEIGHT.
C14. ALL BAR CHAIRS TO BE PLASTIC OR CONCRETE TYPE UNLESS NOTED OTHERWISE. STEEL BAR CHAIRS PERMITTED IN SWITCHYARD FOOTINGS ONLY.
C15. CONCRETE ELEMENTS SHALL BE FINISHED IN ACCORDANCE WITH AS 3610 (OTHERWISE AS ON DWG).

- REINFORCEMENT SYMBOLS**
C20. RL DENOTES RECTANGULAR LOW DUCTILITY REINFORCING FABRIC TO AS/NZS 4671
 SL DENOTES SQUARE LOW DUCTILITY REINFORCING FABRIC TO AS/NZS 4671
 N DENOTES STRUCTURAL GRADE ROUND BAR TO AS/NZS 4671
 C DENOTES COLD WORKED DEFORMED BAR TO AS/NZS 4671
 THE NUMBER FOLLOWING THE SYMBOLS R, N AND C IS THE BAR DIAMETER IN MILLIMETRES

- C16.** UNFORMED SURFACE FLATNESS TOLERANCE SCHEDULE.
C17. UNFORMED ELEMENTS IN CONTACT WITH THE GROUND (EXCEPT FOR FOOTINGS) SHALL BE SEPARATED WITH A POLYMERIC FILM UNDERLAY TO AS2870 MINIMUM THICKNESS 200 MICRONS.
C18. EXTERNAL EMBEDDED ITEMS SHALL BE PLACED SO THAT THEY ARE NOT WITHIN THE ZONE OF CONCRETE COVER REQUIRED TO PROTECT THE REINFORCEMENT.
C19. THE EXPOSED EDGE OF THE CONCRETE SHALL BE FINISHED WITH A 10mm RADIUS CORNER UNO.

EARTHING REVIEW TRIM REF D15/494121
ELECTRICAL REVIEW TRIM REF D15/494136



CAD DRAWING DO NOT MANUALLY AMEND A REVISIONS 0 ISSUED FOR CONSTRUCTION REFERENCE DRAWING ADDED DES: D. STANBURY DWN: M. LJUBIC CHKD: P. LOVARIANI DATE: 12-02-2018 APP'D BY: K. GALLEN	SCALE AS SHOWN DESIGNED DAVID STANBURY DRAWN BRUCE BARTLEY CHECKED PAUL LOVARIANI APPROVED KATINA GALLEN DATE 03-08-15 TRIM REF 2015/21013 PROJECT NUMBER 1900002969		STANDARD CONSTRUCTIONS SIGNAGE SUPPORTS STRUCTURAL DETAILS DRAWING No 237975 SHEET 1 AMD 1 SIZE B1		
	570 George Street SYDNEY NSW 2000 Ausgrid		ASSOCIATED DRAWINGS BI-DIRECTIONAL SIGN SUPPORT STRUCTURAL DETAILS 238007		