DEPARTMENT OF STATE GROWTH

TRAFFIC FACILITIES

STANDARD BUS STOP SHELTERS

DRAWING LIST

DRAWING	REVISION	DESCRIPTION
SD-087-020	0	COVER SHEET AND DRAWING LIST
SD-087-021	0	STRUCTURAL NOTES
SD-087-022	0	STRUCTURAL NOTES
SD-087-023	0	GENERAL ARRANGEMENT (3 SEATER-SMALL)
SD-087-024	0	GENERAL ARRANGEMENT (3 SEATER)
SD-087-025	0	GENERAL ARRANGEMENT (5 SEATER)
SD-087-026	0	GENERAL ARRANGEMENT (LARGE SCALE)
SD-087-027	0	ELEVATION AND 3D VIEW FOR LARGE SCALE SHELTER
SD-087-028	0	DETAILS
SD-087-029	0	LIGHTING (3 SEATER-SMALL)
SD-087-030	0	LIGHTING (3 SEATER)
SD-087-031	0	LIGHTING (5 SEATER)
SD-087-032	0	LIGHTING (LARGE SCALE)

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For, Director Passenger Transport

Tasmanian Government

Department of State Growth

DEPARTMENT OF STATE GROWTH
TRAFFIC FACILITIES
STANDARD BUS STOP SHELTERS

COVER SHEET AND DRAWING LIST

STANDARD DRAWING NUMBER: SD-087-020

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Revision 0

GENERAL

G1. ALL DIMENSIONS SHOWN SHALL BE VERIFIED ON SITE. ENGINEER'S DRAWINGS MUST NOT BE SCALED.

G2. DURING CONSTRUCTION THE RESPONSIBLE CONTRACTOR SHALL MAINTAIN THE STRUCTURE IN A STABLE CONDITION AND NO PART SHALL BE OVERSTRESSED.

G3. UNLESS OTHERWISE NOTED ALL DIMENSIONAL UNITS ARE MILLIMETRES.

G4. UNO DENOTES UNLESS NOTED OTHERWISE.

G5. ALL DIMENSIONS WHICH TIE INTO OR OTHERWISE RELATE TO EXISTING STRUCTURES SHALL BE VERIFIED ON SITE PRIOR TO THE START OF CONSTRUCTION BY THE CONTRACTOR.

CORE REQUIREMENTS

THESE STANDARD SHELTER DRAWINGS HAVE BEEN DESIGNED TO A SET OF SCALABLE CORE REQUIREMENTS THE DEPARTMENT OF STATE GROWTH REQUIRE. DESIGN OF ANY SHELTERS FOR SITE SPECIFIC DEVELOPMENTS WHICH VARY FROM THESE STANDARD DRAWINGS MUST ALSO MEET THESE MINIMUM REQUIREMENTS. THESE MINIMUM REQUIREMENTS INCLUDE THE FOLLOWING:

CR1. SHELTER DESIGNS MUST BE IN COMPLIANCE WITH THE DISABILITY DISCRIMINATION ACT 1992 (DDA), AND THE DISABILITY STANDARDS FOR ACCESSIBLE PUBLIC TRANSPORT 2002 (THE STANDARDS). REQUIREMENTS FOR THE SHELTERS INCLUDE:
A1A. REQUIRES A 'WAITING AREA' TO HAVE A MINIMUM NUMBER OF SEATS MARKED AS AVAILABLE, FOR THE USE OF PASSENGERS WITH A DISABILITY. THIS MINIMUM NUMBER IS 5% OF THE SEATS AVAILABLE (BUT NOT LESS THAN 2). THIS CAN BE ACHIEVED BY INSTALLING A 'PRIORITY SEATING' SIGN ONTO SEATS.
A1B. TWO SPACES NEED TO BE ALLOCATED AS AVAILABLE FOR PASSENGERS IN WHEELCHAIRS. THE MINIMUM SIZE FOR AN 'ALLOCATED SPACE' IS 800 x 1300mm, AND IT IS TO BE MADE AVAILABLE FOR PEOPLE USING WHEELCHAIRS OR OTHER MOBILITY AIDS. LINE-MARKING MAY BE PROVIDED TO DELINEATE THESE WHEELCHAIR BAYS.
A1C. SEATS NEED TO COMPLY WITH AS1428.2-1992, CLAUSE 27.2. SEATING SHOULD GENERALLY HAVE A HEIGHT OF APPROX. 400 – 450mm ABOVE GROUND, HOWEVER IT IS RECOMMENDED TO BE RAISED TO 520mm TO ALLOW FOR OLDER PASSENGERS AND THE DISABLED.
A1D. SEATING SPACES MUST NOT INTRUDE INTO THE CIRCULATION SPACE REQUIRED IN THE BOARDING POINT.
A1E. REQUIRES A CONTINUOUS ACCESSIBLE PATH OF TRAVEL TO NOT HAVE A GRADIENT OR CROSSFAL GREATER THAN 1:40.
A1F. GROUND SURFACE MUST BE NON-SLIP.

CR2. WEATHER PROTECTION – BUS SHELTER MUST PROVIDE PROTECTION FROM VARIED AND INCLEMENT WEATHER CONDITIONS

CR3. PASSENGER INFORMATION – SHELTER DESIGNS SHALL ALLOW PROVISION OF TIMETABLE DISPLAY CASES (WHERE NOT MOUNTED TO ADJACENT SIGN POLES), AND CONSIDER THE CAPACITY TO FUTURE ADDITIONAL INFORMATION, ADVERTISEMENT, AND INTEGRATED REAL-TIME INFORMATION.

CR4. COLOUR – THE DEPARTMENT ARE MOVING TOWARDS A STATE-WIDE BRAND FOR PUBLIC TRANSPORT. THE COLOUR PREFERENCE OF THE SHELTER TO ALIGN WITH THIS BRAND IS COLORBOND BASALT (GREY).

CR5. MATERIALS – MATERIALS RECOMMENDED NEED TO BE RESISTANT (AS MUCH AS PRACTICABLE) TO THE FULL RANGE OF TASMANIAN WEATHER CONDITIONS, VANDALISM, AND GRAFFITI. RECOMMENDED MATERIALS MAY INCLUDE (BUT ARE NOT LIMITED TO) STEEL, ALUMINIUM, LAMINATED (NOT TOUGHENED) GLASS AND CONCRETE.

CR6. LIGHTING – LIGHTING IS PREFERRED TO BE PROVIDED AS PART OF REGULAR STREET LIGHTING, AND THEREFORE THE PROVISION OF SHELTER LIGHTING IS NOT A REQUIREMENT. SHELTER LIGHTING MAY THOUGH BE PROVIVED ON A SITE-SPECIFIC BASIS. DDA COMPLIANCE STANDARDS PRESCRIBE A LIGHTING LEVEL OF 150 LUX IN PART 20 OF THE STANDARDS, LINKED TO CLAUSE 19.1 OF AS1428.2-1992 AND AS1680.2. IT IS NOTED THOUGH THAT THIS REFERENCE IS TO 'INTERNAL' LIGHTING, AND TO HAVE THIS LEVEL OF ILLUMINATION IN AN EXPOSED SHELTER HAS THE POTENTIAL TO BE CONSIDERED 'OBTRUSIVE LIGHT' IN COMPARISON TO THEIR SURROUNDS (FOR COMPARISON, AN AVERAGE FOR A CARPARK IS 14 LUX TO AS/NZS 1158.3.1). THEREFORE, THE DEPARTMENT HAS AGREED TO A REVISED LIGHTING LEVEL OF 20-25 LUX FOR SHELTER LIGHTING IF PROVIDED. A FILE NOTE (MR22/128719) HAS BEEN PREPARED TO CAPTURE THIS RELAXATION.

CR7. DESIGN LOADS – STRUCTURAL DESIGN OF ANY SHELTERS FOR SITE SPECIFIC DEVELOPMENTS SHALL BE BASED ON SITE SPECIFIC WIND LOADING.

FOUNDATION

F1. FOOTINGS HAVE BEEN DESIGNED FOR AN ALLOWABLE BEARING PRESSURE OF '100kPa' AT FOUNDING LEVELS UNO .THE CONTRACTOR SHALL OBTAIN AN ENGINEER'S APPROVAL OF THE FOUNDATION MATERIAL BEFORE PLACING CONCRETE.

F2. AFTER EXCAVATION ENSURE THAT ALL LOOSE GRAVEL, SOIL OR DEBRIS IS REMOVED BEFORE PLACING CONCRETE.

DESIGN LOADS

L1. A CONSERVATIVE BUT REASONABLE 'STANDARD' SITE HAS BEEN ASSUMED FOR THE CALCULATION OF WIND LOADS FOR THE DESIGN OF THE SHELTERS SHOWN IN THESE DRAWINGS. SHELTERS SHOWN IN THESE DRAWINGS SHALL ONLY BE CONSTRUCTED IN REGIONS WHERE SITE CONDITIONS SATISFY THESE DESIGN ASSUMPTIONS. SITE-SPECIFIC DESIGN IS REQUIRED IF THESE DESIGN ASSUMPTIONS ARE EXCEEDED.

L2. ALL DESIGN LOADS ARE IN ACCORDANCE WITH AS/NZS1170

L3. WIND LOADS HAVE BEEN CALCULATED FOR A 'TYPICAL' SITE IN ACCORDANCE WITH AS/NZS1170.2-2021. DESIGN WIND SPEED FOR ULTIMATE LIMIT STATE, $V_{des,q}$ = 45.4m/s. CALCULATED WITH THE FOLLOWING ASSUMPTIONS:
HEIGHT = 2.5 METRES
TERRAIN CATEGORY = 'TC2.5'
IMPORTANCE LEVEL 2
DESIGN SERVICE LIFE 50 YRS
REGION A4
TOPOGRAPHIC MULTIPLIER = 1.16, DERIVED FROM:
ASSUMED HILL SLOPE = 1:10
ASSUMED ELEVATION = 200m
SHIELDING: NONE

ALTERNATIVELY, WIND LOADS ARE EQUIVALENT FOR TERRAIN CATEGORY - 'TC2', WITH A REDUCED TOPOGRAPHIC MULTIPLIER OF 1.10

EXCAVATION AND BACKFILL

E1. SITE SPECIFIC GEOTECHNICAL INFORMATION IS NOT AVAILABLE FOR A STANDARDISED DESIGN, AND AS SUCH, A GEOTECHNICAL INVESTIGATION HAS BEEN UNDERTAKEN TO INFORM THESE STANDARD DRAWINGS.

E2. ALL EXCAVATION SHALL BE CARRIED OUT IN SUCH A MANNER AS TO PRESERVE UNDISTURBED CONDITIONS AT THE UNDERSIDE OF FOOTINGS AND / OR THE COMPACTED FCR AS APPROPRIATE.

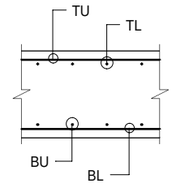
E3. ALL FOOTINGS SHALL BE CONSTRUCTED ON UNDISTURBED OR COMPACTED FILL FOUNDATION MATERIAL WITH A SAFE BEARING CAPACITY AS SHOWN IN FOUNDATIONS NOTE 'F1' AND TO THE APPROVAL OF AN ENGINEER.

E4. IF FOOTING EXCAVATIONS ARE LOWER THAN THOSE SHOWN ON DESIGN DRAWINGS. THE OVER EXCAVATION SHALL BE BACKFILLED WITH COMPACTED FOUNDATION MATERIAL AS PER NOTE 'E3' ABOVE.

E5. FINISHED EARTHWORK SLOPES SHALL NOT BE STEEPER THAN 2 HORIZONTAL AND 1 VERTICAL UNO.

CONCRETE REINFORCEMENT ABBREVIATIONS

CP	CENTRALLY PLACED
EW	EACH WAY
EF	EACH FACE
NF	NEAR FACE
FF	FAR FACE
LV	LENGTH VARIES
B	BOTTOM REINFORCEMENT
BL	BOTTOM REINFORCEMENT LOWER LEVEL
BU	BOTTOM REINFORCEMENT UPPER LEVEL
T	TOP REINFORCEMENT
TL	TOP REINFORCEMENT LOWER LEVEL
TU	TOP REINFORCEMENT UPPER LEVEL



REINFORCEMENT LAYERING

CONCRETE AND OTHER ABBREVIATIONS

CJ	CONTROL JOINT
DJ	DOWELLED JOINT
SJ	SAWCUT JOINT
TOC	TOP OF CONCRETE
FCR	FINE CRUSHED ROCK
SOP	SET OUT POINT
⟨150⟩	SLAB THICKNESS (=150mm)

OTHER ABBREVIATIONS COMPLY WITH AS1100

CONCRETE

C1. ALL WORKMANSHIP AND MATERIAL SHALL BE IN ACCORDANCE WITH AS3600. USE GENERAL PURPOSE CEMENT AND NORMAL WEIGHT AGGREGATES UNO. DO NOT USE ADDITIVES WITHOUT APPROVAL.

C2. CONCRETE QUALITY SHALL BE AS FOLLOWS (UNO):

ITEM	CHARACTERISTIC CONCRETE STRENGTH f'c (MPa)
GENERAL	32
BLINDING	15-20

C3. UNLESS SPECIFIED UNABBREVIATED TO AS4671 ALL REINFORCEMENT ON THIS PROJECT IS DESIGNATED AS FOLLOWS:

SYMBOL	DESCRIPTION	TYPE
SL	MESH - SQUARE GRID	D500L TO AS4671
RL	MESH - RECTANGULAR GRID	D500L TO AS4671
TM	TRENCH MESH	D500L TO AS4671
R	PLAIN BARS	R250N TO AS4671
S	DEFORMED BARS	D250N TO AS4671
N	DEFORMED BARS	D500N TO AS4671

DESIGNATION EXAMPLE

SL82	REINFORCING MESH	D500L 8 DIA. RIBBED BARS AT 200 CRS
4-L12TM	TRENCH MESH	D500L 4 No 12 DIA. RIBBED BARS. (300 WIDE)
4-R10-300	PLAIN BARSR	250N 4 No 10 DIA. BARS AT 300 CRS
4-S12-300	DEFORMED BARS	D250N 4 No 12 DIA. BARS AT 300 CRS
4-N16-200 T	DEFORMED BARS	D500N 4 No 16 DIA. BARS AT 200 CRS TOP

NOTE: NUMBER OR SPACING SPECIFIED - GENERALLY NOT BOTH

C4. EXPOSURE CLASSIFICATION B1 (ASSUMED FOR 'STANDARD' SITE)

C5. CLEAR COVER TO REINFORCEMENT (INCLUDING FITMENTS) SHALL BE AS FOLLOWS UNO.

CAST AGAINST BUILDING OR FORMWORK	:	40
CAST AGAINST GROUND PROTECTED BY WATERPROOF MEMBRANE	:	50
CAST AGAINST GROUND NOT PROTECTED BY WATERPROOF MEMBRANE	:	60
CAST AGAINST BLINDING CONCRETE	:	40
TOP COVER	:	40

CONCRETE (CONTINUED)

C6. SIZES OF CONCRETE ELEMENTS DO NOT INCLUDE THICKNESS OF ANY APPLIED FINISHES.

C7. BEAM DEPTHS ARE NOTED FIRST AND INCLUDE THE THICKNESS OF THE SLAB IF ANY.

C8. CONSTRUCTION JOINTS WHERE NOT SHOWN ON THE DRAWINGS SHALL BE LOCATED TO THE APPROVAL OF THE ENGINEER, JOINTS TO BE SEALED WITH 'NITOSEAL SC800' OR EQUIVALENT.

C9. FORMS SHALL BE CHAMFERED FOR RE-ENTRANT ANGLES AND FILLETED FOR CORNERS. WHERE THESE WILL BE EXPOSED TO VIEW IN THE COMPLETED PROJECT THE FACE OF THE BEVEL IN EACH CASE SHALL BE 25 WIDE UNO.

C10. NO HOLES, CHASES OR EMBEDMENTS OF PIPES OTHER THAN THOSE SHOWN ON THE STRUCTURAL DRAWINGS SHALL BE MADE WITHOUT THE PRIOR APPROVAL OF THE ENGINEER.

C11. NO ALLOWANCE HAS BEEN MADE FOR STACKED MATERIALS ON THE CONCRETE STRUCTURE UNO.

C12. CONCRETE FLOOR FINISH SHALL BE MONOLITHIC, BROOM FINISH UNO.

C13. NO REINFORCEMENT SPLICES SHALL BE MADE IN POSITIONS OTHER THAN THOSE SHOWN ON THE STRUCTURAL DRAWINGS WITHOUT THE PRIOR APPROVAL OF THE ENGINEER.

C14. MINIMUM LAP FOR FABRICS SHALL BE TWO TRANSVERSE WIRES PLUS 25. MINIMUM LAP LENGTHS FOR DEFORMED BARS SHALL BE IN ACCORDANCE WITH AS3600 UNO.

C15. WELDING OF REINFORCEMENT IS NOT PERMITTED UNLESS SHOWN ON THE DRAWINGS OR APPROVED BY THE ENGINEER.

TOP AND BOTTOM REINFORCEMENT IN SLABS SHALL BE SUPPORTED ON APPROVED PLASTIC TIPPED CHAIRS, IN BOTH DIRECTIONS AT MAXIMUM CENTRES OF ;
600 FOR 10 DIA. BARS,
900 FOR 12 AND 16 DIA. BARS,
1200 FOR 20 DIA. BARS
750 CENTRES FOR MESH.

C16. ALL FORMWORK AND PROPS UNDER SUSPENDED CONCRETE WORK SHALL BE REMOVED BEFORE ANY BRICKWORK OR BLOCKWORK IS BUILT ABOVE.

C17. THE MINIMUM CLEAR SPACING BETWEEN CONDUITS, CABLES, PIPES AND BARS SHALL BE AS REQUIRED BY AS3600 BUT NOT LESS THAN THREE DIAMETERS HORIZONTALLY FOR HORIZONTAL CONDUITS ETC. IN SLABS WALLS AND FOOTINGS AND NOT LESS THAN ONE DIAMETER FOR ALL OTHER CONDUITS ETC.

C18. BARS SHALL BE LAPPED AS FOLLOWS UNLESS NOTED OTHERWISE:

MINIMUM LAP LENGTHS				
BAR	<300 CONCRETE DEPTH (UNDER LAP)		>300 CONCRETE DEPTH (UNDER LAP)	
N12	385	350	500	450
N16	600	525	775	700
N20	850	750	1100	975
N24	1100	1000	1450	1285
N28	-	-	-	-
CONCRETE	N32	N40	N32	N40

✳ THE CONCRETE DEPTH IS MEASURED BELOW THE BAR LAP
✳ THE NOTED LAP LENGTHS RELATE TO GRADE OF THE CONCRETE NOTED ABOVE Cd = 40mm.
CONSULT THE ENGINEER FOR BAR LAPS IN OTHER CONCRETE GRADES.

C19. THE LAP LENGTH OF BUNDLED BARS SHALL BE INCREASED FROM THE VALUES SHOWN IN THE TABLE AS FOLLOW:
3 BAR BUNDLE - 20%
4 BAR BUNDLE - 33%.

C20. INDIVIDUAL BARS WITHIN A BUNDLE SHALL BE TERMINATED AT DIFFERENT POINTS STAGGERED BY AT LEAST 40 TIMES THE DIAMETER OF THE LARGER BAR.

C21. LAPS IN REINFORCEMENT SHALL BE STAGGERED SO THAT NO MORE THAN 50% OF BARS ARE LAPPED IN ANY ONE CROSS SECTION AND THAT NO TWO ADJACENT BARS ARE LAPPED AT THE SAME LOCATION.

C22. WHERE STAGGERED BAR SPLICES ARE NOT POSSIBLE, THE MINIMUM LAP LENGTH SHALL NOT BE LESS THAN 1.3 TIMES THE STANDARD LAP LENGTH OR AS SHOWN ON THE DRAWINGS, WHICHEVER IS GREATER.

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Tasmanian Government

Department of State Growth
DEPARTMENT OF STATE GROWTH
TRAFFIC FACILITIES
STANDARD BUS STOP SHELTERS
SHEET 1 OF 2
STRUCTURAL NOTES

STANDARD DRAWING NUMBER SD-087-021
REVISION NUMBER 0

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Revision 0

STRUCTURAL STEELWORK

S1. ALL STEEL, STEELWORK, CONNECTIONS AND CORROSION PROTECTION OF STEELWORK SHALL BE IN ACCORDANCE WITH THE NOTES, SPECIFICATION AND AS4100.

S2. ALL STEELWORK SHALL BE GRADE 250 EXCEPT USE GRADE 450 FOR COLD FORMED LIGHT GRADE SECTIONS, GRADE 350 FOR HOLLOW SECTIONS, AND GRADE 300 FOR HOT ROLLED SECTIONS, UNO.

S3. BOLT TYPES SHALL BE AS FOLLOWS:

4.6/S	HEXAGON HEAD BOLTS TO AS1111.1, SNUG TIGHTENED
8.8/S	HIGH STRENGTH STRUCTURAL BOLTS, WITH BOLT, NUTS AND HARDENED WASHERS TO AS4100, SNUG TIGHTENED
8.8/TB	HIGH STRENGTH STRUCTURAL BOLTS AS ABOVE, FULLY TENSIONED TO AS4100 IN A BEARING TYPE JOINT
8.8/TF	HIGH STRENGTH STRUCTURAL BOLTS AS ABOVE, FULLY TENSIONED TO AS4100 IN A FRICTION TYPE JOINT AND WITH FAYING SURFACES LEFT UNCOATED, UNO.

BOLTS SHALL BE GRADE 8.8/S UNLESS NOTED OTHERWISE.

DESIGNATION EXAMPLE 6 M20 8.8/S.

S4. ALL CONNECTIONS SHALL BE SHOP DETAILED IN ACCORDANCE WITH THE SPECIFIED CONNECTION TYPES ON EACH OF THE DRAWINGS. THE CONNECTIONS SHALL BE IN ACCORDANCE WITH THE STANDARD CONNECTION DETAIL DRAWINGS UNLESS NOTED OTHERWISE ON THE DRAWINGS.

S5. ALL DETAILS, GAUGE LINE ETC, WHERE NOT SPECIFICALLY SHOWN ARE TO BE IN ACCORDANCE WITH ASI DESIGN CAPACITY TABLES FOR STRUCTURAL STEEL AND ASI STANDARDISED STRUCTURAL CONNECTIONS.

S6. BOLT HOLES IN STEEL TO STEEL, AND STEEL TO CONCRETE CONNECTIONS SHALL BE BOLT DIAMETER PLUS 2mm AND BOLT DIAMETER PLUS 6mm FOR BASE PLATES UNO.

S7. WELDING SHALL BE PERFORMED BY A QUALIFIED OPERATOR IN ACCORDANCE WITH AS1554.

S8. E41XX ELECTRODES SHALL BE USED FOR ALL WELDS ON GRADE 250 STEELWORK. E48XX ELECTRODES SHALL BE USED FOR ALL WELDS ON ≥ GRADE 300 STEELWORK. LOW HYDROGEN ELECTRODES ARE RECOMMENDED.

S9. WELDS SHALL BE 3mm CFW (UNO) CATEGORY SP (AS DEFINED IN AS1554.1) REFER TO THE DRAWINGS FOR WELD CATEGORY GP LOCATIONS.

S10. BUTT WELDS WHERE INDICATED SHALL BE COMPLETE PENETRATION WELDS AS DEFINED IN AS1554, UNO.

S11. TESTING OF WELDS SHALL BE IN ACCORDANCE WITH SPECIFICATION.

S12. ALL STEELWORK COMPONENTS EXCEPT STAINLESS STEEL ITEMS SHALL BE HOT-DIP GALVANISED TO IN ACCORDANCE WITH AS4680.

S13. HOT DIP GALVANISED STEEL SHALL BE SUITABLY PREPARED FOR GALVANISING. THE PREPARATION SHALL INCLUDE GRIT BLASTING TO CLASS 2.5, AS1627.4.

S14. FABRICATION OF STRUCTURAL STEEL ELEMENTS TO BE HOT DIPPED GALVANISED MUST TAKE INTO ACCOUNT THE RECOMMENDATIONS OF AS2312.2 APPENDIX A. ALL FULLY SEALED HOLLOW OR BOX SECTIONS CONTAINING TOTALLY ENCLOSED AREAS MUST BE VENTED NEAR EACH END WHEN THE MEMBER IS TO BE GALVANISED. THE MINIMUM DIAMETER OF THE VENT HOLE IS TO BE 25% OF THE INTERNAL DIAMETER OR DIAGONAL DIMENSION FOR SECTIONS UP TO 150. FOR LARGER MEMBERS VENTING DETAILS SHALL BE PROVIDED BY THE GALVANISER FOR THE APPROVAL OF THE ENGINEER PRIOR TO GALVANISING.

S15. ALL STEELWORK BELOW GROUND SHALL BE ENCASED BY CONCRETE 75 MIN ALL ROUND.

PRIOR TO BOLTING PLATES AGAINST OR SITE WELDING PLATES TO EXISTING STEELWORK, ALL CONTACT AREAS SHALL HAVE CORROSION AND EXISTING LOOSE PAINT ETC REMOVED TO EXPOSE CLEAN BASE METAL. THIS SHALL BE ACHIEVED WITH A PROCESS TO MATCH THE NEW STEELWORK IF THIS IS PRACTICABLY FEASIBLE.

S16. ALL BOLTS SHALL BE HOT DIP GALVANISED UNO.

S17. AFTER TIGHTENING, EXPOSED FACES OF NUTS, BOLTS AND WASHERS SHALL BE PREPARED AND COATED AS SPECIFIED OR AS FOR ADJACENT WORK.

STRUCTURAL STEELWORK (CONTINUED)

S20. REFER TO THE SPECIFICATION FOR PREPARATION, PRIMING AND FINISH COATS ON EXTERNAL STEELWORK. IF NO SPECIFICATION IS AVAILABLE ALLOW TO PREPARE THE STEELWORK BY CLEANING WITH POWER TOOLS TO AS1627.2 AND PROTECT WITH ONE COAT OF ZINC PHOSPHATE PRIMER (MIN 50 MICRONS DFT), UNO.

S21. DAMAGED GALVANISED SURFACES SHALL BE RENOVATED WITH A SUITABLE TWO PACK ORGANIC ZINC-RICH PRIMER.

STEELWORK ABBREVIATIONS

ALL DRAWING ABBREVIATIONS CONFORM TO AS1100 AND AS1101 UNO.

ADDITIONAL ABBREVIATIONS ARE:

BS	BOTH SIDES
CFW	CONTINUOUS FILLET WELD
CONTS	CONTINUOUS
MS	MILD STEEL
PL	PLATE
FSBW	FULL STRENGTH BUTT WELD (CATEGORY SP)
TOS	TOP OF STEEL
TOP	TOP OF PLATE
TOG	TOP OF GRATE

SITE SAFETY

SS1. ALL WORK SITES CAN BE POTENTIALLY HAZARDOUS TO PEOPLE, PROPERTY AND EQUIPMENT. ALL PEOPLE WHO ARE AUTHORISED TO BE ON A WORK SITE MUST CAREFULLY CONSIDER, DOCUMENT AND ADOPT SUITABLE SAFE WORK PROCEDURES FOR ALL REQUIRED ACTIVITIES.

SS2. CURRENT LEGISLATION:
CURRENT LEGISLATION REQUIRES THAT ALL PERSONS ARE TO CONSIDER THEIR ACTIONS OR INACTION ON THE HEALTH AND SAFETY OF OTHERS AND THEMSELVES.

SS3. THE CONTRACTOR SHALL ABIDE WITH AND IS BOUND BY THE CURRENT SAFE WORK AUSTRALIA ACT, REGULATIONS AND CODES OF PRACTICE ISSUED BY STATE GOVERNMENTS AND / OR THEIR AGENCIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE IMPLEMENTATION, DOCUMENTATION AND MAINTENANCE OF WORK SAFETY PROCEDURES AND OTHER RELEVANT DOCUMENTATION. THE CONTRACTOR SHALL ENSURE THAT ALL SUB CONTRACTORS AND OTHER AUTHORISED PEOPLE COMPLY WITH THE ABOVE.

SS4. THE CONTRACTOR SHALL BE ALERT AND PROACTIVE TO IDENTIFY HAZARDS AND MANAGE THE ASSOCIATED RISKS TO ELIMINATE THEM OR MINIMISE THEM TO AN AGREED RISK LEVEL.

SS5. THE CONTRACTOR SHALL CONSULT WITH THE ENGINEER IF THERE IS ANY PERCEIVED RISK RELATING TO THE DESIGN OR CONSTRUCTION OF THE DESIGN. THE CONTRACTOR SHALL ENGAGE SUITABLY QUALIFIED ENGINEERS TO CERTIFY ALL TEMPORARY STRUCTURAL WORKS.

SS6. THE CONTRACTOR SHALL ENGAGE WITH THE SUBCONTRACTOR AND OTHER AUTHORISED PEOPLE WHO USE THE SITE TO IDENTIFY THEIR RISKY WORK PROCEDURES AND OTHER ACTIVITIES.

SS7. SUBCONTRACTORS AND OTHER AUTHORISED PEOPLE SHALL PROVIDE DOCUMENTATION ABOUT THEIR RISK ASSESSMENTS AND RISK MINIMISATION.

SS8. PUBLIC SAFETY:
A LIVE SITE THAT HAS WORK UNDERWAY OR IS UNATTENDED HAS A STRONG ATTRACTION TO THE PUBLIC IN GENERAL. THE CONTRACTOR SHALL TAKE ALL REASONABLE PRECAUTIONS TO PREVENT UNAUTHORISED PEOPLE ENTERING THE SITE. EXCAVATIONS, STRUCTURES AND ACCESS EQUIPMENT SHALL BE LEFT IN A SECURE MANNER AS IS REASONABLY PRACTICABLE TO PREVENT ANY UNAUTHORISED PEOPLE FROM ENTERING, CLIMBING OR FALLING. THE SITE SHALL HAVE CLEAR WARNING SIGNS IN APPROPRIATE LOCATIONS, E.G. - "DANGER KEEP OUT" AND BE SECURELY BARRICADED AND WHEN UNATTENDED LEFT IN A LOCKED CONDITION AS IS REASONABLY PRACTICABLE.

SS9. SPECIFIC ATTENTION SHALL BE PAID TO RISKY ACTIVITIES INCLUDING BUT NOT LIMITED TO:
SITE ESTABLISHMENT
DEMOLITION, RECYCLING AND REMOVAL
TEMPORARY WORKS
EXCAVATION AND TRENCHING - UNSTABLE GROUND
WELDING - EYE PROTECTION
CONSTRUCTION PROCESSES
TRIPS AND FALLS (GENERAL]
UNSTABLE TEMPORARY FOOTINGS
WORKING AT HEIGHT.

SAFETY IN DESIGN (SiD)

SD1. SiD GENERALLY
THIS STRUCTURE HAS BEEN DESIGNED TO ELIMINATE HAZARDS TO HEALTH AND SAFETY WHEREVER POSSIBLE. WHERE THIS HAS NOT BEEN POSSIBLE, THE RISK TO HEALTH AND SAFETY OF PERSONS HAS BEEN MINIMISED TO BE REASONABLY PRACTICABLE FOR THE 50 YEAR DESIGN LIFE OF THE STRUCTURE.

SD2. WORK HEALTH AND SAFETY:
THE CONTRACTOR SHALL ENSURE THAT THE CONSTRUCTION OF THIS PROJECT IS CARRIED OUT UNDER A WORK HEALTH AND SAFETY CO-ORDINATION PLAN AND COMPLIANT WITH ANY 'SAFETY IN THE WORKPLACE LEGISLATION' APPLICABLE IN THE STATE IN WHICH THE WORK IS CARRIED OUT.

SD3. IDENTIFY HAZARDS:
THE CONTRACTOR SHALL MAKE EVERY EFFORT TO ENSURE THAT ALL PERSONS WHO ENTER THE CONSTRUCTION SITE ARE MADE AWARE ABOUT THE RISK OF HAZARDS AND POTENTIAL HAZARDS WHICH MAY OCCUR ON THE SITE. ANY SUCH HAZARD SHALL BE ISOLATED AND CLEARLY IDENTIFIED. THE CORRECT LEVEL OF TRAINING SHALL BE MANDATORY BEFORE ANY PERSON ENTERS THE CONSTRUCTION AREA. ALL PERSONS SHALL WEAR THE APPROPRIATE SAFETY PROTECTION APPAREL SPECIFIED BY THE CONTRACTOR BEFORE ENTERING THE SITE. A QUALIFIED GUIDE SHALL ACCOMPANY ALL NEW CONSTRUCTION WORKERS DURING THEIR INITIATION AND ALL SITE VISITORS WHILE ON THE SITE.

SD4. STABILITY OF THE STRUCTURE:
TEMPORARY MEASURES ARE REQUIRED DURING CONSTRUCTION AND DEMOLITION TO ENSURE THE STABILITY OF THE STRUCTURE. IT IS THE RESPONSIBILITY OF THE CONTRACTOR AND THE CONTRACTOR'S ERECTION DESIGN ENGINEER TO TAKE ALL MEASURES NECESSARY TO MAINTAIN STRUCTURAL INTEGRITY DURING ALL PHASES OF DECONSTRUCTION AND CONSTRUCTION. TEMPORARY SUPPORT IS EXPECTED TO BE NECESSARY.

SD5. TEMPORARY SUPPORT REQUIRED:
SOIL AND ROCK EXCAVATION
CONCRETE FORMWORK TO FACILITATE CONCRETE PLACEMENT
PRECAST CONCRETE WORK
STRUCTURAL STEEL FRAMING
TIMBER FRAMING
STATIC OR OPERATING PLANT AND EQUIPMENT
STORED MATERIALS
STABILITY OF THE EXISTING STRUCTURE.

SD6. SPECIALIST CONTRACTOR:
SOME ACTIVITIES REQUIRED TO BE CARRIED OUT DURING THE CONSTRUCTION

ARE NOT CONSIDERED TO BE NORMAL BUILDING PRACTICE. THEREFORE ENGAGEMENT OF A SPECIALIST CONTRACTOR, IS EXPECTED TO BE NECESSARY FOR THE FOLLOWING ACTIVITIES, BUT NOT LIMITED TO

LIFTING AND PLACEMENT OF HEAVY ELEMENTS
USE OF HAZARDOUS MATERIALS
USE OF HEAVY EQUIPMENT
DEMOLITION WORKS
MOVING MASS CONCRETE BLOCKS
ACCESS USING WORK PLATFORMS, STEPS, FALL ARREST SYSTEMS AND LADDERS
DRILLING
ANCHOR INSTALLATION
WORK NEAR LIVE EQUIPMENT, INCLUDING ELECTRICAL EQUIPMENT.

REFER ALSO TO THE PROJECT SID REPORT

No.	Amendment Description	Initials	Date
0	INITIAL ISSUE		

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DRAWN: Pitt & Sherry June 2023
REVIEWED: State Growth June 2023
APPROVED: SSWG June 2023
For, Director Passenger Transport

Tasmanian Government

Department of State Growth
DEPARTMENT OF STATE GROWTH
TRAFFIC FACILITIES
STANDARD BUS STOP SHELTERS
SHEET 2 OF 2
STRUCTURAL NOTES

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STANDARD DRAWING NUMBER: SD-087-022
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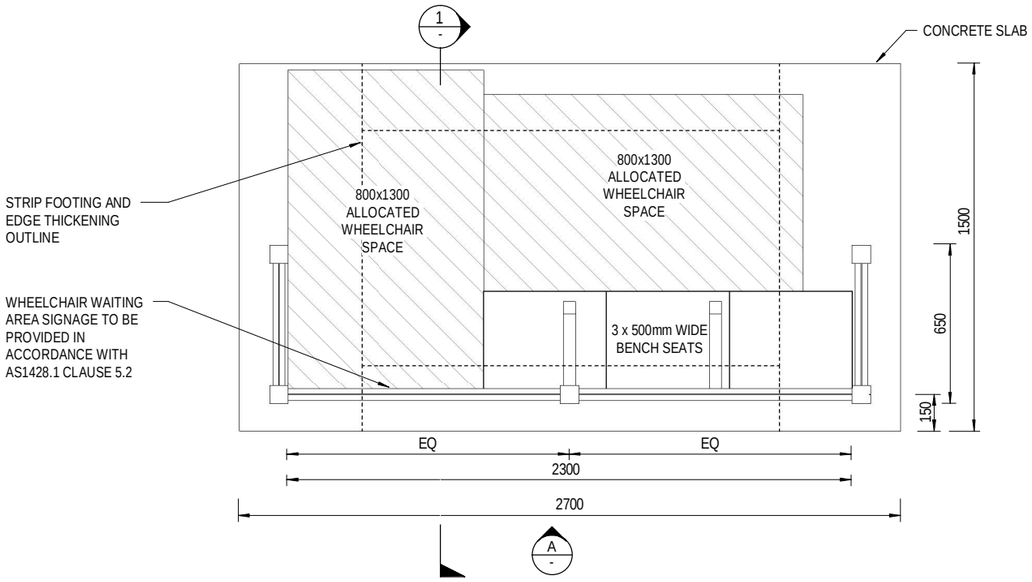
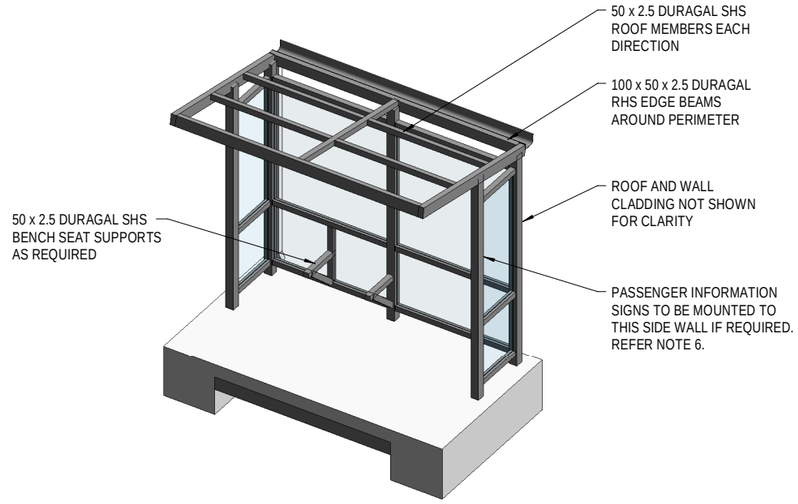
DRAWING SD-087-022-0.dwg

Revision 0



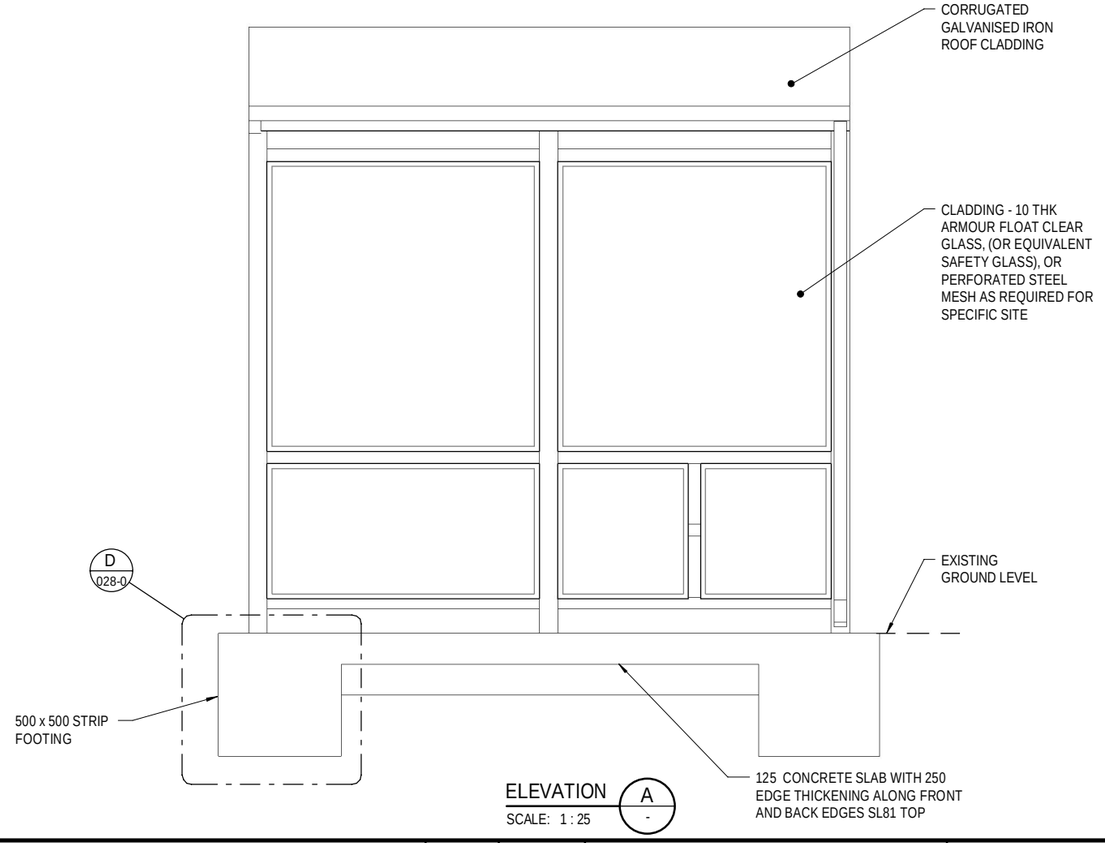
FLOOR PLAN FOR 3 SEATER (SMALL)

SCALE: 1 : 25



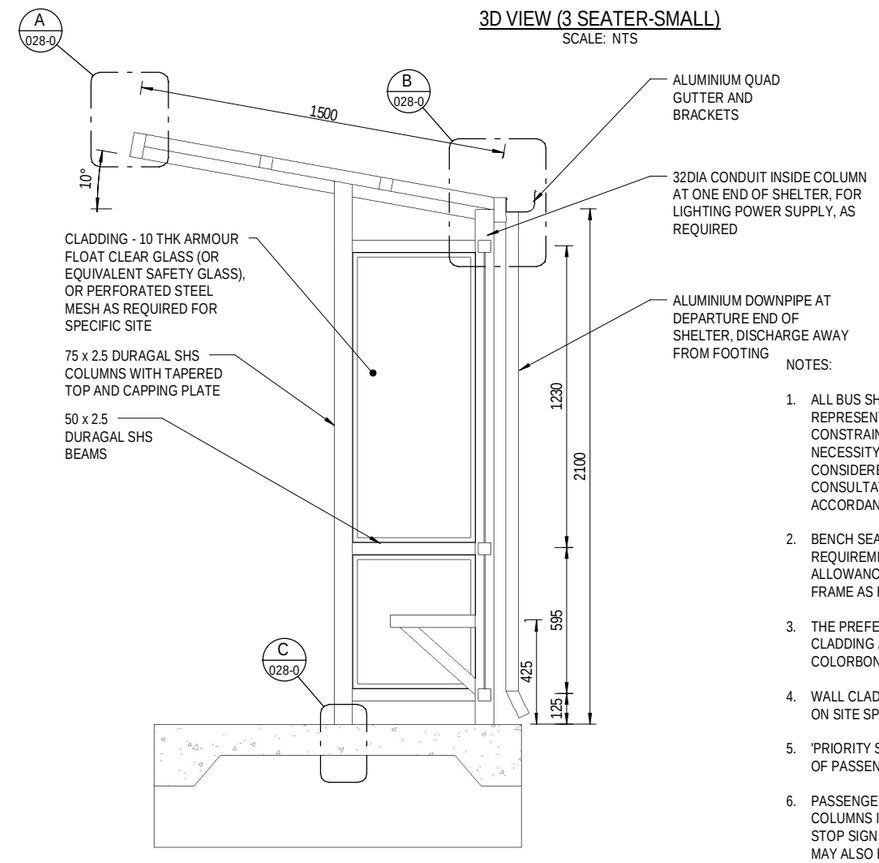
3D VIEW (3 SEATER-SMALL)

SCALE: NTS



ELEVATION A

SCALE: 1 : 25



SECTION 1

SCALE: 1 : 25

NOTES:

1. ALL BUS SHELTER STANDARD DRAWINGS ARE INTENDED TO REPRESENT THE TARGET PARAMETERS FOR A TYPICAL SITE. CONSTRAINTS AT SPECIFIC SITES HOWEVER MAY DICTATE THE NECESSITY TO VARY FROM THESE DRAWINGS. THIS SHALL BE CONSIDERED ON A SITE SPECIFIC BASIS, SUBJECT TO CONSULTATION WITH THE RELEVANT ROAD MANAGER, AND IN ACCORDANCE WITH THE CORE REQUIREMENTS ON SD-087-021
2. BENCH SEATING TO BE PROVIDED PER SITE SPECIFIC REQUIREMENTS. LOCATION AS SHOWN ON FLOOR PLAN (500mm ALLOWANCE PER 'SEAT'). BENCH SEAT SUPPORTS TO SHELTER FRAME AS REQUIRED.
3. THE PREFERRED COLOUR FINISH OF ALL STEELWORK, ROOF CLADDING AND WALL CLADDING (OTHER THAN GLASS) SHALL BE COLORBOND BASALT (GREY).
4. WALL CLADDING SHALL BE CHOSEN FROM OPTIONS NOTED BASED ON SITE SPECIFIC REQUIREMENTS.
5. 'PRIORITY SEATING' SIGN TO BE INSTALLED ON TWO SEATS FOR USE OF PASSENGERS WITH A DISABILITY.
6. PASSENGER INFORMATION SIGNS TO BE MOUNTED TO SHELTER COLUMNS IF REQUIRED (I.E. IF NOT MOUNTED TO AN ADJACENT BUS STOP SIGN POST). POTENTIAL FUTURE ADDITIONAL INFORMATION MAY ALSO BE MOUNTED TO COLUMNS IF REQUIRED.
7. DESIGN COLUMN DEFLECTION EQUIVALENT TO HEIGHT/150 TO BE CONSIDERED FOR GLAZING

DRAWING SD-087-023-0.dwg

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Tasmanian Government

Department of State Growth

DEPARTMENT OF STATE GROWTH
TRAFFIC FACILITIES
STANDARD BUS STOP SHELTERS

GENERAL ARRANGEMENT (3 SEATER-SMALL)

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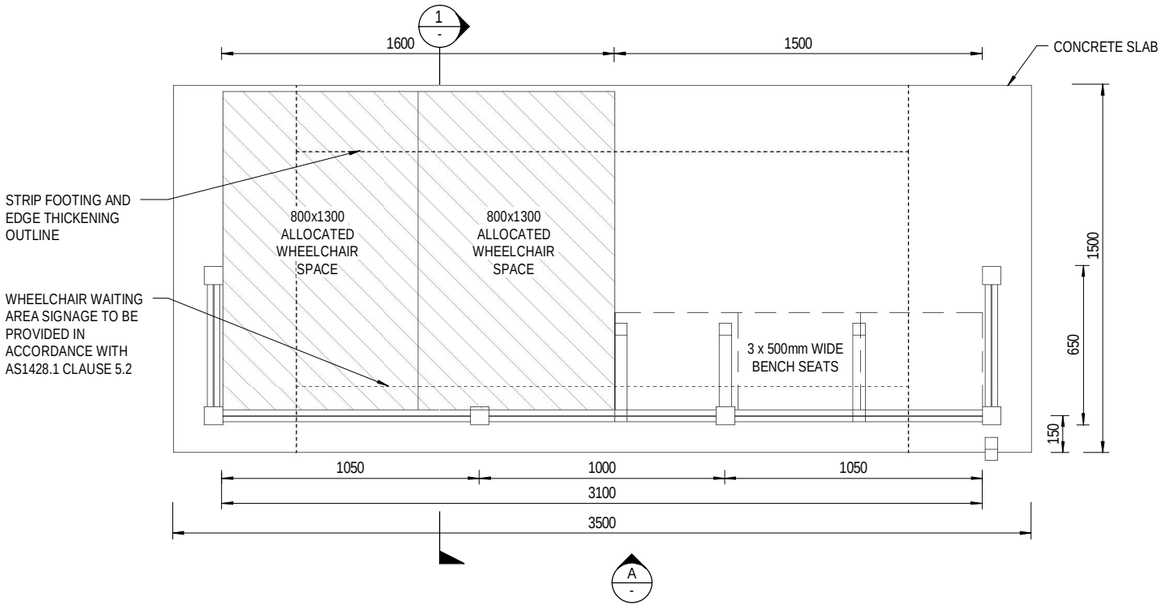
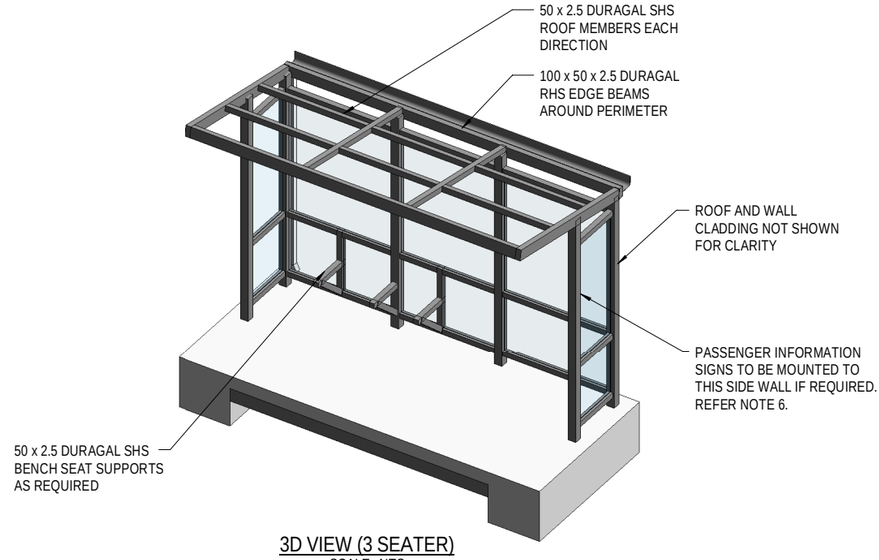
Revision 0



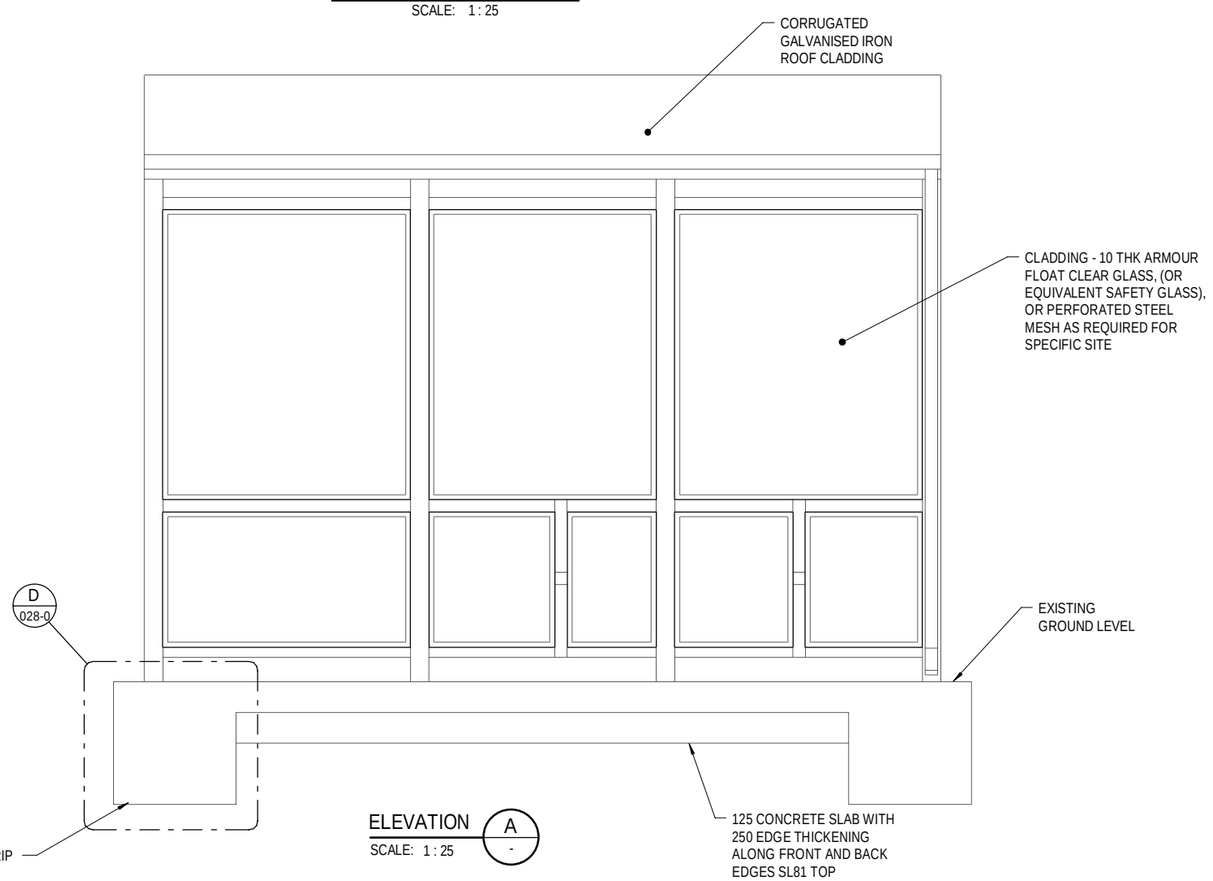
FLOOR PLAN FOR 3 SEATER

SCALE: 1 : 25



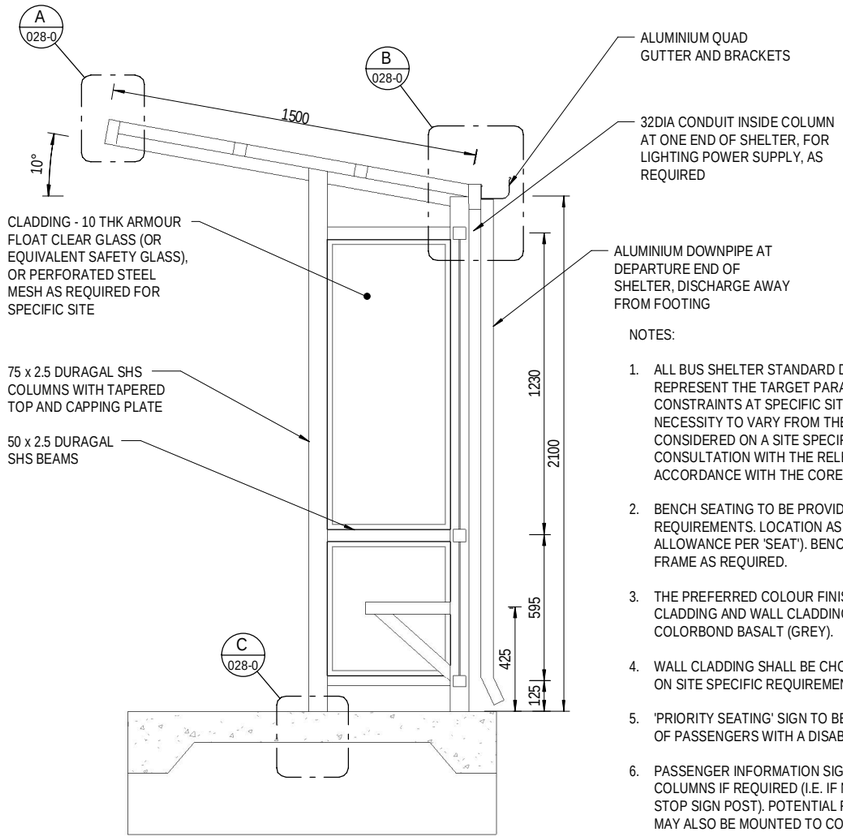
3D VIEW (3 SEATER)

SCALE: NTS



ELEVATION A

SCALE: 1 : 25



SECTION 1

SCALE: 1 : 25

NOTES:

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No.	Amendment Description	Initials	Date
0	INITIAL ISSUE		

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Tasmanian Government

Department of State Growth

DEPARTMENT OF STATE GROWTH
TRAFFIC FACILITIES
STANDARD BUS STOP SHELTERS

GENERAL ARRANGEMENT (3 SEATER)

DO NOT SCALE

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STANDARD DRAWING NUMBER: SD-087-024

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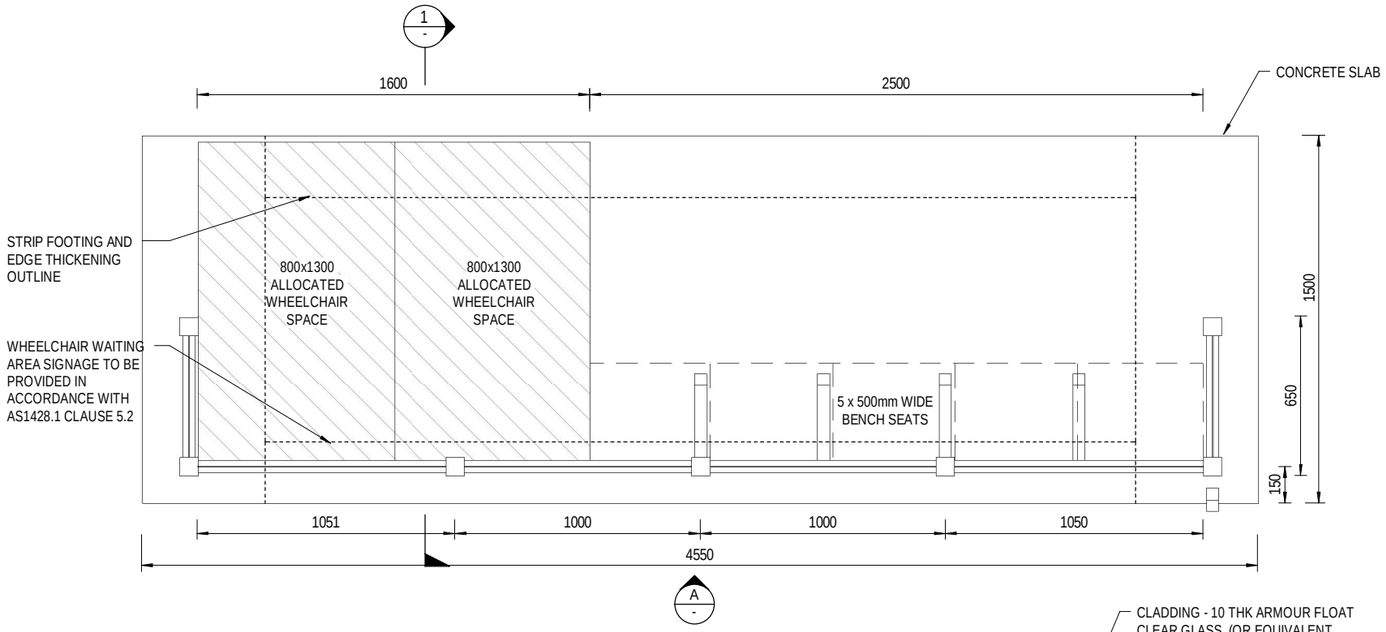
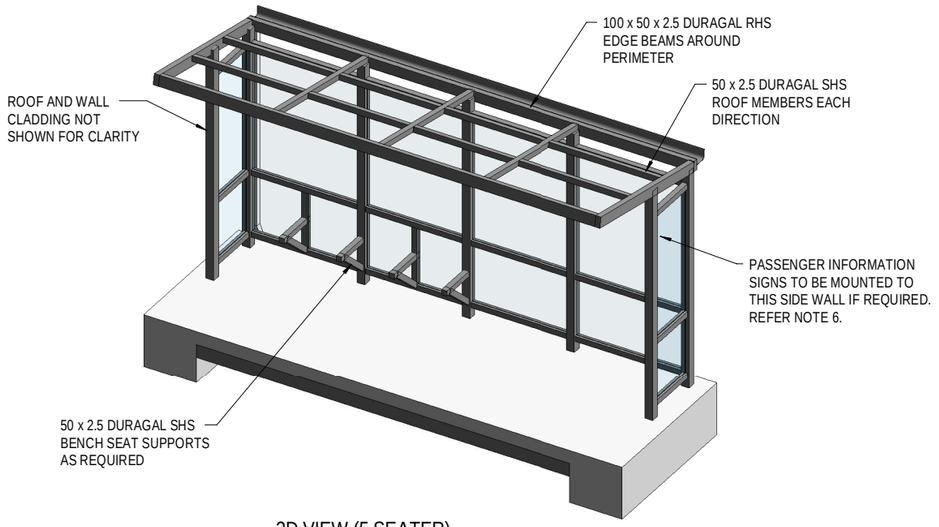
Revision 0



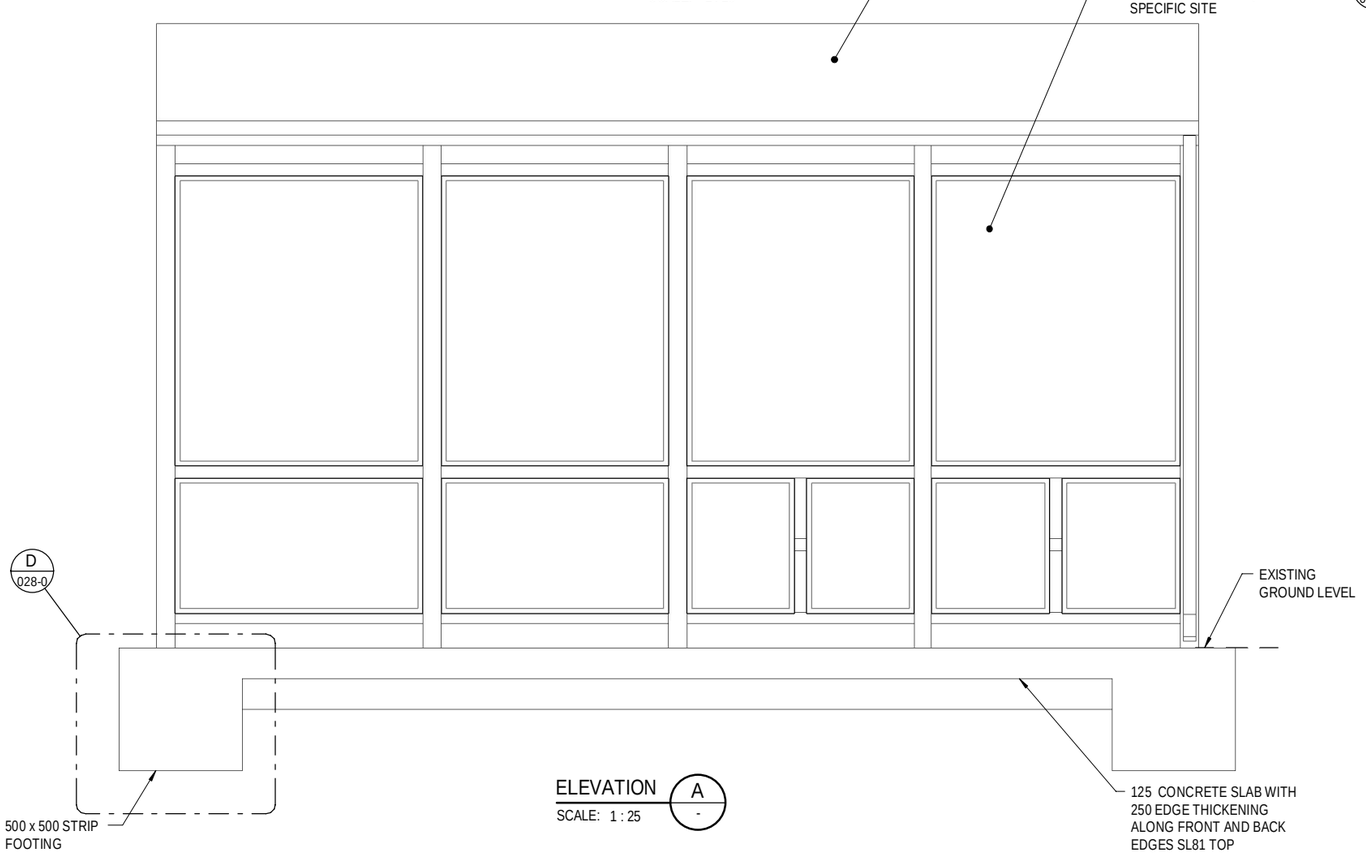
FLOOR PLAN 5 SEATER

SCALE: 1 : 25



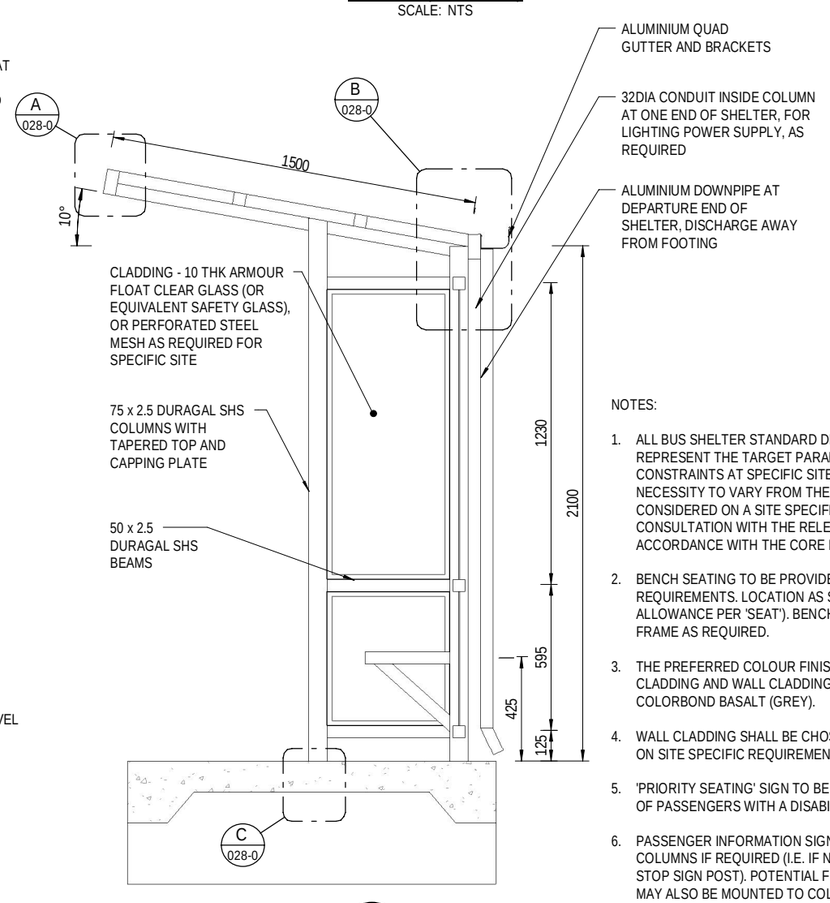
3D VIEW (5 SEATER)

SCALE: NTS



ELEVATION A

SCALE: 1 : 25



SECTION 1

SCALE: 1 : 25

NOTES:

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DRAWING SD-087-025-0.dwg

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A3 original	This sheet may be prepared using colour and may be incomplete if copied		

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Tasmanian Government

Department of State Growth

DEPARTMENT OF STATE GROWTH
TRAFFIC FACILITIES
STANDARD BUS STOP SHELTERS

GENERAL ARRANGEMENT (5 SEATER)

DO NOT SCALE

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STANDARD DRAWING NUMBER: SD-087-025

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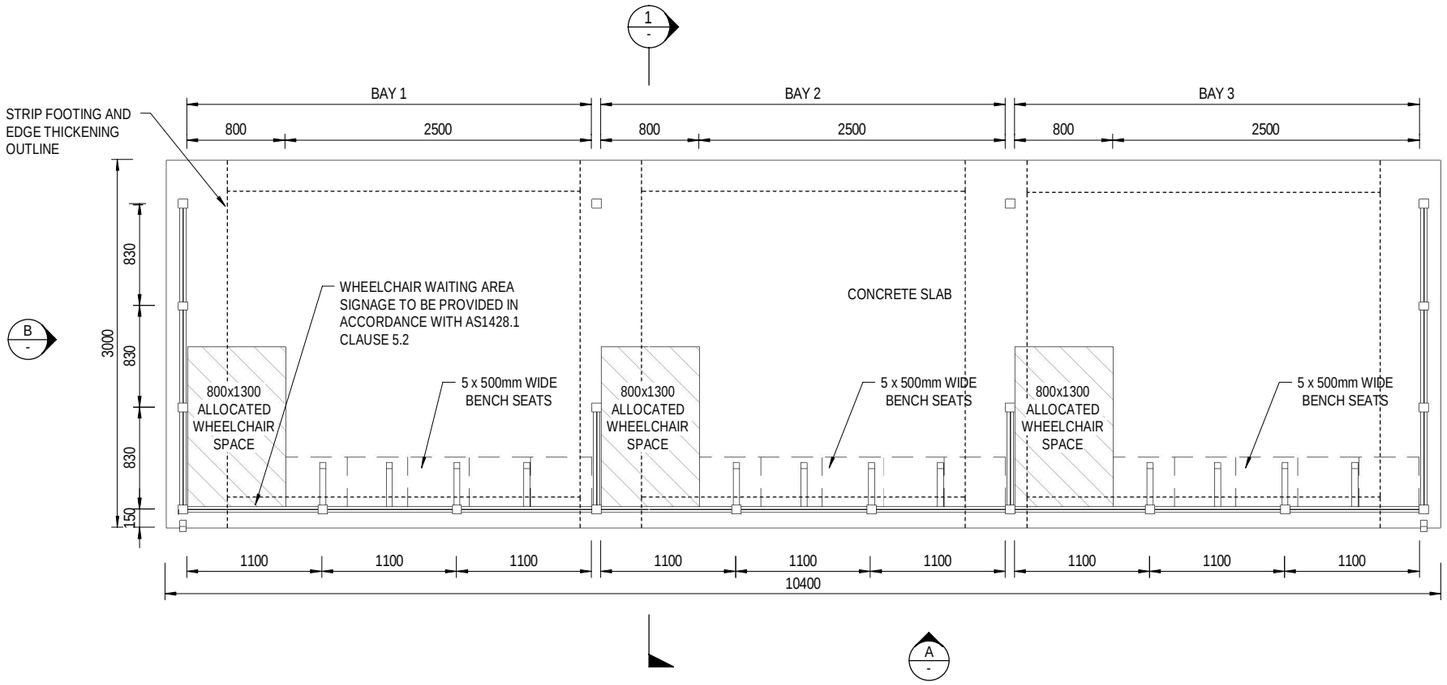
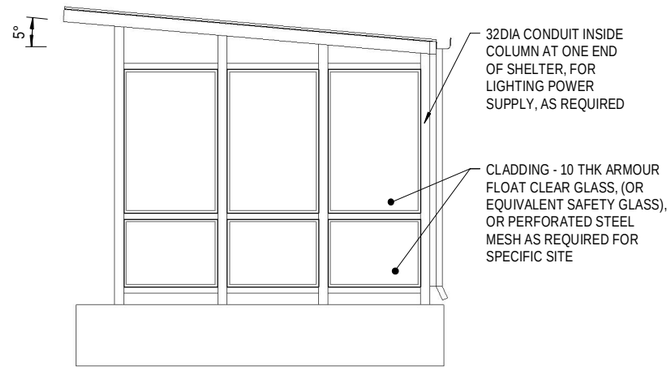
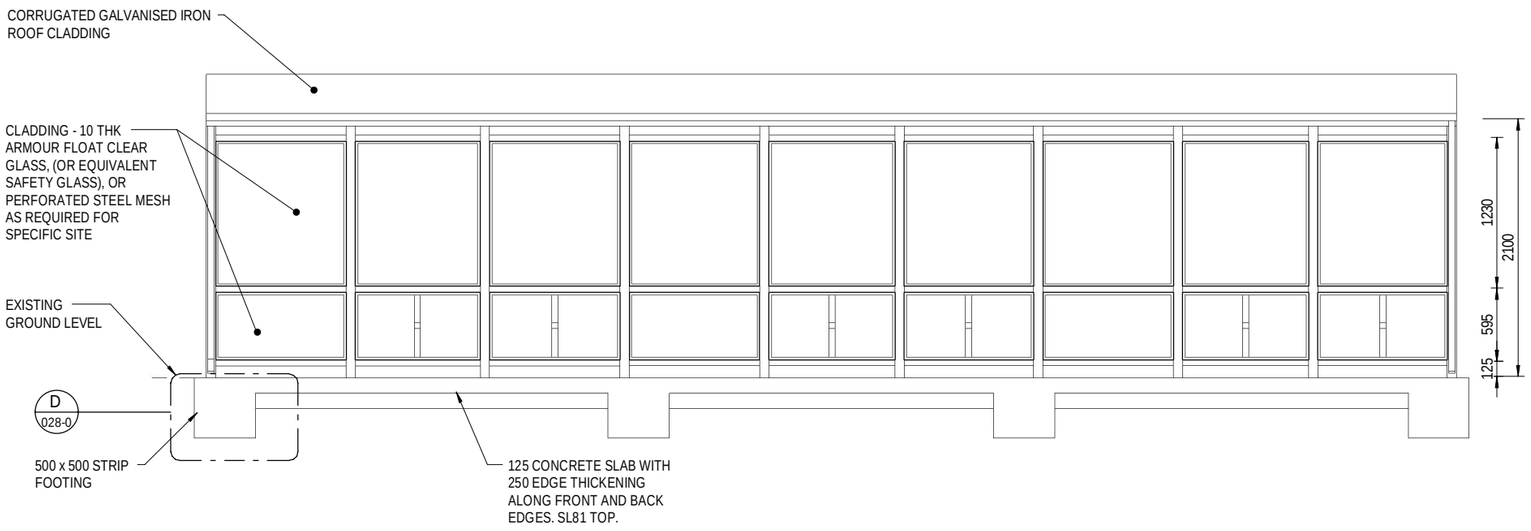
Revision 0



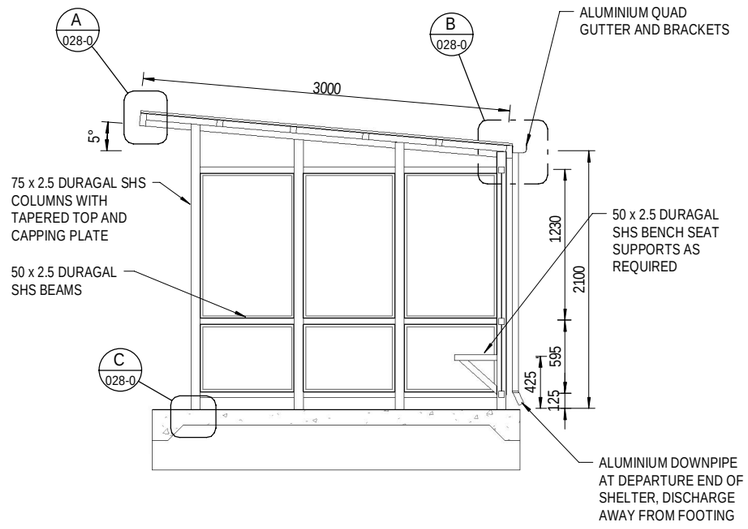
FLOOR PLAN FOR LARGE SCALE BUS SHELTER
SCALE: 1 : 50



ELEVATION B - SCALE: 1 : 50



ELEVATION A - SCALE: 1 : 50



SECTION 1 - SCALE: 1 : 50

DRAWING SD-087-026-0.dwg

No.	Amendment Description	Initials	Date
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Tasmanian Government

Department of State Growth

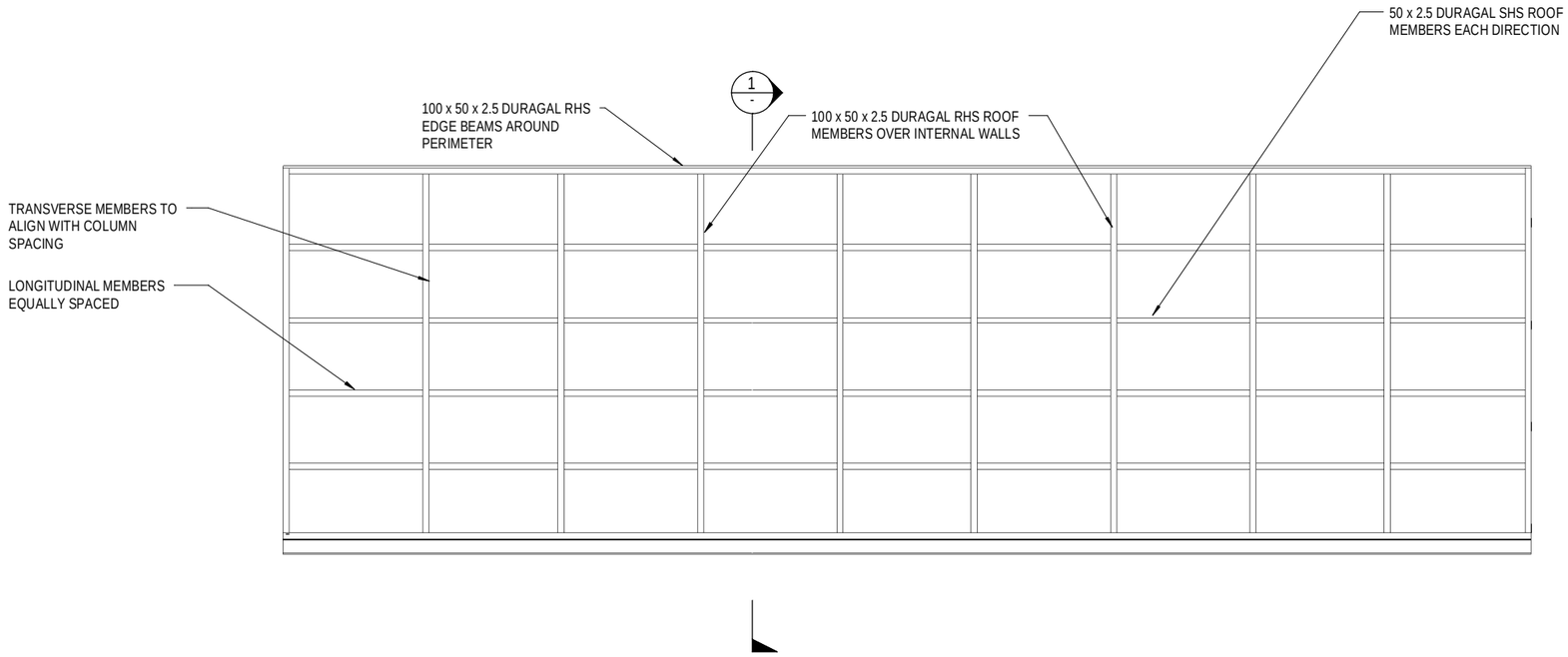
DEPARTMENT OF STATE GROWTH
TRAFFIC FACILITIES
STANDARD BUS STOP SHELTERS

GENERAL ARRANGEMENT (LARGE SCALE)

STANDARD DRAWING NUMBER: SD-087-026
REVISION NUMBER: 0

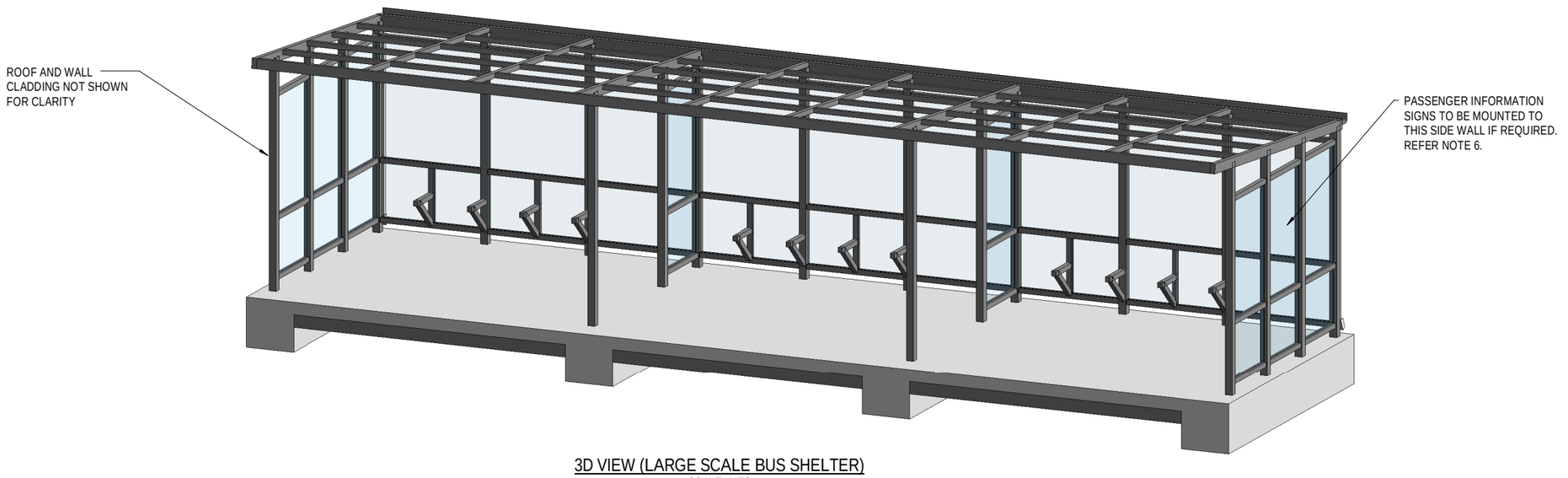
PRINTED DATE 2/06/2023 11:24:31 AM

Revision 0



ROOF PLAN FOR LARGE SCALE BUS SHELTER

SCALE: 1 : 50



3D VIEW (LARGE SCALE BUS SHELTER)

SCALE: NTS

NOTES:

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DRAWING SD-087-027-0.dwg

No.	Amendment Description	Initials	Date
0	INITIAL ISSUE		

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For, Director Passenger Transport

Tasmanian Government

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DEPARTMENT OF STATE GROWTH
TRAFFIC FACILITIES
STANDARD BUS STOP SHELTERS

ELEVATION AND 3D VIEW FOR LARGE SCALE SHELTER

STANDARD DRAWING NUMBER: SD-087-027

REVISION NUMBER: 0

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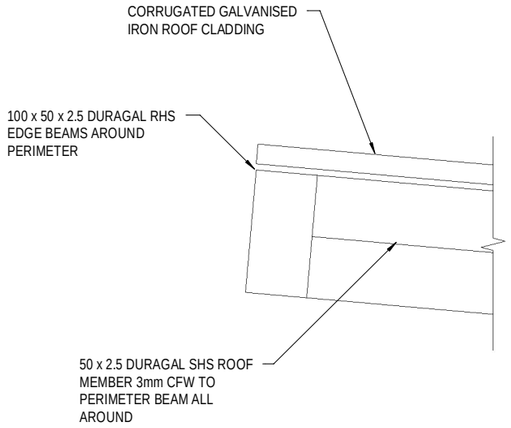
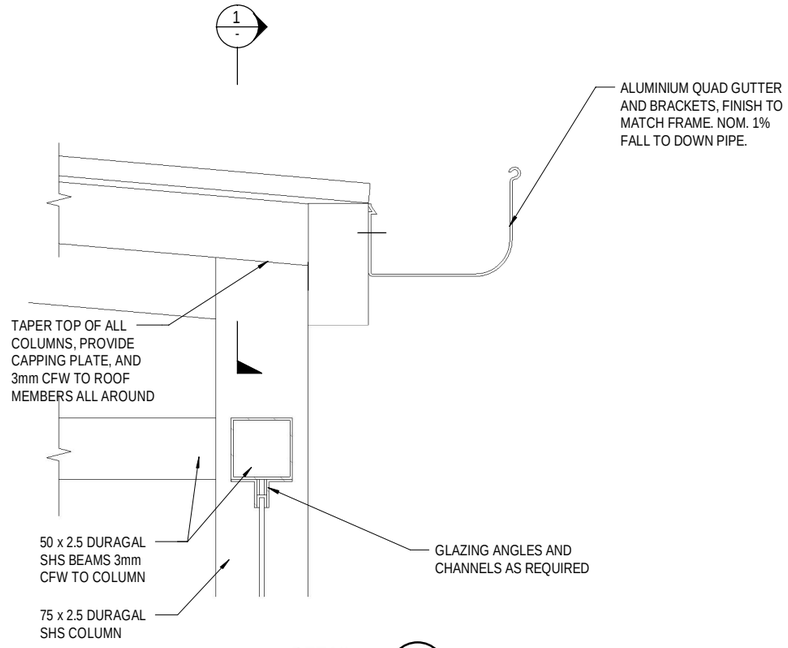
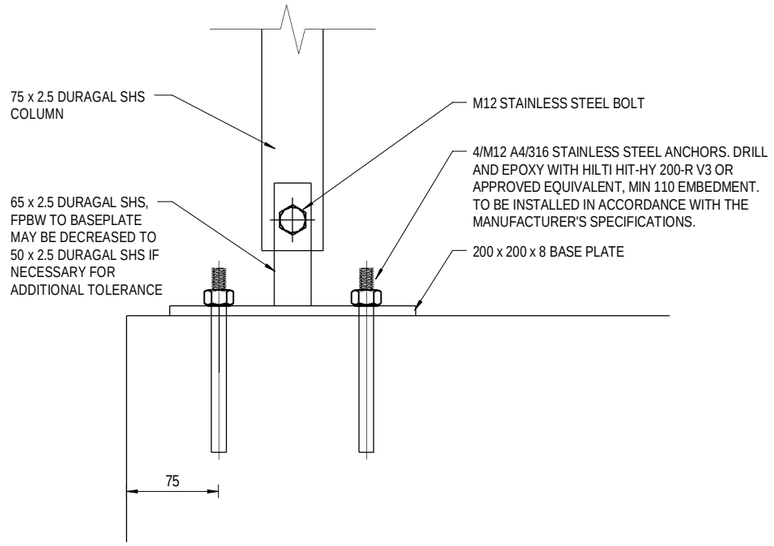
Revision 0



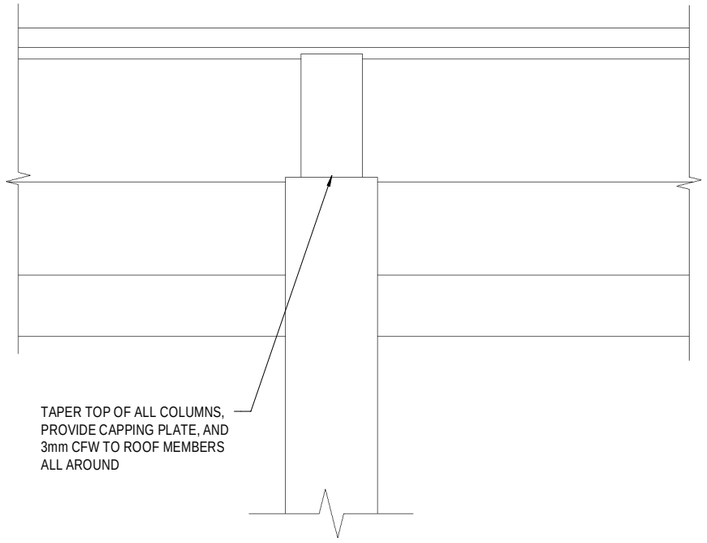
DETAIL A
SCALE: 1 : 5
(TYPICAL)



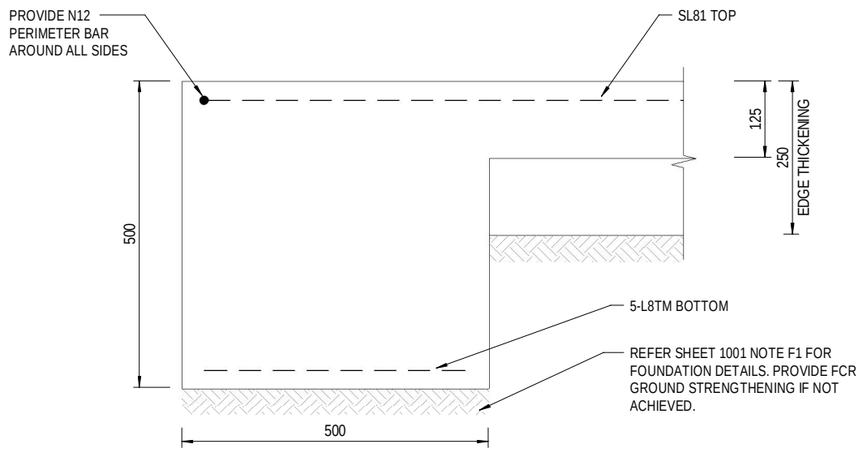
DETAIL B
SCALE: 1 : 5
(TYPICAL)



DETAIL C
SCALE: 1 : 5
(TYPICAL)



SECTION 1
SCALE: 1 : 5



DETAIL D
SCALE: 1 : 10
(TYPICAL)

NOTES:

1. ALL ROOF MEMBER-ROOF MEMBER, ROOF MEMBER-COLUMN, COLUMN-BEAM AND BEAM-BEAM CONNECTIONS TO BE 3mm CFW ALL AROUND IN ACCORDANCE WITH AS/NZS 1554.1
2. ALL BOLTS SHALL BE STAINLESS STEEL. ISOLATE BY PROVIDING NEOPRENE WASHER

No.	Amendment Description	Initials	Date
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TRAFFIC FACILITIES
STANDARD BUS STOP SHELTERS

DETAILS

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STANDARD DRAWING NUMBER: SD-087-028
REVISION NUMBER: 0

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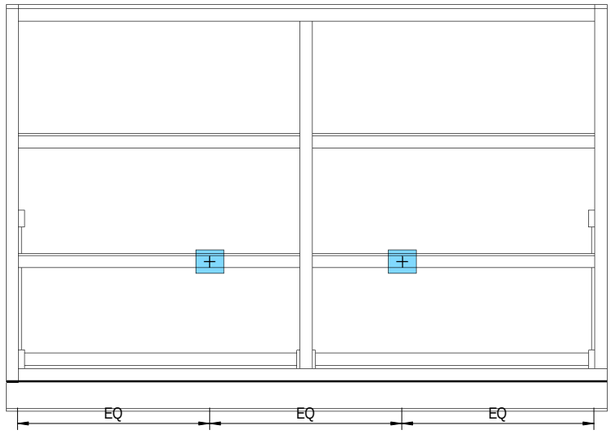
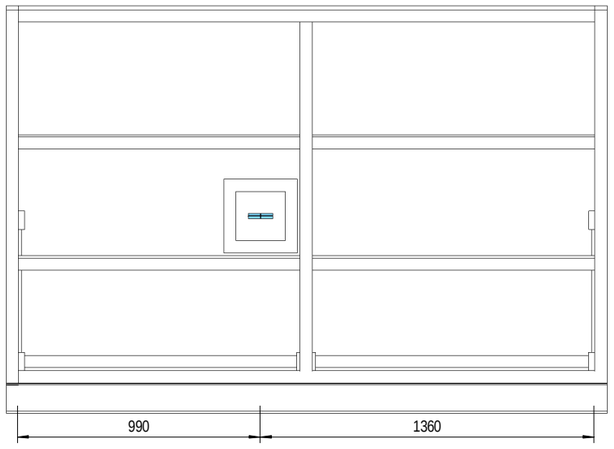
DRAWING SD-087-028-0.dwg

Revision 0



ROOF PLAN - LIGHTING 3 SEATER (SMALL) - OPTION 1 - LED LUMINAIRE

SCALE: 1 : 25



ROOF PLAN - LIGHTING 3 SEATER (SMALL) - OPTION 2 - LED LUMINAIRE

SCALE: 1 : 25

LEGEND:

1x2W, 235 LUMENS, 4000K, LEDPOD 40SQ LED LUMINAIRE OR EQUIVALENT

1x15W, 2805 LUMENS, 4000K, T3 STANDARD OPTICS
SOLAR POWERED LED LUMINAIRE WITH MOUTING ACCESSORIES OR EQUIVALENT

GENERAL NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED.
2. ALL COORDINATES ARE RELATED TO AUSTRALIAN HEIGHT DATUM.
3. CONTRACTOR TO ENSURE THAT ALL WORKS ARE CARRIED OUT AS PER AUTHORITY/COUNCIL REQUIREMENTS AND SHALL COMPLY TO HEALTH & SAFETY PROCEDURES.
4. CONTRACTOR SHALL ACQUIRE ALL CONSTRUCTION WORKS NOCS BEFORE PROCEEDING WITH ANY SITE WORKS OR PROCUREMENT OF MATERIALS.
5. LIGHTING AND ASSOCIATED COMPONENTS SHALL BE VANDAL/THEFT PROOF
6. LIGHTING SHALL BE MOUNTED TO THE UNDERSIDE OF THE ROOF STRUCTURE.
7. THIS DRAWING TO BE READ IN CONJUCTURE WITH DRAWING SD-087-023
8. CLAUSE 19.1 OF AS1428.2-1992 AND AS1680.2 SPECIFIES A MINIMUM LIGHTING LEVEL OF 150 LUX, HOWEVER THIS IS RELEVANT TO INTERNAL LIGHTING, WITH NO REFERENCE TO EXTERNAL LIGHTING. A LIGHTING LEVEL OF 150 LUX IN A BUS SHELTER WOULD BE EXECPTIONALLY BRIGHT IN COMPARISON TO THE SURROUNDING ENVIRONMENT. A REDUCED LIGHTING LEVEL OF 25 LUX HAS BEEN ACCEPTED BY THE DEPARTMENT OF STATE GROWTH ON ROAD SAFETY GROUNDS. IF AN INCREASED LIGHTING LEVEL IS REQUIRED FOR A SPECIFIC SITUATION, THIS SHALL BE CONSIDERED AND DESIGNED ON A SITE SPECIFIC BASIS.

OPTION 1 - LED LUMINAIRE NOTES:

1. CONTRACTOR TO ENSURE MINIMUM LIGHTING LEVEL OF 25 LUX WITH MAXIMUM UNIFORMITY OF 8 IS ACHIEVED FOR BUS SHELTER WITH APPROPRIATE SELECTION OF LED LIGHTING LUMINAIRE (WITH DRIVERS AND DALI CONTROLLER). THE SAME SHALL BE DEMONSTRATED USING DIALUX/AGI32 LIGHTING DESIGN SOFTWARE.
2. EXACT LOCATION OF LED LIGHTING LUMINARE SHALL BE COORDINATED WITH THE BUS SHELTER STRUCTURAL DESIGN. WHILE INDICATIVE LOCATION OF LED LIGHTS IS SHOWN IN THE DRAWINGS, NECESSARY ADJUSTMENTS SHALL BE MADE ON-SITE TO SUIT THE ACTUAL CONDITION.
3. CONTRACTOR SHALL PROVIDE ELECTRICAL POWER SUPPLY TO LIGHTS AND MESSAGE BOARDS (IF APPLICABLE).
4. CABLING TO BE INSTALLED INSIDE SUPPORT STRUCTURE AND CONCEALED AS FAR AS REASONABLY PRACTICAL.
5. CONTRACTOR SHALL PROVIDE LUMINAIRE MOUNTING DETAILS BASED ON SELECTION OF LIGHTING PRODUCT.

OPTION 2 - SOLAR POWERED LED LUMINAIRE NOTES:

1. CONTRACTOR TO ENSURE MINIMUM LIGHTING LEVEL OF 25 LUX WITH MAXIMUM UNIFORMITY OF 8 IS ACHIEVED FOR BUS SHELTER WITH APPROPRIATE SELECTION OF EFFICIENT SOLAR PANEL AND LED LIGHTING LUMINAIRE. THE SAME SHALL BE DEMONSTRATED USING DIALUX/AGI32 LIGHTING DESIGN SOFTWARE.THE SELECTION OF BATTERY SHALL BE AS SUCH TO ACHIEVE A MINIMUM AUTONOMY OF 3-4 DAYS IN FULLY CHARGED CONDITIONS.
2. EXACT LOCATION OF SOLAR PANEL MODULE WITH LED LIGHT BOX BRACKET SHALL BE COORDINATED WITH THE BUS SHELTER STRUCTURAL DESIGN. WHILE INDICATIVE LOCATION OF LIGHTING MODULE IS SHOWN IN THE DRAWINGS, NECESSARY ADJUSTMENTS SHALL BE MADE ON-SITE TO SUIT THE ACTUAL CONDITION.
3. THREE STANDARD MODES OF OPERATION CAN BE ACHIEVED WITH MODULAR SOLAR LED LIGHTING SYSTEM AS STATED BELOW:
   (A) ALL NIGHT MODE - OPERATES AT A CONSTANT ALL NIGHT LEVEL OF ILLUMINATION UNTIL DAWN.
   (B) SENSOR MODE - DETECTS MOVEMENT AND INCREASES ILLUMINATION UP TO 100% UNTIL NO MOTION IS DETECTED FOR 30 SECONDS.
   (C) SURPRISE MODE - NO LIGHT UNTIL MOTION IS DETECTED THEN TURNS ON UNTIL NO MOTION IS DETECTED FOR 30 SECONDS.

   SENSOR MODE OF OPERATION IS RECOMMENDED WHICH ALLOWS FOR LOW DIMMABLE LIGHT WHICH BOOSTS UP TO HIGHER LIGHTING LEVELS UPON MOTION DETECTION BASED ON PASSIVE INFRARED SENSORS. THIS RESULTS IN HIGHER ENERGY SAVING, BETTER BATTERY AUTONOMY, AND LONGER EQUIPMENT LIFE SPAN WITH AN OPTIMISED LIGHTING OPERATION. HOWEVER, THE FINAL SELECTION OF MODE OF LIGHTING OPERATION SHALL BE BASED ON CLIENT CONFIRMATION.
4. FOR STANDARD SOLAR PANEL MODULE AND LIGHTING MOUNTING DETAILS, REFER TO MANUFACTURERS TECHNICAL DRAWINGS FOR MORE INFORMATION.
5. LIGHTING SHALL BE MOUNTED TO THE 50 x 2.5 SHS ROOF MEMBERS. IF REQUIRED, ADDITIONAL 50 x 2.5 SHS ROOF MEMBERS SHALL BE ADDED TO ROOF FRAME TO PROVIDE APPROPRIATE MOUNTING POINTS. ADDITIONAL ROOF MEMBERS 3mm CFW TO OTHER ROOF MEMBERS.

No.	Amendment Description	Initials	Date
0	INITIAL ISSUE		
A3 original	This sheet may be prepared using colour and may be incomplete if copied		

DRAWN: Pitt & Sherry June 2023
REVIEWED: State Growth June 2023
APPROVED: SSWG June 2023
For, Director Passenger Transport

Tasmanian Government

Department of State Growth

DEPARTMENT OF STATE GROWTH
TRAFFIC FACILITIES
STANDARD BUS STOP SHELTERS

LIGHTING (3 SEATER-SMALL)

DO NOT SCALE

Use of this drawing is governed by the conditions outlined on the DSG website. It is the users responsibility to ensure it is the current revision.

STANDARD DRAWING NUMBER: SD-087-029

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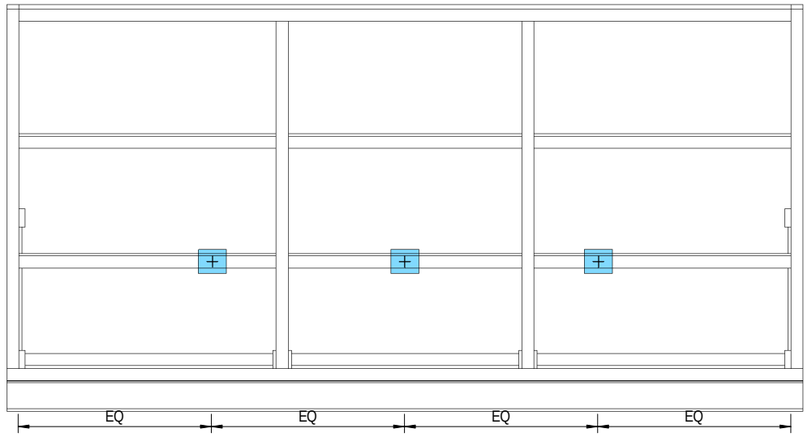
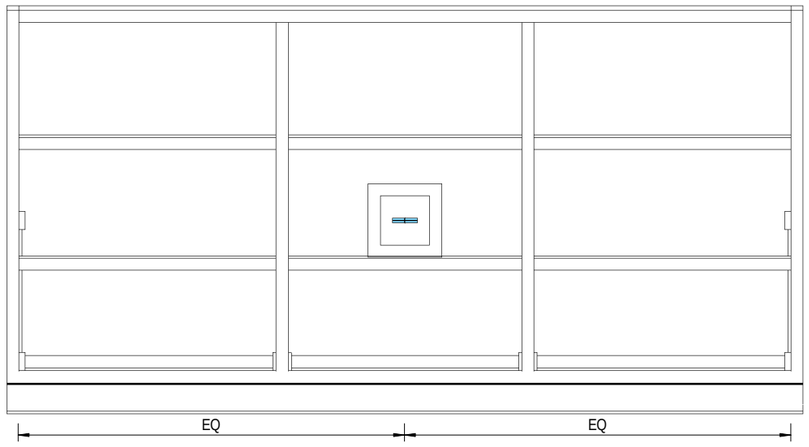
Revision 0



ROOF PLAN - LIGHTING 3 SEATER - OPTION 1 - LED LUMINAIRE

SCALE: 1 : 25



ROOF PLAN - LIGHTING 3 SEATER - OPTION 2 - SOLAR POWERED LED LUMINAIRE

SCALE: 1 : 25

LEGEND:

1x2W, 2354 LUMENS, 4000K, LEDPOD 40SQ LED LUMINAIRE OR EQUIVALENT

1x15W, 2805 LUMENS, 4000K, T3 STANDARD OPTICS
SOLAR POWERED LED LUMINAIRE WITH MOUTING ACCESSORIES OR EQUIVALENT

GENERAL NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED.
2. ALL COORDINATES ARE RELATED TO AUSTRALIAN HEIGHT DATUM.
3. CONTRACTOR TO ENSURE THAT ALL WORKS ARE CARRIED OUT AS PER AUTHORITY/COUNCIL REQUIREMENTS AND SHALL COMPLY TO HEALTH & SAFETY PROCEDURES.
4. CONTRACTOR SHALL ACQUIRE ALL CONSTRUCTION WORKS NOCS BEFORE PROCEEDING WITH ANY SITE WORKS OR PROCUREMENT OF MATERIALS.
5. LIGHTING AND ASSOCIATED COMPONENTS SHALL BE VANDAL/THEFT PROOF
6. LIGHTING SHALL BE MOUNTED TO THE UNDERSIDE OF THE ROOF STRUCTURE.
7. THIS DRAWING TO BE READ IN CONJUCTURE WITH DRAWING SD-087-023
8. CLAUSE 19.1 OF AS1428.2-1992 AND AS1680.2 SPECIFIES A MINIMUM LIGHTING LEVEL OF 150 LUX, HOWEVER THIS IS RELEVANT TO INTERNAL LIGHTING, WITH NO REFERENCE TO EXTERNAL LIGHTING. A LIGHTING LEVEL OF 150 LUX IN A BUS SHELTER WOULD BE EXECPTIONALLY BRIGHT IN COMPARISON TO THE SURROUNDING ENVIRONMENT. A REDUCED LIGHTING LEVEL OF 25 LUX HAS BEEN ACCEPTED BY THE DEPARTMENT OF STATE GROWTH ON ROAD SAFETY GROUNDS. IF AN INCREASED LIGHTING LEVEL IS REQUIRED FOR A SPECIFIC SITUATION, THIS SHALL BE CONSIDERED AND DESIGNED ON A SITE SPECIFIC BASIS.

OPTION 1 - LED LUMINAIRE NOTES:

1. CONTRACTOR TO ENSURE MINIMUM LIGHTING LEVEL OF 25 LUX WITH MAXIMUM UNIFORMITY OF 8 IS ACHIEVED FOR BUS SHELTER WITH APPROPRIATE SELECTION OF LED LIGHTING LUMINAIRE (WITH DRIVERS AND DALI CONTROLLER). THE SAME SHALL BE DEMONSTRATED USING DIALUX/AGI32 LIGHTING DESIGN SOFTWARE.
2. EXACT LOCATION OF LED LIGHTING LUMINARE SHALL BE COORDINATED WITH THE BUS SHELTER STRUCTURAL DESIGN. WHILE INDICATIVE LOCATION OF LED LIGHTS IS SHOWN IN THE DRAWINGS, NECESSARY ADJUSTMENTS SHALL BE MADE ON-SITE TO SUIT THE ACTUAL CONDITION.
3. CONTRACTOR SHALL PROVIDE ELECTRICAL POWER SUPPLY TO LIGHTS AND MESSAGE BOARDS (IF APPLICABLE).
4. CABLING TO BE INSTALLED INSIDE SUPPORT STRUCTURE AND CONCEALED AS FAR AS REASONABLY PRACTICAL.
5. CONTRACTOR SHALL PROVIDE LUMINAIRE MOUNTING DETAILS BASED ON SELECTION OF LIGHTING PRODUCT.

OPTION 2 - SOLAR POWERED LED LUMINAIRE NOTES:

1. CONTRACTOR TO ENSURE MINIMUM LIGHTING LEVEL OF 25 LUX WITH MAXIMUM UNIFORMITY OF 8 IS ACHIEVED FOR BUS SHELTER WITH APPROPRIATE SELECTION OF EFFICIENT SOLAR PANEL AND LED LIGHTING LUMINAIRE. THE SAME SHALL BE DEMONSTRATED USING DIALUX/AGI32 LIGHTING DESIGN SOFTWARE.THE SELECTION OF BATTERY SHALL BE AS SUCH TO ACHIEVE A MINIMUM AUTONOMY OF 3-4 DAYS IN FULLY CHARGED CONDITIONS.
2. EXACT LOCATION OF SOLAR PANEL MODULE WITH LED LIGHT BOX BRACKET SHALL BE COORDINATED WITH THE BUS SHELTER STRUCTURAL DESIGN. WHILE INDICATIVE LOCATION OF LIGHTING MODULE IS SHOWN IN THE DRAWINGS, NECESSARY ADJUSTMENTS SHALL BE MADE ON-SITE TO SUIT THE ACTUAL CONDITION.
3. THREE STANDARD MODES OF OPERATION CAN BE ACHIEVED WITH MODULAR SOLAR LED LIGHTING SYSTEM AS STATED BELOW:
   (A) ALL NIGHT MODE - OPERATES AT A CONSTANT ALL NIGHT LEVEL OF ILLUMINATION UNTIL DAWN.
   (B) SENSOR MODE - DETECTS MOVEMENT AND INCREASES ILLUMINATION UP TO 100% UNTIL NO MOTION IS DETECTED FOR 30 SECONDS.
   (C) SURPRISE MODE - NO LIGHT UNTIL MOTION IS DETECTED THEN TURNS ON UNTIL NO MOTION IS DETECTED FOR 30 SECONDS.

   SENSOR MODE OF OPERATION IS RECOMMENDED WHICH ALLOWS FOR LOW DIMMABLE LIGHT WHICH BOOSTS UP TO HIGHER LIGHTING LEVELS UPON MOTION DETECTION BASED ON PASSIVE INFRARED SENSORS. THIS RESULTS IN HIGHER ENERGY SAVING, BETTER BATTERY AUTONOMY, AND LONGER EQUIPMENT LIFE SPAN WITH AN OPTIMISED LIGHTING OPERATION. HOWEVER, THE FINAL SELECTION OF MODE OF LIGHTING OPERATION SHALL BE BASED ON CLIENT CONFIRMATION.
4. FOR STANDARD SOLAR PANEL MODULE AND LIGHTING MOUNTING DETAILS, REFER TO MANUFACTURERS TECHNICAL DRAWINGS FOR MORE INFORMATION.
5. LIGHTING SHALL BE MOUNTED TO THE 50 x 2.5 SHS ROOF MEMBERS. IF REQUIRED, ADDITIONAL 50 x 2.5 SHS ROOF MEMBERS SHALL BE ADDED TO ROOF FRAME TO PROVIDE APPROPRIATE MOUNTING POINTS. ADDITIONAL ROOF MEMBERS 3mm CFW TO OTHER ROOF MEMBERS.

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0	INITIAL ISSUE		

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DRAWN: Pitt & Sherry June 2023
REVIEWED: State Growth June 2023
APPROVED: SSWG June 2023
For, Director Passenger Transport

Tasmanian Government

Department of State Growth

DEPARTMENT OF STATE GROWTH
TRAFFIC FACILITIES
STANDARD BUS STOP SHELTERS

LIGHTING (3 SEATER)

DO NOT SCALE

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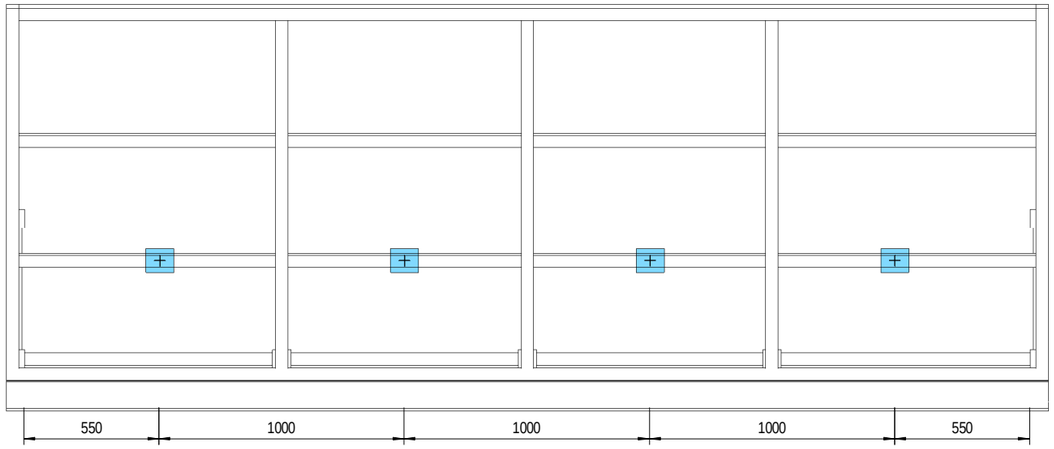
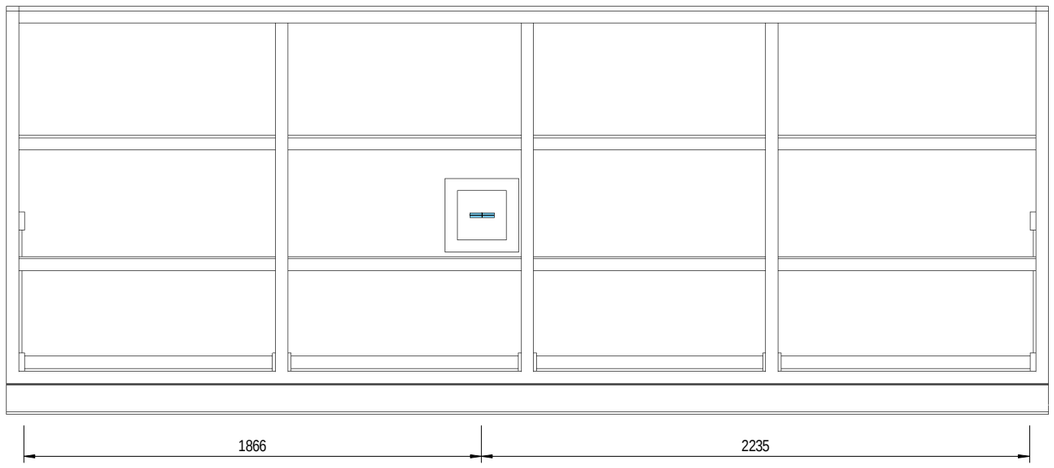
Revision 0



ROOF PLAN - LIGHTING 5 SEATER - OPTION 1 - LED LUMINAIRE

SCALE: 1 : 25



ROOF PLAN - LIGHTING 5 SEATER - OPTION 2 - SOLAR POWERED LED LUMINAIRE

SCALE: 1 : 25

LEGEND:

1x2W, 2354 LUMENS, 4000K, LEDPOD 40SQ LED LUMINAIRE OR EQUIVALENT

1x15W, 2805 LUMENS, 4000K, T3 STANDARD OPTICS
SOLAR POWERED LED LUMINAIRE WITH MOUTING ACCESSORIES OR EQUIVALENT

GENERAL NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED.
2. ALL COORDINATES ARE RELATED TO AUSTRALIAN HEIGHT DATUM.
3. CONTRACTOR TO ENSURE THAT ALL WORKS ARE CARRIED OUT AS PER AUTHORITY/COUNCIL REQUIREMENTS AND SHALL COMPLY TO HEALTH & SAFETY PROCEDURES.
4. CONTRACTOR SHALL ACQUIRE ALL CONSTRUCTION WORKS NOCS BEFORE PROCEEDING WITH ANY SITE WORKS OR PROCUREMENT OF MATERIALS.
5. LIGHTING AND ASSOCIATED COMPONENTS SHALL BE VANDAL/THEFT PROOF
6. LIGHTING SHALL BE MOUNTED TO THE UNDERSIDE OF THE ROOF STRUCTURE.
7. THIS DRAWING TO BE READ IN CONJUCTURE WITH DRAWING SD-087-023
8. CLAUSE 19.1 OF AS1428.2-1992 AND AS1680.2 SPECIFIES A MINIMUM LIGHTING LEVEL OF 150 LUX, HOWEVER THIS IS RELEVANT TO INTERNAL LIGHTING, WITH NO REFERENCE TO EXTERNAL LIGHTING. A LIGHTING LEVEL OF 150 LUX IN A BUS SHELTER WOULD BE EXECPTIONALLY BRIGHT IN COMPARISON TO THE SURROUNDING ENVIRONMENT. A REDUCED LIGHTING LEVEL OF 25 LUX HAS BEEN ACCEPTED BY THE DEPARTMENT OF STATE GROWTH ON ROAD SAFETY GROUNDS. IF AN INCREASED LIGHTING LEVEL IS REQUIRED FOR A SPECIFIC SITUATION, THIS SHALL BE CONSIDERED AND DESIGNED ON A SITE SPECIFIC BASIS.

OPTION 1 - LED LUMINAIRE NOTES:

1. CONTRACTOR TO ENSURE MINIMUM LIGHTING LEVEL OF 25 LUX WITH MAXIMUM UNIFORMITY OF 8 IS ACHIEVED FOR BUS SHELTER WITH APPROPRIATE SELECTION OF LED LIGHTING LUMINAIRE (WITH DRIVERS AND DALI CONTROLLER). THE SAME SHALL BE DEMONSTRATED USING DIALUX/AGI32 LIGHTING DESIGN SOFTWARE.
2. EXACT LOCATION OF LED LIGHTING LUMINARE SHALL BE COORDINATED WITH THE BUS SHELTER STRUCTURAL DESIGN. WHILE INDICATIVE LOCATION OF LED LIGHTS IS SHOWN IN THE DRAWINGS, NECESSARY ADJUSTMENTS SHALL BE MADE ON-SITE TO SUIT THE ACTUAL CONDITION.
3. CONTRACTOR SHALL PROVIDE ELECTRICAL POWER SUPPLY TO LIGHTS AND MESSAGE BOARDS (IF APPLICABLE).
4. CABLING TO BE INSTALLED INSIDE SUPPORT STRUCTURE AND CONCEALED AS FAR AS REASONABLY PRACTICAL.
5. CONTRACTOR SHALL PROVIDE LUMINAIRE MOUNTING DETAILS BASED ON SELECTION OF LIGHTING PRODUCT.

OPTION 2 - SOLAR POWERED LED LUMINAIRE NOTES:

1. CONTRACTOR TO ENSURE MINIMUM LIGHTING LEVEL OF 25 LUX WITH MAXIMUM UNIFORMITY OF 8 IS ACHIEVED FOR BUS SHELTER WITH APPROPRIATE SELECTION OF EFFICIENT SOLAR PANEL AND LED LIGHTING LUMINAIRE. THE SAME SHALL BE DEMONSTRATED USING DIALUX/AGI32 LIGHTING DESIGN SOFTWARE.THE SELECTION OF BATTERY SHALL BE AS SUCH TO ACHIEVE A MINIMUM AUTONOMY OF 3-4 DAYS IN FULLY CHARGED CONDITIONS.
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3. THREE STANDARD MODES OF OPERATION CAN BE ACHIEVED WITH MODULAR SOLAR LED LIGHTING SYSTEM AS STATED BELOW:
   (A) ALL NIGHT MODE - OPERATES AT A CONSTANT ALL NIGHT LEVEL OF ILLUMINATION UNTIL DAWN.
   (B) SENSOR MODE - DETECTS MOVEMENT AND INCREASES ILLUMINATION UP TO 100% UNTIL NO MOTION IS DETECTED FOR 30 SECONDS.
   (C) SURPRISE MODE - NO LIGHT UNTIL MOTION IS DETECTED THEN TURNS ON UNTIL NO MOTION IS DETECTED FOR 30 SECONDS.

   SENSOR MODE OF OPERATION IS RECOMMENDED WHICH ALLOWS FOR LOW DIMMABLE LIGHT WHICH BOOSTS UP TO HIGHER LIGHTING LEVELS UPON MOTION DETECTION BASED ON PASSIVE INFRARED SENSORS. THIS RESULTS IN HIGHER ENERGY SAVING, BETTER BATTERY AUTONOMY, AND LONGER EQUIPMENT LIFE SPAN WITH AN OPTIMISED LIGHTING OPERATION. HOWEVER, THE FINAL SELECTION OF MODE OF LIGHTING OPERATION SHALL BE BASED ON CLIENT CONFIRMATION.
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5. LIGHTING SHALL BE MOUNTED TO THE 50 x 2.5 SHS ROOF MEMBERS. IF REQUIRED, ADDITIONAL 50 x 2.5 SHS ROOF MEMBERS SHALL BE ADDED TO ROOF FRAME TO PROVIDE APPROPRIATE MOUNTING POINTS. ADDITIONAL ROOF MEMBERS 3mm CFW TO OTHER ROOF MEMBERS.

DRAWING SD-087-031-0.dwg

No.	Amendment Description	Initials	Date
0	INITIAL ISSUE		
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REVIEWED: State Growth June 2023
APPROVED: SSWG June 2023
For, Director Passenger Transport

Tasmanian Government

Department of State Growth

DEPARTMENT OF STATE GROWTH
TRAFFIC FACILITIES
STANDARD BUS STOP SHELTERS

LIGHTING (5 SEATER)

DO NOT SCALE

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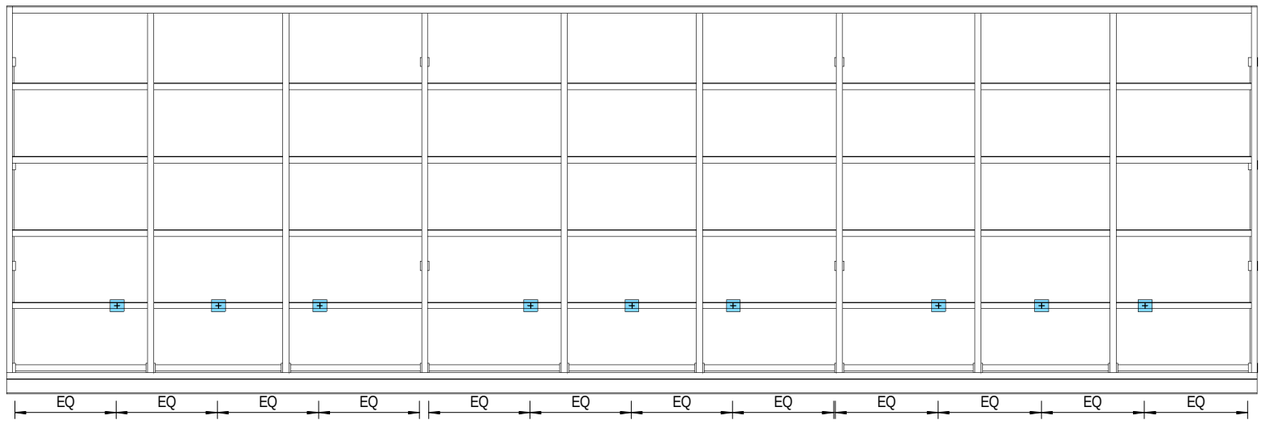
STANDARD DRAWING NUMBER: SD-087-031

REVISION NUMBER: 0

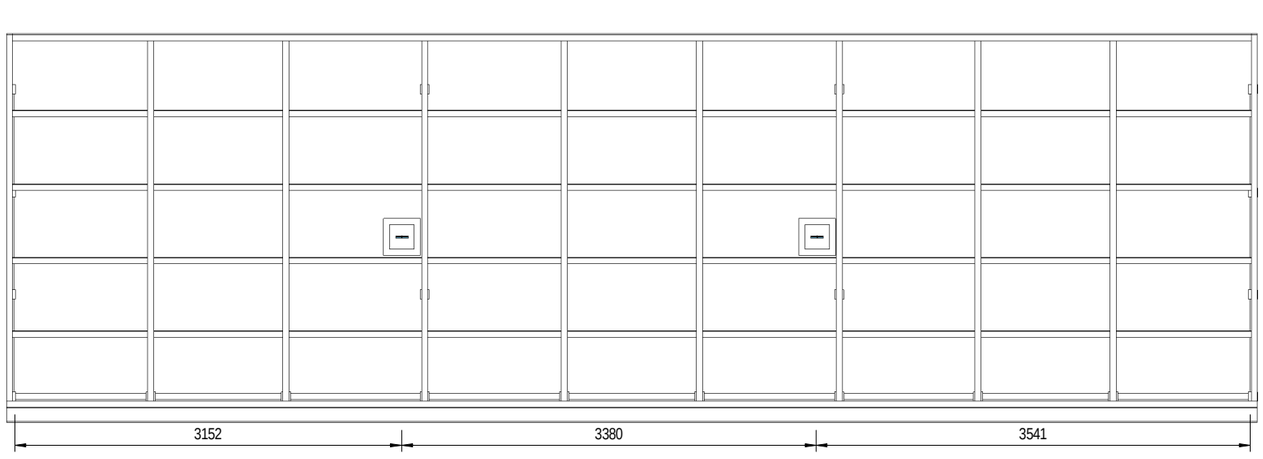
PRINTED DATE 2/06/2023 11:24:34 AM

Revision 0



ROOF PLAN - LIGHTING LARGE SCALE - OPTION 1 - LED LUMINAIRE

SCALE: 1 : 50



ROOF PLAN - LIGHTING LARGE SCALE - OPTION 2 - SOLAR POWERED LED LUMINAIRE

SCALE: 1 : 50

LEGEND:

1x2W, 235 LUMENS, 4000K, LEDPOD 40SQ LED LUMINAIRE OR EQUIVALENT

1x15W, 2805 LUMENS, 4000K, T3 STANDARD OPTICS
SOLAR POWERED LED LUMINAIRE WITH MOUTING ACCESSORIES OR EQUIVALENT

GENERAL NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED.
2. ALL COORDINATES ARE RELATED TO AUSTRALIAN HEIGHT DATUM.
3. CONTRACTOR TO ENSURE THAT ALL WORKS ARE CARRIED OUT AS PER AUTHORITY/COUNCIL REQUIREMENTS AND SHALL COMPLY TO HEALTH & SAFETY PROCEDURES.
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5. LIGHTING AND ASSOCIATED COMPONENTS SHALL BE VANDAL/THEFT PROOF
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7. THIS DRAWING TO BE READ IN CONJUCTURE WITH DRAWING SD-087-023
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OPTION 1 - LED LUMINAIRE NOTES:

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OPTION 2 - SOLAR POWERED LED LUMINAIRE NOTES:

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Tasmanian Government

Department of State Growth

DEPARTMENT OF STATE GROWTH
TRAFFIC FACILITIES
STANDARD BUS STOP SHELTERS

LIGHTING (LARGE SCALE)

DO NOT SCALE

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