

Development Applications

Notice is hereby given under Section 57(3) of the *Land Use Planning & Approvals Act 1993* that an application has been made to the Break O' Day Council for a permit for the use or development of land as follows:

DA Number	DA 2026 / 00064
Applicant	J Binns
Proposal	Residential - Construction of a Shed with Amenities and Driveway Extension
Location	56 St Helens Point Road, Stieglitz (CT 19659/1)

Plans and documents can be inspected at the Council Office by appointment, 32 – 34 Georges Bay Esplanade, St Helens during normal office hours or online at www.bodc.tas.gov.au.

Representations must be submitted in writing to the General Manager, Break O'Day Council, 32 -34 Georges Bay Esplanade, St Helens 7216 or emailed to admin@bodc.tas.gov.au, and referenced with the Application Number in accordance with section 57(5) of the abovementioned Act during the fourteen (14) day advertised period commencing on Saturday 18th April 2026 **until 5pm Friday 1st May 2026**.

John Brown
GENERAL MANAGER

*New Shed
W.R. Bradford
56 St Helens Point Road
St Helens*

ABEL DRAFTING SERVICES PTY. LTD.	
33 GOLDIE STREET WYNYARD TAS. 7325 ABN 78 009 572 749 CC 1070 Ian Ray	PH. (03) 6442 3411
Plot Date: 9/12/20 Project Date: 9/12/20	COPYRIGHT. ©
DRAWN Mar Schrammeyer	PROJECT NUMBER 20258

New Shed
W.R. Bradford
56 St Helens Point Road
St Helens

Drawing Schedule			
Sheet No.	Sheet Name	Issue Date	Revision
1	Drawing Schedule & Project Information	9/12/20	
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3	NCC Compliance Notes	9/12/20	
4	Floor & Foundation Plan	9/12/20	
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7 Sheets			

Project Information	
Property ID	6789364
Title Reference No	19659/1
Area	2170 m2
Site Zoning	Low Density Residential
Site Coverage	0%
Building Class	10
Category of Works	3
Category of Plumbing Works	2b
Soil Classification	-
Wind Classification	-
Climate Zone	7
Bushfire (BAL) Rating	BAL 19 (Assumed)
Alpine Area	-
Corrosion Environment	Severe

Other Documents Schedule	
Shed Supplier	-
Site Hazards	Nil Observed
Energy Efficiency	-
Energy Efficiency Form 55	-
Soil Classification	-
Wind Classification	-
Structural Form 55	-
Wastewater Report	-
Title	-
Geo-tech Report	-
Building Designer Report	-
Bushfire (BAL) Assessment	-

Floor Area	
Existing Residence	-
Proposed Shed	114 sq m
Total	

Note:
Site plan by others

Drawing Schedule & Project Information

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General Notes

1. It is the builders responsibility to verify all dimensions, levels & existing conditions on site and ensure that any discrepancies &/or omissions in these documents, are resolved prior to commencement of any works. The builder shall incur all costs as a result of not verifying the above mentioned.
2. Do not scale from drawings. Confirm all dimensions on site prior to commencement of works
3. NCC refers to the National Construction Code.
4. All sewage & stormwater to discharge into existing drains as directed by the local municipal council.
5. Smoke detectors are to be installed in accordance with AS3786.
6. Balustrade required when any level is more than 1000 above the surface beneath and to conform to NCC requirements i.e. max. vertical & horizontal spacing of all members to be no greater than 125 mm.
7. Stairs to have min. step 250 & max. rise of 190, provide handrail 865 above nosing each stair one side min.
8. These drawings shall be read in conjunction with all architectural and other consultant's drawings and specifications, and with such other written instructions as may be issued over the course of the contract.
9. During construction the structure shall be maintained in a stable condition and no part shall be overstressed. the builder shall be responsible for any damage to the works during construction.
10. All workmanship and materials shall be in accordance with the requirements of the current editions of the Australian Standards (AS) codes and the by-laws and ordinances of the relevant building authority.
11. The sections on these drawings are intended to give the structural details only, and architectural details are illustrative only.
12. All slabs and footings are to be inspected by the building surveyor prior to the pouring of concrete.
Give 48 hours notice to the building surveyor for all required inspections.
13. Brittle floor coverings such as ceramic tiles should be laid using an approved flexible adhesive system to control the effect of shrinkage cracking.
A minimum period of three months drying of the concrete is usually required before the placement of brittle floor coverings.
14. Ensure all wet areas are waterproofed in accordance with AS3740.
15. The location of services indicated on these drawings are indicative only and all service locations should be confirmed prior to starting on site.
16. Engineered products e.g. trusses, laminated beams, cladding systems etc. to be installed as per manufacturers specifications.

Site Preparation Notes

1. All site preparation to comply with the NCC.
2. All topsoil, organic and deleterious material is to be stripped from the building site.
3. The site is to be cut and filled to form a level building platform. batters around the house should be designed to withstand weather erosion.
4. The owners attention should be drawn to Appendix B of AS2870 "performance requirements and foundation maintenance" on completion of the job.
5. Excavation shall not extend below a line dipping at 45° for clay or and away from the nearest underside corner of any existing footings.
6. Fill material beneath slab is to be compacted in accordance with AS2870. Piering is required where this fill material is greater than 400mm.
Not more than 300mm for sand material or 400mm compacted in layers
Not more than 150mm for other material.
7. The slab is to be entirely underlaid with a 0.2mm polyethylene vapour barrier with all joints adequately lapped and taped at penetrations.
8. The builder shall provide protection to adjoining properties & buildings in accordance with all building regulations.
9. All neighbouring building locations are approximate only. If further information is required consult surveyor.
10. Level information provided on these drawings is limited only. Further detail if required should be obtained from a surveyor.

Earthworks

1. Earthwork construction shall comply with guidelines set out in AS3798.
2. Cut and fill shall comply with NCC 3.1.1.
3. Excavations and service trenches shall comply with the following guidelines unless otherwise approved by the design engineer.
4. Selected fill shall be approved natural material, gravel, decomposed or broken rock, free from clay lumps and organic matter.
5. The area of works shall be stripped of all topsoil and filled in 150mm compacted layers to 95%MDD, sand blinding layer directly below concrete shall be compacted by vibrating plate or flooding to 95%MDD.
6. Ensure area of excavation is properly drained from the time of excavation to ensure no ponding of water. Install drains as required.
7. Embankments that are left exposed at the end of construction works must be stabilised by vegetation or similar works to prevent soil erosion.

Footings & Foundation Notes

1. Footings have been designed for an allowable soil bearing capacity of 100 kpa.
2. The assumed founding levels of the footings are to be as indicated on the drawings.
Excavation shall continue until the required bearing capacity is found.
The over-excavation shall be back-filled with a mass concrete mix to the approval of the engineer.
3. All walls and columns shall be concentric with supporting footing unless noted otherwise on drawings.
4. Service penetrations are permitted through the middle third of the depth of the footing/edge & stiffening beams. The effect of other footing penetrations shall be taken into account by the provision of extra concrete depth or reinforcement.

Plumbing Notes

1. Generally plumbing works shall be carried out by plumbers who have necessary licenses and registrations required by the governing authority and who are qualified to provide the required certificate of compliance.
2. Cold water: From meter to house use 25mm class 12 polyethelene. Inside house use 20mm Rehau class 'B' or PB with 12mm class 'B' Rehau or PB branch lines.
3. Hot water: From heater use 20mm Rehau class 'B' with 15mm Rehau branch lines to fixtures. Install 'RMC' or equivalent tempering valve set to 50°C.
4. Legend of outlet diameters:
Trough - 50mm
Sink - 50mm
Bath - 40mm
Basin - 40mm
Shower - 50mm
5. Taps, fittings & hot water unit refer to owners requirements.
6. Where the works requirements provide for the installation of a heating appliance that requires a flue, the flue must be installed in accordance with the NCC.

Steelwork Notes

1. All workmanship and materials shall be in accordance with AS 4100 and except where varied by the contract documents.
2. Unless otherwise noted, all steel shall be in accordance with:
AS 3679.1 grade 300 for rolled sections.
AS 1163 grade 350 for rhs sections.
AS 1163 grade 350 for chs sections.
AS 3378 grade 350 for all plate.
AS 3679.1 grade 350 for all flat.
AS 1397 grade 450 for 1.5, 1.9, 2.4 and 3.0 bmt of cold-formed steel sections.
3. The builder shall prepare workshop drawings and shall submit three copies of each drawing for conditional approval. fabrication shall not commence until this approval has been given.
4. Unless noted otherwise all welds shall be 6mm continuous fillet welds and all gusset plates shall be 10mm thick.
5. Butt welds where indicated in the drawings are to be complete penetration butt welds. As defined in AS 1554.
6. Unless noted otherwise all bolts shall be 20 dia. commercial grade conforming to AS 1111 with a minimum of 2 bolts per connection. high strength (h.s.) bolts shall conform to AS 1252 and shall be installed in accordance with AS 4100.
7. All bolts for purlins and girts shall be M12-4.6 (commercial grade). All bolts, nuts and washers are to be galvanised.
8. The builder shall provide all cleats and holes for fixing steel to steel and timber to steel as required by engineering and architectural drawings whether or not shown.
9. The builder is to be present when all holding down bolts are installed to ensure they are not displaced during concrete placement.
10. The builder is to make good and/or repair all damaged surfaces during performance of the work.
11. Unless noted otherwise, the roof structure has been designed for normal roof loads only and does not allow any extraneous loads such as hoists, monorails etc.
12. Surfaces of existing material, which are to be strengthened, repaired, or welded shall be cleaned of dirt, rust, and other foreign matter except adherent surface protection. The portions of such surfaces that are to be welded shall be cleaned thoroughly of all foreign matter, including paint film, for a distance of 50mm from each side of the outside lines of the welds. the welding sequence shall be chosen so as to minimize distortion of the member and ensure that its straightness remains within the appropriate straightness limits of clauses in 14.4 of AS4100-1998.

General Notes

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National Construction Code (NCC) Compliance Notes

1. **FIRE SAFETY**
Generally to be in accordance with NCC 3.7.
Fire separation to be in accordance with NCC 3.7.1. External walls and gable ends constructed within 90mm of boundary are to extend to underside of non combustible roofing/eaves and are to be constructed of a masonry skin 90mm thick with an FRL of 60/60/60.
Sarking to have a flammability index less than 5.
Roof lights not to be placed closer than 900mm from boundary.
Smoke alarm installation to be in accordance with NCC 3.7.2. Locations indicated on floor plan.
Installation locations: Ceilings - 300mm away from wall junction.
Cathedral ceilings - 500mm down from apex.
Walls - 300mm down from ceiling junction.
Smoke alarms shall be connected to mains power if available, and interconnected if there is more than one alarm, in accordance with N.C.C. 3.7.2.
Heating appliances generally to be in compliance with NCC 3.7.3 and AS 2918.
Fireplace - extend hearth 400mm beyond unit.
Freestanding appliance to be 1200mm from combustible wall surface. 50mm from masonry wall.
Heat shield - 90mm masonry with 25mm air gap to combustible wall, extend 600mm above unit.
Flue installation to NCC 3.7.3.4.
Top of chimney/flue to terminate 300mm above horizontal plane 3600mm away from roof.
Construction in Bush Fire Area to be in accordance with NCC 3.7.4. and AS 3959-2009
2. **HEALTH AND AMENITY**
Ceiling heights to be in accordance with NCC 3.8.2. Refer to drawing.
Door of a fully enclosed sanitary compartment must open outwards, slide or be readily removable from the outside of the compartment unless there is 1200mm between the closet pan within the sanitary compartment and the nearest part of the doorway
Condensation management generally in accordance with NCC 3.8.7.
Flow rate and discharge of exhaust systems to comply with NCC 3.8.7.3
25 L/s for a bathroom or sanitary compartment; and 40 L/s for a kitchen or laundry.
Ventilation of roof spaces to comply with NCC 3.8.7.4
Where an exhaust system covered by 3.8.7.3 discharges into a roof space, the roof space must be ventilated to outdoor air through evenly distributed openings.
Openings must have a total unobstructed area of 1/300 of the respective ceiling area if the roof pitch is more than 22°, or 1/150 of the respective ceiling area if the roof pitch is not more than 22°. 30% of the total unobstructed area must be located not more than 900 mm below the ridge or highest point of the roof space, measured vertically, with the remaining required area provided by eave vents.
3. **STAIR CONSTRUCTION**
Stairs to be generally in accordance with NCC 3.9.1.
Maximum of 18 risers to each flight.
Riser opening to be less than 125mm.
Treads must have a slip-resistant finish or a suitable non-skid strip near the edge of the nosings.
Riser - min. 115mm, max. 190mm.
Tread - min. 240mm, max. 355mm.
Balustrade/handrail generally in accordance with NCC 3.9.2.
Balustrade/handrail required where area is not bounded by a wall or where level exceeds 1000mm above floor level or ground level.
865mm high on stairs, measured from line of stair nosing.
1000mm high above floor or landing.
Openings between balusters/infill members to be constructed so as to not allow 125mm sphere to pass between members. Where floor level exceeds 4000mm above lower level, infill members between 150mm and 760mm above floor level to be constructed so as to restrict climbing.
Ramps shall comply with the NCC Volume 1 part D 2.10 - Slope gradient shall not exceed 1:8 and have a non-slip surface.
4. **SWIMMING POOLS**
Generally swimming pools and safety fences to be constructed in accordance with NCC 3.9.3. and AS 1926.1
5. **ENERGY EFFICIENCY**
Generally to be in accordance with NCC 3.12.
Climate Zone 7 applicable to Tasmania (Zone 8 applicable to alpine areas).
6. **BUILDING FABRIC**
Generally in accordance with NCC 3.12.1.
7. **BUILDING FABRIC INSULATION**
Insulation to be fitted to form a continuous barrier to roof/ceiling, walls and floors.
8. **BUILDING MEMBRANE/WRAP**
Use only vapour permeable membranes tested to AS/NZS 4200.1:1994 with minimum specifications;
Duty - light for walls, medium/heavy for roofs. Vapour barrier - low. Water barrier class - High. Emittance - Non-reflective. Flammability index - Low (less than 5).
9. **BULK INSULATION**
To maintain thickness and position after installation.
Continuous cover without voids except around services/fittings.
10. **ROOF INSULATION**
Roof to comply with NCC 3.12.1.1a
Roof lights to comply with NCC 3.12.1.2.
11. **EXTERNAL WALLS**
External wall construction to comply with NCC 3.12.1.4 & AS 1684.2.
12. **FLOORS**
Floor construction to comply with NCC 3.12.1.4.
Concrete slab on ground with an in slab heating system to be insulated to R1.0 around vertical edge of slab perimeter.
Ensure finished floor level is minimum 150mm above finished ground level.
Joint support and bearing details to AS 1684.2.
13. **GLAZING**
External generally in accordance with NCC 3.12.2 and AS1288.
Internal generally in accordance with NCC 3.6.4 and AS 1288.
14. **FLASHINGS**
Roof flashings in accordance with NCC 3.5.1.
Wall flashings in accordance with NCC 3.5.3.
15. **BUILDING SEALING**
Generally in accordance with NCC 3.12.3.
Chimneys or flues to be fitted with operable or permanent seal to minimize air leakage.
External windows and doors to habitable rooms/conditioned spaces to be fitted with air seal to restrict air infiltration.
Exhaust fans to habitable rooms/conditioned spaces to be fitted with self closing damper or filter.
Building envelope to be constructed to minimize air leakage. Construction joints and junctions of adjoining surfaces to be tight fitting and sealed by caulking, skirting, architraves and cornices.
16. **AIR MOVEMENT**
Generally in accordance with NCC 3.12.4.
17. **SERVICES**
Generally in accordance with NCC 3.12.5.
Hot water supply system designed and installed in accordance with AS/NZS 3500.
18. **ENERGY REPORT**
If energy report is provided as part of this documentation, then it shall take precedence over the above energy efficiency provisions.
For residence construction these plans should be read in conjunction with the attached "First Rate Energy Report".
19. **CONCRETE & REINFORCING**
Generally in accordance with NCC 3.2.3.
Concrete must be manufactured to comply with AS 3600.
Materials used for reinforcing must comply with AS 2870.
Concrete must have a minimum strength at 28 days of 20MPa (denoted as N20 grade) for footings and 25MPa for slabs.
Concrete to have a nominal 100mm slump, water must not be added to the mix to increase the slump to a value in excess of that specified.
Concrete must have a 20mm maximum nominal aggregate size.
Concrete slabs finish shall be polished.
20. **MASONRY**
Generally in accordance with NCC 3.3.
All masonry and masonry accessories to comply with AS 3700 & AS 4773.
Brick ties to be: for 0-1km from marine environment, stainless steel (R4) sheet and wire ties; for 1-10kms from marine environment, stainless steel (R4) sheet ties, red CTA wire ties; for 10km+ from marine environment, galvanised Z600 (R2) sheet ties, red CTA wire ties.
Brick mortar to be; for >1.0km to coast M3 cement, lime, sand (1:1:6);
for <1.0km to coast M4 cement, lime, sand (1:0.5:4.5).
Masonry bed and perpendicular joints to be nominal 10mm, raked joints to be max. 10mm deep.
Wall ties and accessories embedded in masonry joints shall be built in as the construction proceeds.
Cavities shall be free from mortar droppings or other materials that might bridge the cavity and allow transmission of moisture. Where ducts, sleeves or pipes are laid along or across a cavity construction shall be such that transmission of moisture is prevented.
Weep holes @ 1200crs.
Brickwork walls etc. to be provided with flashings and damp proof course, appropriately located.
21. **WET AREAS**
Generally in accordance with NCC 3.8.1.
Building elements in wet areas must comply with AS 3740.
Walls & ceiling Gyprock® Aquachek® plasterboard or similar.
For definitions of shower area, vessel, wet area, waterproof and water resistant refer to NCC 3.8.1 definitions.
Preformed products are to be installed to manufacturers specifications and in a manner to avoid distortions or cracking.
Wet area floors must be installed so that water flows to the drain without ponding.
22. **STEELWORK CORROSION PROTECTION**
All steelwork which satisfy's NCC 3.4.4.4, defined environments, shall comply with NCC table 3.4.4.2.
23. **GENERAL**
All other matters not specifically mentioned are to comply with the NCC.

NCC Compliance Notes

New Shed
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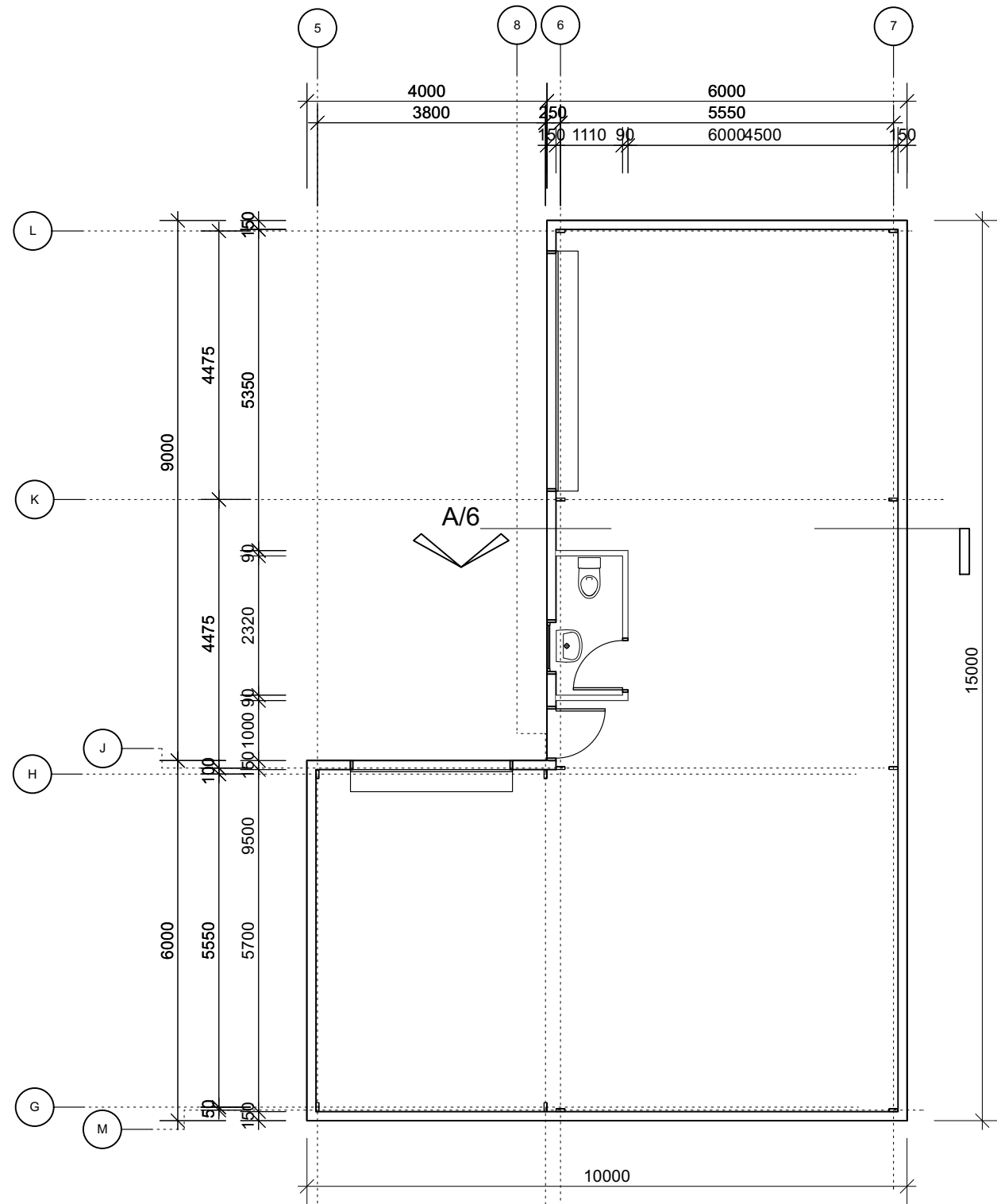
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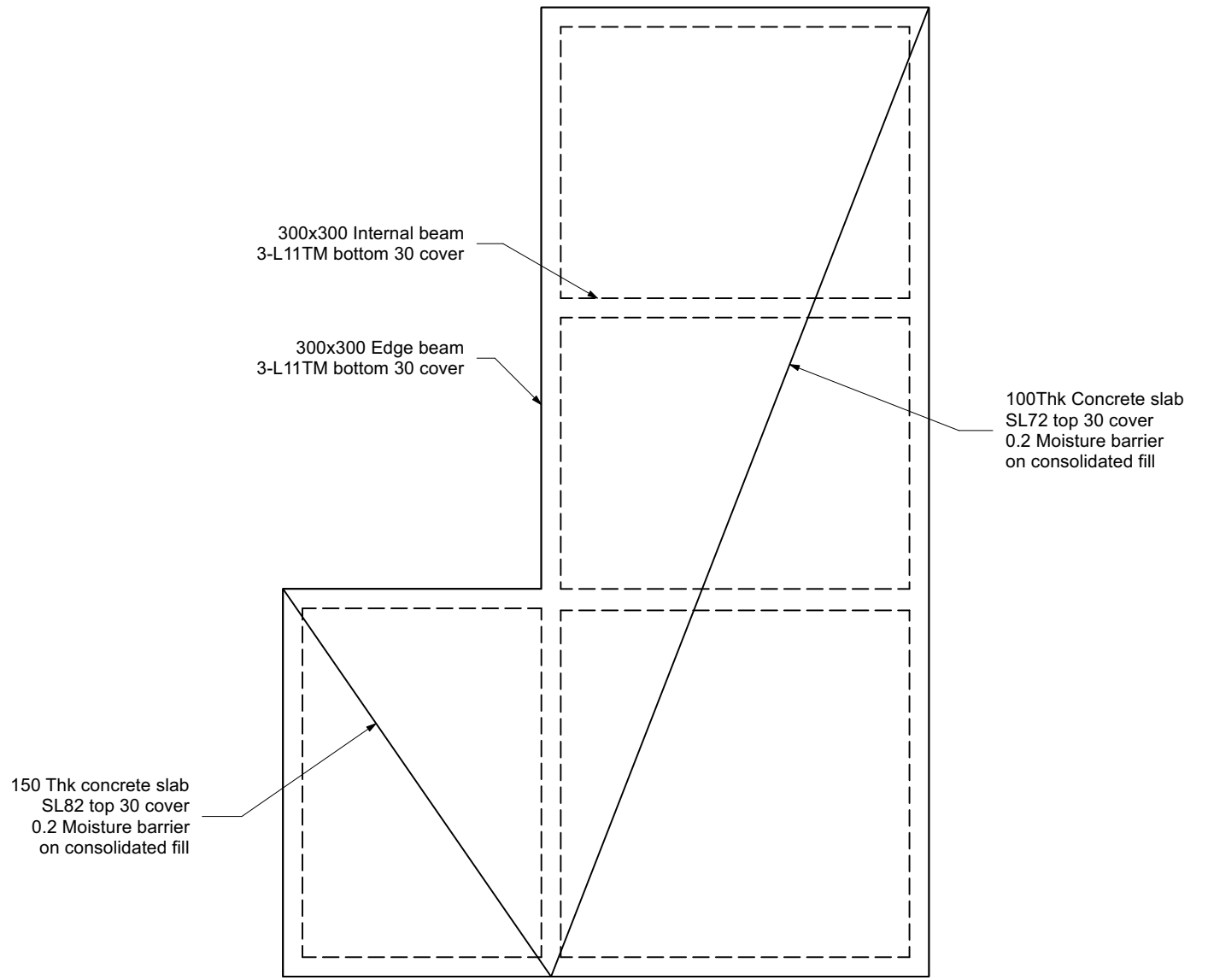
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1 Floor Plan
Scale: 1:100



2 Foundation Plan
Scale: 1:100

Floor & Foundation Plan

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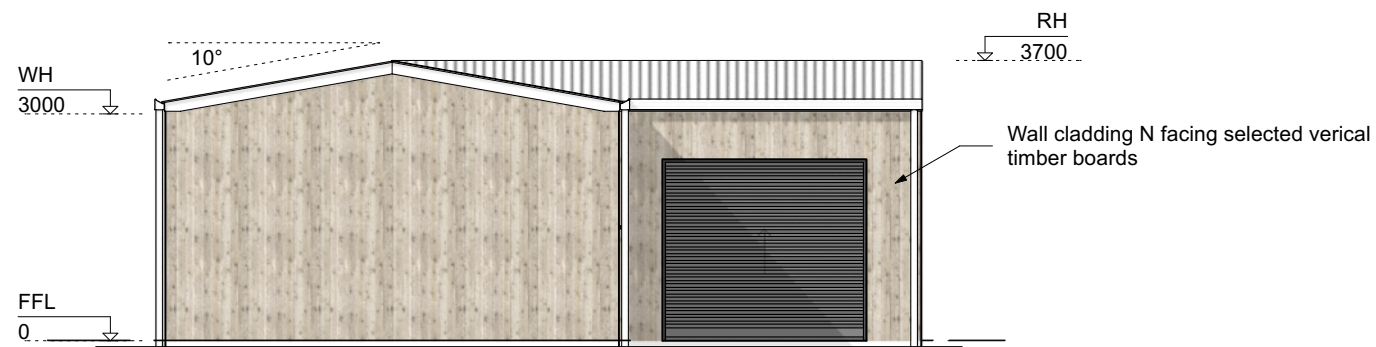
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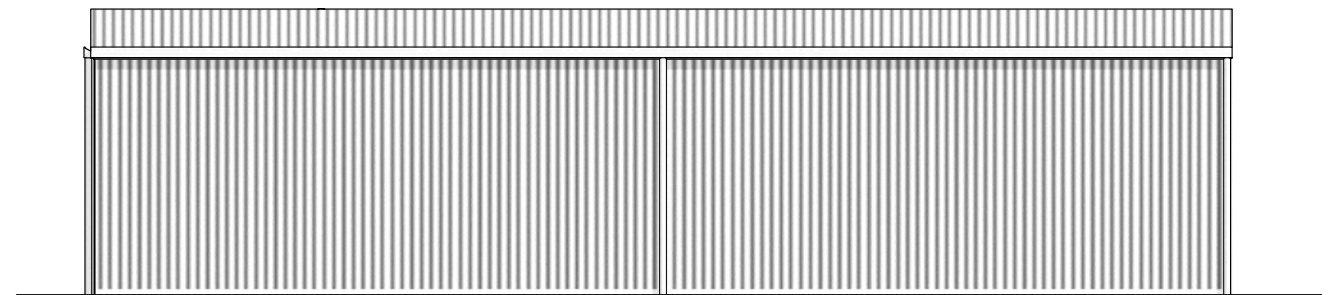
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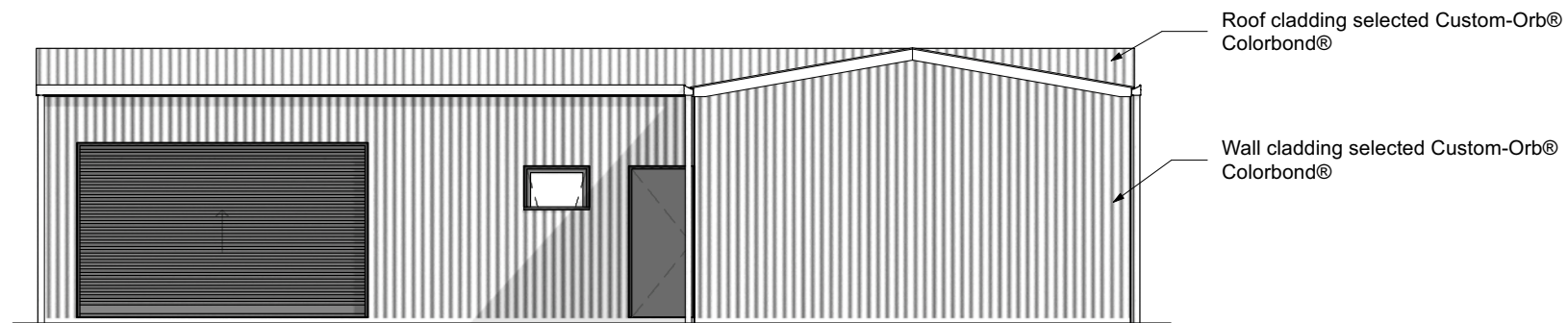
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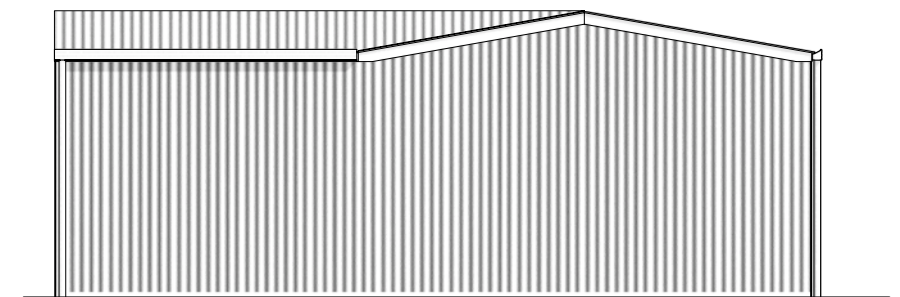
NW-Elevation
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SW-Elevation
Scale: 1:100



SW-Elevation
Scale: 1:100



SE-Elevation
Scale: 1:100

Elevations

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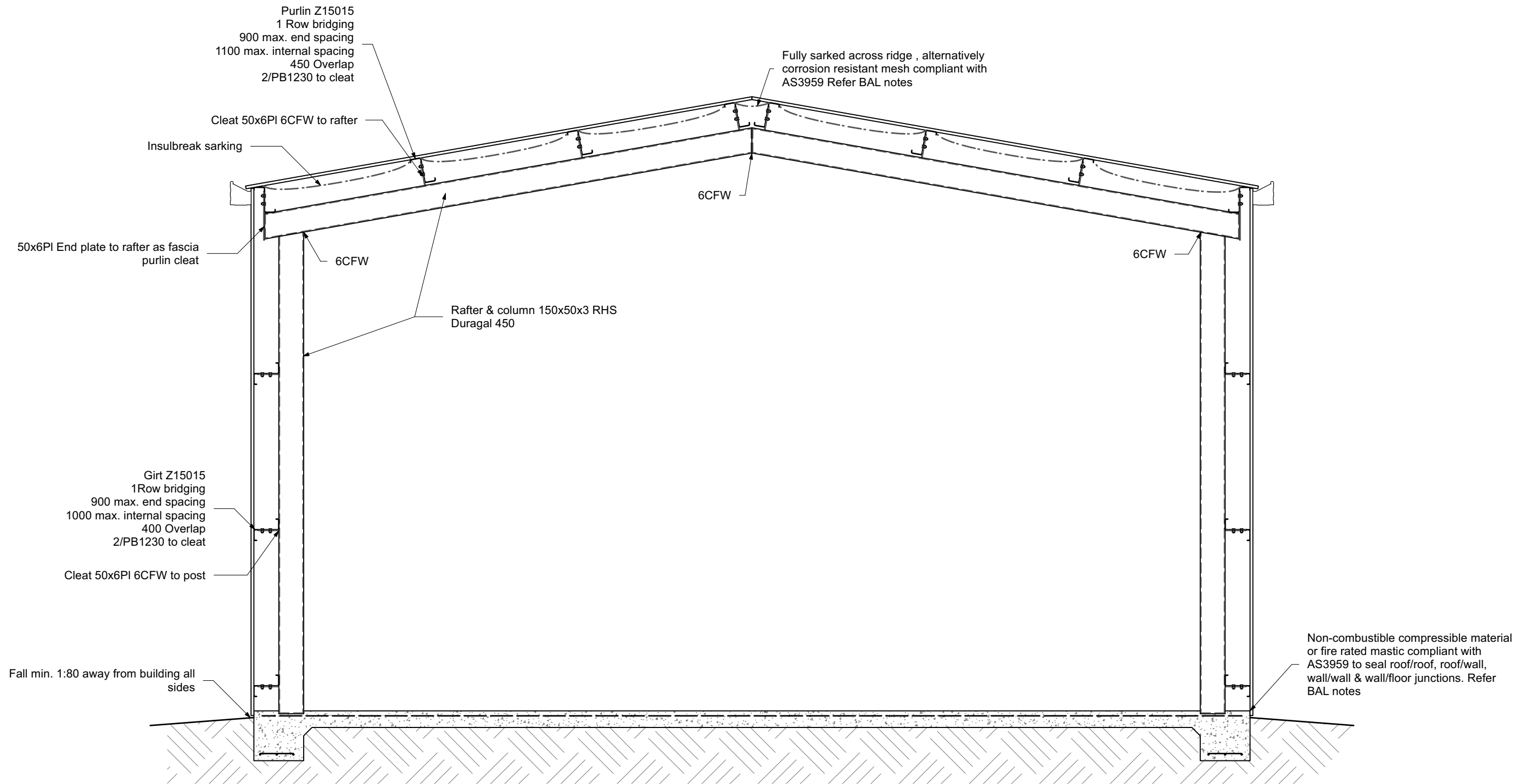
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A Section
Scale: 1:25

Section

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A building assessed to require building construction to conform with a BAL rating of **BAL-19** should comply with the following requirements taken from the Australian Standard AS 3959-2018. The whole of the abovementioned standard should be adhered to but particularly the following clauses:
(Referenced figures, clauses and appendices etc are located in AS 3959-2018)

3.10 SARKING

Where sarking is required in Sections 5 to 9, the flammability index shall not exceed five when tested to AS 1530.2.

6.1 GENERAL

A building assessed in Section 2 as being BAL—19 shall conform with Section 3 and Clauses 6.2 to 6.8. Any element of construction or system that satisfies the test criteria of AS 1530.8.1 may be used in lieu of the applicable requirements contained in Clauses 6.2 to 6.8 (see Clause 3.8).

NOTE: BAL—19 is primarily concerned with protection from ember attack and radiant heat greater than 12.5 kW/m² up to and including 19 kW/m².

6.2 SUB-FLOOR SUPPORTS

This Standard does not provide construction requirements for subfloor supports where the subfloor space is enclosed with—

- a wall that conforms with Clause 6.4; or
- mesh or perforated sheet with a maximum aperture of 2 mm, made of corrosion-resistant steel, bronze or aluminium; or
- a combination of items (a) and (b).

NOTE: This requirement applies to the subject building only and not to verandas, decks, steps, ramps and landings (see Clause 6.7).

6.3 FLOORS

6.3.1 General

This Standard does not provide construction requirements for concrete slabs on the ground.

6.3.2 Elevated floors

6.3.2.1 Enclosed subfloor space

This Standard does not provide construction requirements for elevated floors, including bearers, joists and flooring, where the subfloor space is enclosed with—

- a wall that conforms with Clause 6.4; or
- a mesh or perforated sheet with a maximum aperture of 2 mm, made of corrosion-resistant steel, bronze or aluminium; or
- a combination of items (a) and (b).

6.3.2.2 Unenclosed subfloor space

Where the subfloor space is unenclosed, the bearers, joists and flooring, less than 400 mm above finished ground level, shall be one of the following:

- Materials that conform with the following:

- Bearers and joists shall be—
 - non-combustible; or
 - bushfire-resisting timber (see Appendix F); or
 - a combination of items (A) and (B).
- Flooring shall be—

- non-combustible; or
- bushfire-resisting timber (see Appendix F); or
- timber (other than bushfire-resisting timber), particleboard or plywood flooring where the underside is lined with sarking-type material or mineral wool insulation; or
- a combination of any of items (A), (B) or (C).

- A system conforming with AS 1530.8.1.

This Standard does not provide construction requirements for elements of elevated floors, including bearers, joists and flooring, if the underside of the element is 400 mm or more above finished ground level.

6.4 WALLS

6.4.1 General

The exposed components of an external wall that are less than 400 mm from the ground or less than 400 mm above decks, carport roofs, awnings and similar elements or fittings having an angle less than 18 degrees to the horizontal and extending more than 110 mm in width from the wall (see Figure D3, Appendix D) shall be as follows:

- Non-combustible material including the following provided the minimum thickness is 90 mm:
 - Full masonry or masonry veneer walls with an outer leaf of clay, concrete, calcium silicate or natural stone.
 - Precast or in situ walls of concrete or aerated concrete.
 - Earth wall including mud brick. or (b) Timber logs of a species with a density of 680 kg/m³ or greater at a 12% moisture content; of a minimum nominal overall thickness of 90 mm and a minimum thickness of 70 mm (see Clause 3.11); and gauge planed. or
- Cladding that is fixed externally to a timber-framed or a steel-framed wall and is—
 - non-combustible material; or
 - fibre-cement a minimum of 6 mm in thickness; or
 - bushfire-resisting timber (see Appendix F); or
 - a timber species as specified in Paragraph E1, Appendix E; or
 - a combination of any of items (i), (ii), (iii) or (iv).
- A combination of any of items (a), (b) or (c) above.

This Standard does not provide construction requirements for the exposed components of an external wall that are 400 mm or more from the ground or 400 mm or more above decks, carport roofs, awnings and similar elements or fittings having an angle less than 18 degrees to the horizontal and extending more than 110 mm in width from the wall (see Figure D3, Appendix D).

6.4.2 Joints

All joints in the external surface material of walls shall be covered, sealed, overlapped, backed or butt-jointed

6.4.3 Vents and weepholes

Except for exclusions provided in Clause 3.6, vents and weepholes in external walls shall be screened with a mesh made of corrosion-resistant steel, bronze or aluminium.

6.5 EXTERNAL GLAZED ELEMENTS, ASSEMBLIES AND DOORS

6.5.1 Bushfire shutters

Where fitted, bushfire shutters shall conform with Clause 3.7 and be made from—

- non-combustible material; or
- a timber species as specified in Paragraph E1, Appendix E; or
- bushfire-resisting timber (see Appendix F); or
- a combination of any of items (a), (b), or (c).

6.5.2 Screens for windows and doors

Where fitted, screens for windows and doors shall have a mesh or perforated sheet made of corrosion-resistant steel, bronze or aluminium.

The frame supporting the mesh or perforated sheet shall be made from—

- metal; or
- bushfire-resisting timber (see Appendix F); or
- a timber species as specified in Paragraph E2, Appendix E.

6.5.3 Windows and sidelights

Window assemblies shall—

- be completely protected by a bushfire shutter conforming with Clause 3.7 and Clause 6.5.1; or
- be completely protected externally by screens conforming with Clause 3.6 and Clause 6.5.2; or
- conform with the following:

- Frame material** For window assemblies less than 400 mm from the ground or less than 400 mm above decks, carport roofs, awnings and similar elements or fittings having an angle less than 18 degrees to the horizontal and extending more than 110 mm in width from the window frame (see Figure D3, Appendix D), window frames and window joinery, shall be made from one of the following:
 - Bushfire-resisting timber (see Appendix F); or
 - A timber species as specified in Paragraph E2, Appendix E. or
 - Metal. or

(D) Metal-reinforced uPVC. The reinforcing members shall be made from aluminium, stainless steel, or corrosion-resistant steel. There are no restrictions on frame material for all other windows.

- Hardware** There are no specific restrictions on hardware for windows.
- Glazing** Where glazing is less than 400 mm from the ground or less than 400 mm above decks, carport roofs, awnings and similar elements or fittings, having an angle less than 18 degrees to the horizontal and extending more than 110 mm in width from the window frame (see Figure D3, Appendix D), this glazing shall be toughened glass a minimum of 5 mm in thickness, or glass blocks with no restriction on glazing methods.
NOTE: Where double-glazed assemblies are used above, the requirements apply to the external pane of the glazed assembly only. For all other glazing, annealed glass may be used in accordance with AS 1288.
- Seals and weather strips** There are no specific requirements for seals and weather strips at this BAL level.
- Screens** The openable portions of windows shall be screened internally or externally with screens that conform with Clause 3.6 and Clause 6.5.2. Where annealed glass is used, both the fixed and openable portions of the window shall be screened externally with screens that conform with Clause 6.5.2.

6.5.4 Doors—Side-hung external doors (including French doors, panel fold and bi-fold doors)

Side-hung external doors, including French doors, panel fold and bi-fold doors, shall—

- be completely protected by bushfire shutters that conform with Clause 3.7 and Clause 6.5.1; or
- be completely protected externally by screens that conform with Clause 3.6 and Clause 6.5.2; or (c) conform with the following:
 - Door panel material** Materials shall be—
 - non-combustible; or
 - solid timber, laminated timber or reconstituted timber, having a minimum thickness of 35 mm for the first 400 mm above the threshold; or
 - hollow core, solid timber, laminated timber or reconstituted timber with a non-combustible kickplate on the outside for the first 400 mm above the threshold; or
 - for fully framed glazed door panels, the framing shall be made from metal or bushfire resisting timber (see Appendix F) or a timber species as specified in Paragraph E2, Appendix E. or uPVC.
 - Door frame material** Door frame material shall be—
 - bushfire resisting timber (See Appendix F); or
 - a timber species as specified in Paragraph E2, Appendix E; or
 - metal; or
 - metal reinforced uPVC. The reinforcing members shall be made from aluminium, stainless steel, or corrosion-resistant steel.
 - Hardware** There are no specific requirements for hardware at this BAL level.
 - Glazing** Where doors incorporate glazing, the glazing shall be toughened glass a minimum of 5 mm in thickness.
 - Seals and weather strips** Weather strips, draught excluders or draught seals shall be installed.
 - Screens** There are no requirements to screen the openable part of the door at this BAL level.
 - Doors** shall be tight-fitting to the door frame and to an abutting door, if applicable.

6.5.5 Doors—Sliding doors

Sliding doors shall—

- completely protected by a bushfire shutter that conforms with Clause 3.7 and Clause 6.5.1; or
- be completely protected externally by screens that conform with Clause 3.6 and Clause 6.5.2; or
- conform with the following:

- Frame material** The material for door frames, including fully framed glazed doors, shall be—
 - bushfire-resisting timber (see Appendix F); or
 - a timber species as specified in Paragraph E2, Appendix E; or
 - metal; or
 - metal-reinforced uPVC and the reinforcing members shall be made from aluminium, stainless steel, or corrosion-resistant steel.
- Hardware** There are no specific requirements for hardware at this BAL level.
- Glazing** Where doors incorporate glazing, the glazing shall be toughened glass a minimum of 5 mm in thickness.
- Seals and weather strips** There are no specific requirements for seals and weather strips at this BAL level.
- Screens** There is no requirement to screen the openable part of the sliding door at this BAL level.
- Sliding panels** Sliding panels shall be tight-fitting in the frames.

6.5.6 Doors—Vehicle access doors (garage doors)

The following applies to vehicle access doors:

- The lower portion of a vehicle access door that is within 400 mm of the ground when the door is closed (see Figure D4, Appendix D) shall be made from—
 - non-combustible material; or
 - bushfire-resisting timber (see Appendix F); or
 - fibre-cement sheet a minimum of 6 mm in thickness; or
 - a timber species as specified in Paragraph E1, Appendix E; or
 - a combination of any of items (i), (ii), (iii) or (iv).
- All vehicle access doors shall be protected with suitable weather strips, draught excluders, draught seals or brushes. Door assemblies fitted with guide tracks do not need edge gap protection.

NOTES:

- Refer to AS/NZS 4505 for door types.
- Gaps of door edges or building elements should be protected as per Section 3
- Weather strips, draught excluders, draught seals or brushes to protect edge gaps or thresholds shall be manufactured from materials having a flammability index not exceeding five.
- Vehicle access doors with ventilation slots shall be protected in accordance with Clause 3.6.

6.6 ROOFS (INCLUDING PENETRATIONS, EAVES, FASCIAS AND GABLES, AND GUTTERS AND DOWNPIPES)

6.6.1 General

The following applies to all types of roofs and roofing systems:

- Roof tiles, roof sheets and roof-covering accessories shall be non-combustible.
- The roof/wall and roof/roof junction shall be sealed or otherwise protected in accordance with Clause 3.6.
- Roof ventilation openings, such as gable and roof vents, shall be fitted with ember guards made of non-combustible material or a mesh or perforated sheet conforming with Clause 3.6 and made of corrosion-resistant steel, bronze or aluminium.
- Only evaporative coolers manufactured in accordance with AS/NZS 60335.2.98 shall be used. Evaporative coolers with an internal d amper to prevent the entry of embers into the roof space need not be screened externally.

6.6.2 Tiled roofs

Tiled roofs shall be fully sarked. The sarking shall—

- be located on top of the roof framing, except that the roof battens may be fixed above the sarking;
- cover the entire roof area including ridges and hips; and
- extend into gutters and valleys.

6.6.3 Sheet roofs

Sheet roofs shall—

- be fully sarked in accordance with Clause 6.6.2, except that foil-backed insulation blankets may be installed over the battens; or
- have any gaps sealed at the fascia or wall line, hips and ridges by—
 - a mesh or perforated sheet that conforms with Clause 3.6 and that is made of corrosion-resistant steel, bronze or aluminium; or
 - mineral wool; or
 - other non-combustible material; or
 - a combination of any of items (i), (ii), or (iii).

6.6.4 Veranda, carport and awning roof

The following applies to veranda, carport and awning roofs:

- A veranda, carport or awning roof forming part of the main roof space [see Figure D1(a), Appendix D] shall meet all the requirements for the main roof, as specified in Clauses 6.6.1 to 6.6.6.
- A veranda, carport or awning roof separated from the main roof space by an external wall [see Figures D1(b) and D1(c), Appendix D] conforming with Clause 6.4 shall have a non-combustible roof covering, except where the roof covering is a translucent or transparent material.
NOTE: There is no requirement to line the underside of a veranda, carport or awning roof that is separated from the main roof space.

6.6.5 Roof penetrations

The following applies to roof penetrations:

- Roof penetrations, including roof lights, roof ventilators, roof-mounted evaporative cooling units, aerials, vent pipes and supports for solar collectors or the like, shall be sealed. The material used to seal the penetration shall be non-combustible.
- Openings in vented roof lights, roof ventilators or vent pipes shall conform with Clause 3.6 and be made of corrosion-resistant steel, bronze or aluminium. This requirement does not apply to a room sealed gas appliance.
NOTE: A gas appliance designed such that air for combustion does not enter from, or combustion products enter into, the room in which the appliance is located. In the case of gas appliance flues, ember guards shall not be fitted.
NOTE: AS/NZS 5601 contains requirements for gas appliance flue systems and cowls. Advice can be obtained from manufacturers and State and Territory gas technical regulators.
- All overhead glazing shall be Grade A safety glass conforming with AS 1288.
- Glazed elements in roof lights and skylights may be of polymer, provided a Grade A safety glass diffuser, conforming with AS 1288, is installed under the glazing. Where glazing is an insulating glazing unit (IGU), Grade A toughened safety glass of minimum 4 mm thickness shall be used in the outer pane of the IGU.
- Flashing elements of tubular skylights may be of a fire-retardant material, provided the roof integrity is maintained by under-flashing of a material having a flammability index not exceeding five.
- Evaporative cooling units shall be fitted with non-combustible butterfly closers as close as practicable to the roof level, or the unit shall be fitted with non-combustible covers with a mesh or perforated sheet with a maximum aperture of 2 mm, made of corrosion-resistant steel, bronze or aluminium.
- Eaves lighting shall be adequately sealed and not compromise the performance of the element.

6.6.6 Eaves linings, fascias and gables

The following applies to eaves linings, fascias and gables:

- Gables shall conform with Clause 6.4.
 - Eaves penetrations shall be protected the same as for roof penetrations, as specified in Clause 6.6.5.
 - Timber species as specified in Paragraph E2, Appendix E. or uPVC.
- This Standard does not provide construction requirements for fascias, bargeboards and eaves linings.

6.6.7 Gutters and downpipes

This Standard does not provide material requirements for—

- gutters, with the exception of box gutters; and
- downpipes. If installed, gutter and valley leaf guards shall be non-combustible. Box gutters shall be non-combustible and flashed at the junction with the roof with non-combustible material.

6.7 VERANDAS, DECKS, STEPS AND LANDINGS

6.7.1 General

Decking may be spaced. There is no requirement to enclose the subfloor spaces of verandas, decks, steps, ramps or landings.

6.7.2 Enclosed subfloor spaces of verandas, decks, steps, ramps and landings

6.7.2.1 Materials to enclose a subfloor space

This Standard does not provide construction requirements for the materials used to enclose a subfloor space except where those materials are less than 400 mm from the ground. Where the materials used to enclose a subfloor space are less than 400 mm from the ground, they shall conform with Clause 6.4.

6.7.2.2 Supports

This Standard does not provide construction requirements for support posts, columns, stumps, stringers, piers and poles.

6.7.2.3 Framing

This Standard does not provide construction requirements for the framing of verandas, pergolas, decks, ramps or landings (i.e. bearers and joists).

6.7.2.4 Decking, stair treads and the trafficable surfaces of ramps and landings

This Standard does not provide construction requirements for decking, stair treads and the trafficable surfaces of ramps and landings that are more than 300 mm from a glazed element. Decking, stair treads and the trafficable surfaces of ramps and landings less than 300 mm (measured horizontally at deck level) from glazed elements that are less than 400 mm (measured vertically) from the surface of the deck (see Figure D2, Appendix D) shall be made from—

- non-combustible material; or
- bushfire-resisting timber (see Appendix F); or
- a timber species as specified in Paragraph E1, Appendix E; or
- a combination of any of items (a), (b), or (c).

6.7.3 Unenclosed subfloor spaces of verandas, decks, steps, ramps and landings

6.7.3.1 Supports

This Standard does not provide construction requirements for support posts, columns, stumps, stringers, piers and poles.

6.7.3.2 Framing

This Standard does not provide construction requirements for the framing of verandas, decks, ramps or landings (i.e. bearers and joists).

6.7.3.3 Decking, stair treads and the trafficable surfaces of ramps and landings

This Standard does not provide construction requirements for decking, stair treads and the trafficable surfaces of ramps and landings that are more than 300 mm from a glazed element. Decking, stair treads and the trafficable surfaces of ramps and landings less than 300 mm (measured horizontally at deck level) from glazed elements that are less than 400 mm (measured vertically) from the surface of the deck (see Figure D2, Appendix D) shall be made from—

- non-combustible material; or
- bushfire-resisting timber (see Appendix F); or
- a timber species as specified in Paragraph E1, Appendix E; or
- a combination of any of items (a), (b), or (c).

6.7.4 Balustrades, handrails or other barriers

This Standard does not provide construction requirements for balustrades, handrails and other barriers.

6.7.5 Veranda posts

Veranda posts—

- shall be timber mounted on galvanized mounted shoes or stirrups with a clearance of not less than 75 mm above the adjacent finished ground level; or
- if less than 400 mm (measured vertically) from the surface of the deck or ground (see Figure D2, Appendix D) shall be made from—
 - non-combustible material; or
 - bushfire-resisting timber (see Appendix F); or
 - a timber species as specified in Paragraph E1, Appendix E; or
 - a combination of any of items (a) or (b).

6.8 WATER AND GAS SUPPLY PIPES

Above-ground, exposed water supply pipes shall be metal. External gas pipes and fittings above ground shall be of steel or copper

construction having a minimum wall thickness in accordance with gas regulations or 0.9 mm whichever is the greater.

The metal pipe shall extend a minimum of 400 mm within the building and 100 mm below ground.

NOTE: Refer to State and Territory gas regulations, AS/NZS 5601.1 and AS/NZS 4645.1.

BAL-19 Notes

New Shed
W.R. Bradford
56 St Helens Point Road
St Helens

ABEL DRAFTING SERVICES PTY.
LTD.

33 GOLDIE STREET WYNYARD TAS 7325 PH. (03) 6442 3411

ABN 78 009 572 749
CC 1070 Ian Ray



Plot Date: 9/12/20

COPYRIGHT:

Project Date: 9/12/20



DRAWN
Mar Schrammeyer
PROJECT NUMBER
20258

7 / 17

general notes

general

all dimensions are in millimetres unless otherwise specified.
dimensions are to structure not finish.
verify dimensions and measurements prior to commencement of work.
reference to manufacturer's specification is to a current approved specification appropriate for the proposed use.
engineer's specifications take precedence over drawing notes.
all work to generally comply with the national construction code of australia (NCC), relevant australian standards, codes of practice + the practices set out in the guide to standards and tolerances 2007.
it is the responsibility of the builder to ensure that suitable materials and construction methods are used, work is undertaken in accordance with the required standards and specifications and that work is finished in a professional manner.

work health + safety

contractors to comply with state work health + safety act and all relevant codes of practice.

vehicle access

vehicle crossovers to be provided in accordance with local authority requirements
contractor to obtain relevant permits for works in road reserve and comply with relevant planning conditions.
council infrastructure services to be notified prior to commencing works.
provide 3% crossfall to driveways with stormwater runoff directed to on-site absorption or approved stormwater discharge point.
concrete driveways to be minimum 120mm 25mpa concrete with saw cuts @ max 4m cen. 24 hours after pour.

site works

check boundaries, easements + service locations on site prior to commencing works.
site to be filled/excavated to levels indicated on drawings.
excavation works to comply with NCC part 3.2 and AS 2870 residential slabs + footings.
construction area to be cleared of vegetation, top soil and upper strata containing organic matter.
prepare foundation so footings can be placed on level undisturbed material.
drains and pipes to be provided as required or indicated to facilitate drainage of water away from building and foundations.
install site drainage prior to footing excavation where possible.
grade finished ground levels away from building footings, including areas under decks, 1:20 for 1m around building to a point where ponding won't occur.
finished ground level below concrete slabs to be as follows:

- 100mm in sandy and well drained areas
- 50mm for paved and concreted areas drained away from building @ 1:20
- 150mm in all other cases

electricity, communication, water, sewer, stormwater + gas services to be connected as per local authority requirements, verify connection locations on site in consultation with owner.
verify setout of building on site. no part of building works, including eaves, fascia, downpipes, drainage, excavations or any building element, to encroach over property boundary.
where a building is located on or near a property boundary and the boundary cannot be accurately identified, a registered land surveyor is to be engaged to establish + mark the property boundary/ies.
where excavation work is to a level below that of an adjoining property, on the property boundary or within 3m of a building on an adjoining property, protection work is to be carried out in accordance with section 121 of the building act and relevant building regulations. where required, obtain agreement with adjoining property owners for protection work in accordance with form 6 prior to commencing works.

soil + water management notes

connect downpipes to stormwater system as soon as practical.
works to be scheduled appropriately and stopped if conditions are not suitable, such as during and after heavy rain.
phase works as required to minimise wind erosion.
limit disturbance of vegetation to that required for construction of the development
stockpile top soil separately from subsoil.
protect stockpiles with geotextile sediment fencing on the low side of stockpiles.
minimise the time service trenches are left open + progressively backfill trenches with compacted backfill finished 100mm above adjacent ground level.
limit vehicle movement on disturbed areas.
prevent transfer of sediment to roadway by sealing crossover where possible, using bunds or parking construction vehicles on street.
store pollutants well clear of poorly drained areas.
remove sorted waste in an approved manner by means of suitable transport to an acceptable disposal area.
maintain waste disposal and collection systems.
on completion, erosion matting to be installed to slopes and disturbed areas for natural revegetation.

project information

building designer:	jennifer binns
accreditation no:	CC 1269L
title reference:	c.t. 19659/1
design wind speed:	design for N3
soil classification:	design for M
climate zone:	7
bushfire prone BAL rating:	n/a
alpine area:	n/a
corrosion environment:	very high
other hazards:	medium coastal inundation hazard
datum level:	TBM spike 1.21m
ground level:	min 150mm below f.f.l.
finished floor level:	1.5m
overflow relief gully level:	n/a

associated documents

shed plans by abel drafting services

stormwater management plan by GES

Building Areas

proposed shed	114.00
---------------	--------

note

these drawings are for permit approval purposes and additional information may be required to inform construction.

drawings are subject to owner discretion.

contractors to verify all matters of specification, finish, selection and appearance with owner prior to commencing work and ensure work carried out is acceptable to owner, including design variation and alternatives.

drawings used for construction must carry building surveyor certification.

contractors and prefabricators shall advise appropriately any omission, apparent error, anomaly or unclarity of all documents applicable to this construction.

builder and subcontractors to verify dimensions and levels on site prior to commencing work and ordering.

IF IN DOUBT ASK

proposed shed

w + j bradford

56 st helens point road st helens tasmania 7216

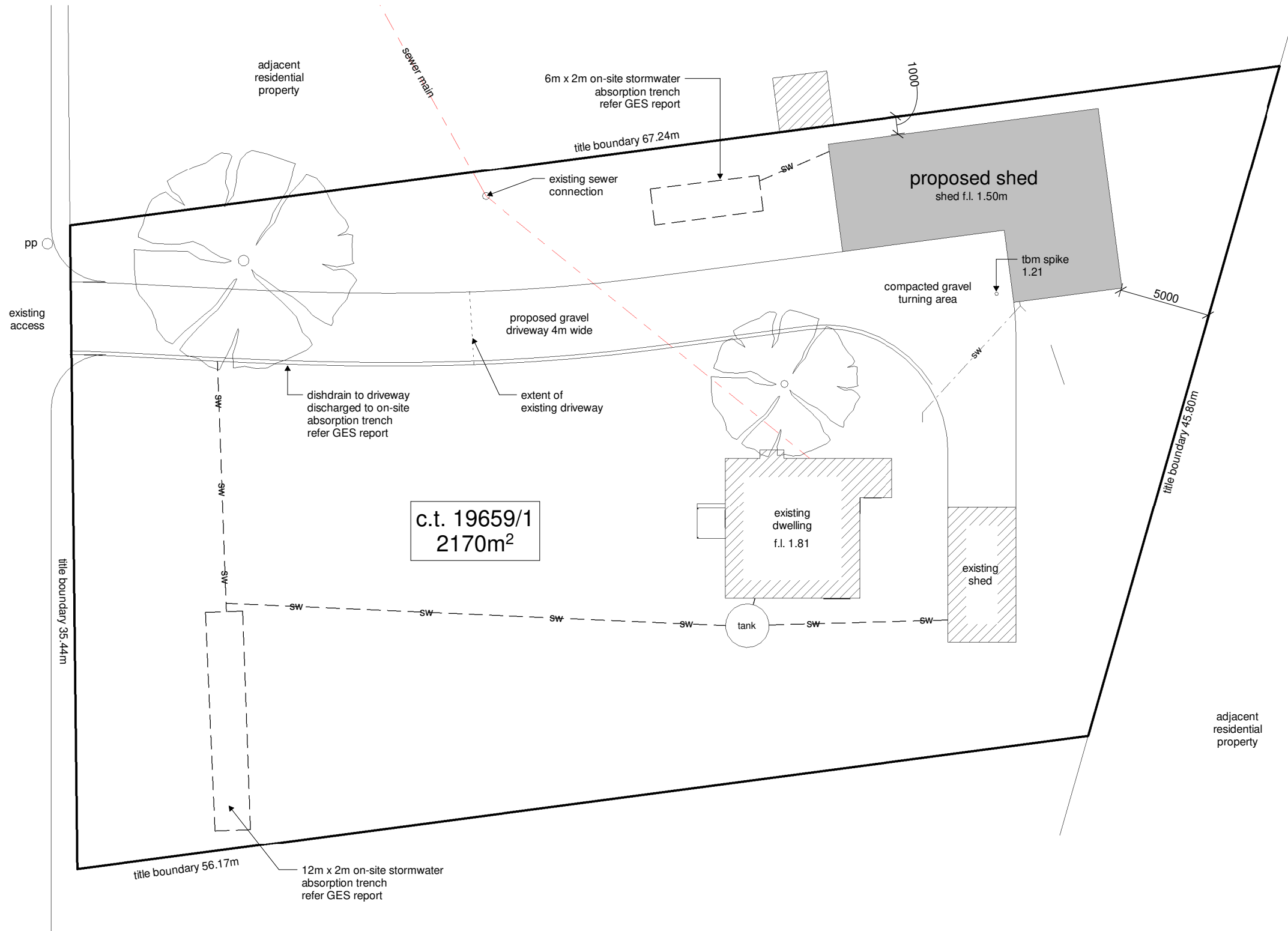


www.jenniferbinnsdesign.com.au

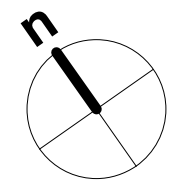
(03) 6376 2588 : 0439 765 452 : jenniferbinns@bigpond.com



suite 8 level 1 avery house, 48 cecilia street, st helens 7216

st helens point road



1 site plan
1 : 250



REV:	DESCRIPTION:	DATE:
PROJECT: dwelling extension + shed		
FOR: w + j bradford 56 st helens point road st helens tasmania7216		
DRAWING TITLE: site plan		
DRAWING NO: a01	DRAWN BY: JB	
	DATE: 08.04.26	
SCALE: 1 : 250	PROJECT: 1119BR	
 www.jenniferbinnsdesign.com.au (03) 6376 2588 : 0439 765 452 : jenniferbinns@bigpond.com suite 8 level 1 avery house, 48 cecilia street, st helens 7216		
 BUILDING DESIGNERS AUSTRALIA		ACCREDITATION NO: CC 1269L

proposed shed

wayne + josie bradford
56 st helens point road st helens tasmania 7216

planning compliance report

april 13 2026

jennifer binns building design
52 cecilia street st helens tasmania 7216
mail@jenniferbinnsdesign.com.au : 0439 765 452

Introduction

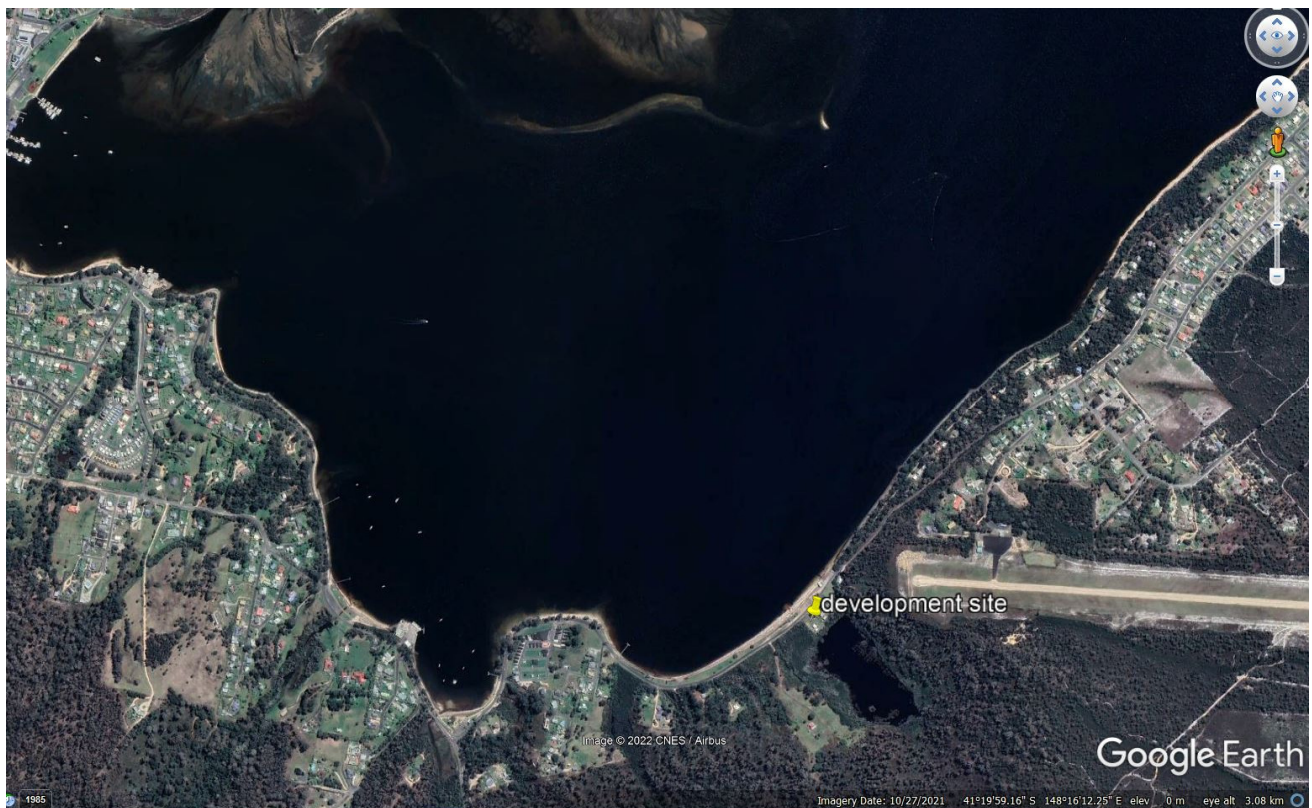
This report aims to demonstrate compliance with relevant planning standards for a proposed shed for Wayne and Josie Bradford at 56 St Helens Pt Road St Helens (c.t 19659/1). The report aims to take into consideration the intent, values and objectives of the Tasmanian Planning Scheme and address all scheme standards applicable to this development.

The proposed development relies on **Performance Criteria** to satisfy relevant planning standards and this report is to be read in conjunction with drawings submitted for the development.

Development Site Details

The development site is an established serviced residential property on the outskirts of the St Helens township and is within a medium coastal inundation band and waterway and coastal protection zone. No alteration is proposed to the existing vehicle access and the existing driveway will be upgraded as part of the development. The proposed shed was approved as part of a recent planning application and no alteration is proposed to the previously approved shed, the dwelling extension component has been removed. The proposed development includes on-site management of stormwater.

Zone: Low Density Residential



Development Details

Proposed shed area: 114.0m²

Use Class: Residential

Applicable Planning Codes

The proposed development is associated with a single dwelling in the *Residential* use class which in the *Low Density Residential Zone* is a *No permit Required* use.

The following zone standards and codes of the Tasmanian Planning Scheme are applicable to the proposed development:

- **Zone 10.0** **LOW DENSITY RESIDENTIAL ZONE**
- **Code C2.0** **PARKING AND SUSTAINABLE TRANSPORT CODE**
- **Code C7.0** **NATURAL ASSETS CODE**
- **Code C11.0** **COASTAL INNUNDATION HAZARD CODE**

Table 10.3 LOW DENSITY RESIDENTIAL USE STANDARDS

10.3.1 Discretionary uses

Not Applicable

The proposed development is a *No Permit Required* use.

10.3.2 Visitor Accommodation

Not Applicable

The proposed development is in the *Residential* use class.

Table 10.4 LOW DENSITY RESIDENTIAL DEVELOPMENT STANDARDS

10.4.1. Residential Density for Multiple Dwellings

Not Applicable

This application does not include multiple dwellings.

1.4.1.2 Building height

A1 Acceptable Solution

The proposed shed has an apex height of ±3.85m.

10.4.3 Setback

A1 Acceptable Solution

The proposed shed is sited to the rear of the existing dwelling.

A2 Performance Solution

The proposed shed has a side setback of 1.0m as per the previous approval. This setback is in keeping with the side setbacks of adjacent properties and is considered appropriate for the character of the site. The shed has been sited to maximise the usable private open space adjacent to the dwelling and maximise separation from the dwelling for bushfire risk management. The position of the shed at the rear of the property and the orientation of the site is such that the development will not adversely impact solar amenity for the adjoining residential property and there will be no loss of privacy. The proposed setback is considered appropriate as the lot sizes are large and there is significant separation between adjacent dwellings.

10.4.4 Site coverage

A1 Acceptable Solution

The extent of development on the site is <30% of the site area.

10.4.5 Frontage fences for all dwellings

Not applicable

No frontage fencing is proposed as part of this application.

Table 10.5 LOW DENSITY RESIDENTIAL DEVELOPMENT STANDARDS FOR NON-DWELLINGS

Not Applicable

The proposed development is an outbuilding associated with a single dwelling.

Table 10.6 LOW DENSITY RESIDENTIAL DEVELOPMENT STANDARDS FOR SUBDIVISION

Not Applicable

No subdivision of land is proposed.

Table C2.5 CAR PARKING USE STANDARDS

C2.5.1 Car parking numbers

Not Applicable

The proposed development does not require specific parking provisions.

C2.5.2 Bicycle parking numbers

Not Applicable

The proposed development does not require the provision of bicycle parking.

C2.5.3 Motorcycle parking numbers

Not Applicable

The proposed development does not require the provision of motorcycle parking.

C2.5.4 Loading bays

Not Applicable

The proposed development does not require provision of a loading bay.

C2.5.5 Number of car parking spaces within the General Residential zone and Inner Residential zone

A1 Not Applicable

The proposed development is in the *Low Density Residential* zone.

Table C2.6 CAR PARKING DEVELOPMENT STANDARDS

C2.6.1 Construction of parking areas

P1 Performance Solution

The proposed driveway and open parking areas will be compacted gravel drained to an on-site management system. Compacted gravel is widely used as a driveway surface throughout the municipality and the public pull-over and parking area opposite the development site is compacted gravel over a much larger area so the proposed surface is considered appropriate.

C2.6.2 Design and layout of parking areas

A1 Acceptable Solution

The layout of the development site meets the prescribed parking requirements.

A1.2 Not Applicable

Accessible parking is not required for the proposed development.

C2.6.3 Number of accesses for vehicles

A1 Not Applicable

The development site has one access point only.

A2 Not Applicable

The development site is in the *Low Density Residential* zone.

C2.6.4 Lighting of parking areas within the Gen. Business zone and Central Business zone

A1 Not Applicable

The development site is in the *Low Density Residential* zone.

C2.6.5 Pedestrian Access

A1.1 Not Applicable

The proposed development does not require the provision of pedestrian access paths.

A1.2 Acceptable Solution

The proposed development does not require the provision of accessible parking.

C2.6.6 Loading bays

A1 Not Applicable

The proposed development does not require the provision of a loading bay.

A2 Not Applicable

There are no commercial vehicles associated with the proposed development.

C2.6.7 Bicycle parking and storage facilities within the Gen. Business zone and Central Business zone

A1 Not Applicable

The proposed development does not require the provision of bicycle parking.

A2 Not Applicable

The proposed development does not require the provision of bicycle parking.

C2.6.8 Siting of parking and turning areas

A1 Not Applicable

The proposed development is in the *Low Density Residential* zone.

A2 Not Applicable

The proposed development is in the *Low Density Residential* zone.

Table C2.7 PARKING PRECINCT PLAN

C2.7.1 Construction of parking areas

A1 Not Applicable

The development site is not within a parking precinct plan.

Table C7.0 NATURAL ASSETS CODE

C7.6.1 Buildings and works within a waterway and coastal protection area or future coastal refugia area

P1 Performance Solution

The proposed development is a non-habitable shed sited on a portion of the site previously cleared of vegetation and no significant cut and fill is required to facilitate the construction. No alteration is proposed to the previously approved site of the shed.

A2 Not Applicable

The development site is not within a future coastal refugia area.

A3 Acceptable Solution

The proposed development does not involve a new stormwater point discharge into a watercourse, wetland or lake. On-site management of stormwater is proposed, refer stormwater design report by GES.

A4 Not Applicable

No dredging or reclamation is proposed.

A5 Not Applicable

No coastal protection, watercourse erosion or inundation protection works are proposed.

C7.6.2 Clearance within a priority vegetation area

Not Applicable

No vegetation removal is required for the proposed development.

C7.7.1 Subdivision within a waterway and coastal protections area or a future coastal refugia area

Not Applicable

No subdivision of land is proposed.

Table C11.0 COASTAL INUNDATION HAZARD CODE

C11.5.1 Uses within a high coastal inundation hazard band

Not Applicable

The development site is within a medium coastal inundation hazard band.

C11.5.2 Uses located within a non-urban and within a medium coastal inundation hazard band

Not Applicable

The development site is an established residential property within the St Helens township.

C11.5.3 Uses located within a non-urban and within a low coastal inundation hazard band

Not Applicable

The development site is within a medium coastal inundation hazard band.

C11.5.4 Critical use, hazardous use or vulnerable use

Not Applicable

The proposed development is not a critical, hazardous or vulnerable use.

C11.6.1 Buildings and works within a coastal inundation hazard area

P1.1/P1.2 Performance Solution

The proposed outbuilding is exempt from this code as it is subject to building approval. A coastal inundation hazard report has not been prepared for the proposed driveway works as the driveway is an extension to the existing driveway, no alteration is proposed to the previously approved shed and driveway location and the driveway is not considered to be require specific hazard reduction works. An on-site stormwater management plan has been prepared for the development.

C11.6.2 Coastal protection works within a coastal inundation hazard area.

Not Applicable

No coastal protection works are proposed.

C11.7.1 Subdivision within a coastal inundation hazard area

Not Applicable

No subdivision of land is proposed.

STORMWATER ASSESSMENT

56 St Helens Point Road

Stieglitz

February 2023



GEO-ENVIRONMENTAL

S O L U T I O N S

Disclaimer: The author does not warrant the information contained in this document is free from errors or omissions. The author shall not in any way be liable for any loss, damage or injury suffered by the User consequent upon, or incidental to, the existence of errors in the information.

Investigation Details

Client:	Jennifer Binns Design
Site Address:	56 St Helens Point Road, Stieglitz
Date of Inspection:	01/02/2023
Proposed Works:	New Shed and Extension
Investigation Method:	Hand Auger
Inspected by:	GM

Site Details

Certificate of Title (CT):	19659/1
Title Area:	Approx.2186 m ²
Applicable Planning Overlays:	Flood Prone Area, Bushfire Prone Area.
Slope & Aspect:	2° NE facing slope
Vegetation:	Grass & gradens / Disturbed

Background Information

Geology Map:	MRT 1:25000
Geological Unit:	Quaternary
Climate:	Annual rainfall approx. 700mm
Water Connection:	Mains
Sewer Connection:	Serviced-Mains
Testing and Classification:	AS2870:2011, AS1726:2017 & AS1547:2012

Investigation

A number of bore holes were completed to identify the distribution and variation of the soil materials at the site, bore hole locations are indicated on the site plan. See soil profile conditions presented below.

Soil Profile Summary

BH 1 Depth (m)	USCS	Description
0.00-0.50	SC	TOPSOIL Clayey SAND : dark grey, dry, loose.
0.50-0.90	SP	SAND : pale grey, moist, loose, water table at 0.8m, no refusal.

Soil Conditions

The soils on site have developed from Quaternary sediments and consist clayey sandy topsoil overlying sandy subsoils. The soil has a high estimated permeability of approximately 3.0m/day.

GES have identified the following at the site:

- The site has a 2% grade and presents a low risk to slope stability and landslip.
- There are no proposals for cuts or change of grade which will impact on any proposed onsite stormwater absorption,
- The site soils have been identified as comprising of clayey sand topsoil overlying sandy subsoils and no soil dispersion was identified.
- A water table was observed at 0.90m depth at the time of the investigation.
- There is a low risk of the natural soils being impacted by contamination
- No bedrock was encountered within any investigations.

Soil Dispersion

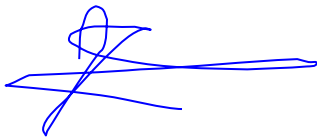
The soils are non-dispersive.

Summary

The soils and site are suitable for **shallow** in ground absorption of stormwater from the proposed structure. A hydraulic assessment and design for the absorption system has been completed by Flussig Engineers and can be found attached to this report with a form 35.

It is also recommended that regular inspection and maintenance is conducted to ensure the stormwater system is operating without obstruction. A schematic of recommended checks is also attached.

Please contact me if you have any further questions.

A handwritten signature in blue ink, consisting of several overlapping loops and a long horizontal stroke extending to the right.

Dr John Paul Cumming PhD CPSS
Director

GES Stormwater Maintenance Plan Checklist

Indicative frequency	Inspection and criteria	Maintenance activities (where required)
Annual	Check whether any tree branches overhang the roof or are likely to grow to overhang the roof	If safe and where permitted, consider pruning back any overhanging branches
	Check that access covers to storage tanks are closed	Secure any open access covers to prevent risk of entry
	Check that screens on inlets, overflows and other openings do not have holes and are securely fastened	Repair any defective screens to keep out mosquitoes
	Inspect tank water for presence of rats, birds, frogs, lizards or other vermin or insects	Remove any infestations, identify point of entry and close vermin and insect-proof mesh
	Inspect tank water for presence of mosquito larvae (inspect more frequently in sub-tropical and tropical northern Australia, based on local requirements)	Identify point of entry and close with insect-proof mesh with holes no greater than 1.6 mm in diameter
	Inspect gutters for leaf accumulation and ponding	Clean leaves from gutters-remove more regularly if required. If water is ponding, repair gutter to ensure water flows to downpipe
	Check signage at external roof water taps and that any removable handle taps are being properly used	Replace or repair the missing or damaged signage and fittings
	Check plumbing and pump connections are watertight/without leakage	Repair any leaks as necessary
	Check suction strainers, in-line strainers and pump location for debris	Clean suction strainers, in-line strainers or debris from pump location
	Check pump installation is adequate for reliable ongoing operation	Modify and repair as required
	Check first flush diverter, if present	Clean first flush diverter, repair and replace if necessary
	Check health of absorption trench area and surrounding grass or plants	Investigate any adverse impacts observed that might be due to irrigation
Check condition of roof and coatings	Investigate and resolve any apparent changes to roof condition, such as loss of material coatings	

Triennial	Drain, clean out and check the condition of the tank walls and roof to ensure no holes have arisen due to tank deterioration	Repair any tank defects
	Check sediment levels in the tank	Organise a suitable contractor to remove accumulated sediment if levels are approaching those that may block tank outlets
	Undertake a systematic review of operational control of risks to the system	Identify the reason for any problems during inspections and take actions to prevent failures occurring in future
After 20 years and then every 5 years	Monitor the effectiveness of the stormwater absorption area to assess for any clogging due to algal growth, or blocking due to tree roots/grass growth/trench failure.	Clean or replace clogged equipment
Ongoing	Inspect and follow up on any complaints or concerns raised that could indicate problems with the system	Repair or replace any problems that are notified




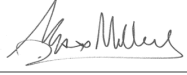
HYDRAULIC DESIGN REPORT

FE-HOB-23007-022 PERFORMANCE SOLUTION REPORT

Document Information

Title	Client	Document Number	Project Manager
56 St Helens Point Rd, St Helens TAS 7216 Performance Solution Report	Geo Environmental Solutions PTY LTD	FE-HOB-23007-022	Manuri Alwis <i>BEng (Hons)</i> <i>Graduate Civil Engineer</i>

Document Initial Revision

REVISION 00	Staff Name	Signature	Date
Prepared by	Manuri Alwis <i>Graduate Civil Engineer</i>		28/03/2023
Prepared by	Ash Perera <i>Civil Hydraulic Engineer</i>		28/03/2023
Reviewed by	Max W. Möller <i>Principal Hydraulic Engineer</i>		28/03/2023
Authorised by	Max W. Möller <i>Principal Hydraulic Engineer</i>		28/03/2023

Document Revision History

Rev No.	Description	Reviewed by	Authorised by	Date
01	Soakage trench location changed	Manuri Alwis	Max Moller	05/05/2023

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INTRODUCTION

This report details the stormwater management strategies for the proposed development **56 St Helens Point Rd, St Helens TAS 7216**. The objective of the report is to demonstrate how stormwater runoff would be captured and conveyed from the subject site safely to the receiving drainage network while considering stormwater quantity management and the incorporation of water tank and soakage trench elements.

The suggestion is to add a new stormwater detention tank and install a soakage trench providing the function of both existing and proposed impervious areas.

EXISTING CONDITIONS AND ASSUMPTIONS

The site covers an area of approximately 2170m². The proposed roof and gravel area of 284m² and 245m² respectively will increase impervious areas to a total of 529m². The total impervious area after the proposed additions will be 24.38%.

Stormwater from the site would be routed through the proposed conventional underground drainage system comprising of Grated Sumps and PVC Pipes, coupled with the use of water tank elements and a soakage trench for on-site detention.

The stormwater management report is prepared in accordance with the design criteria listed below:

- The stormwater drainage system is designed using Bureau of Meteorology (BOM) published rainfall Intensity Frequency Duration (IFD) data as a minor / major system to accommodate the 5% AEP / 20 min storm events.
- The flow rate of stormwater leaving the site shall be designed so that it does not exceed the pre-developed flow rate for both the minor and major rain events.
- The total site discharges are modelled as described in *Storm Drainage Design in Small Urban Catchments*, a handbook for Australian practice by *Australian Rainfall and Runoff (ARR2019)*, Book 9 – Runoff in Urban Areas.

Existing site conditions are to remain except proposed roof extensions and existing shed are to discharge to the stormwater detention tank and then outflow into the proposed 20m², 1m deep soakage trench which detain the overflow of tank and the gravel driveway areas. The new shed will be detained by its own soakage trench.

The stormwater solution is to be implemented for operational purposes and improvement.

PERFORMANCE SOLUTION COMPLIANCE

AS 3500.3 – CL 7.10	7.10.1 – Overflow is safe and does not compromise freeboard to habitable spaces.
ARR2019 Book 9	7.10.3 – Tank to be od approved zinc coated steel or poly tank.
General	On-Site Detention <ul style="list-style-type: none"> • AS/NZS 3500.3: Part 3 Stormwater Drainage

	<ul style="list-style-type: none"> • Australian Rainfall and Run-off Volume 8: Urban Stormwater Management • Australian Runoff Quality – A Guide to Water Sensitive Urban Design • Storm drainage design in small urban catchments: A handbook for Australian practice • Water Sensitive Urban Design (WSUD) Engineering Procedure: Stormwater • Water Services Association of Australia Code (WSAA).
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DETENTION DESIGN

Detention calculations are provided in Appendix B with the following summary for design:

Detention Volume = 3340L (Extensions & existing shed) 1570L (Driveway) and 2240L (Proposed shed)

Stored Volume = 0L

Permissible Site discharge = 1.06L/s (Extensions & existing shed) 1.49L/s (Driveway) and 0.71L/s (proposed shed)

Land Use	Pre-Development New Impervious Areas Only		Post-Development New Impervious Areas Only	
	Area m ²	% Total land	Area m ²	% Total land
Total Pervious	529	100	0	0
Total Impervious	0	0	529	100

As per Council's Interim Planning Scheme 2015, E7.0 (Stormwater Management), the post-development allowable site discharge must not exceed the pre-development site discharge. As seen from the figures above, this is exceeded in the 5% AEP 20min storm duration by a Permissible Site discharge of driveway, proposed extensions & existing shed, proposed shed is 1.06L/s, 1.49L/s & 0.71L/s, respectively. Therefore, the site must detain the difference using an onsite stormwater detention (OSD) system with 4,000L minimum capacity rainwater detention tank for dwelling extension & existing shed and a 1,570L minimum capacity soakage trench for impervious gravel driveway areas. The proposed new shed would require a minimum 2240L soakage trench on its own for on-site stormwater detention.

General Maintenance,

Task	Action	Frequency
General Cleaning – gutters, downpipe, filters etc.	Clear all debris from gutters and tank filters, ensure operational	Approximately every 3 months
Specialised cleaning and inspection	Inspect all gutters downpipes, inflow, and outflow – flush if required. Inspect all filters replace if required. Inspect main tank for defects	Yearly
Maintenance	Perform detailed inspection and maintenance of tank and associated infrastructure by a qualified person.	Every 5 years.

SUMMARY AND CONCLUSIONS






- Detention tank to be adopted as per design and documentation.
- The designed solution complies with the Performance solution design check carried out above.
- The 4,000L rainwater detention tank has been sized to detain the extensions & existing shed over a 20min storm duration and the outflow will be directed to the soakage trench.
- The 0.8m deep, 24m² soakage trench will detain the driveway runoff and overflow from the detention tank over a 20min storm duration.
- The 0.8m deep, 12m² soakage trench will detain the newly proposed shed from over a 20min storm duration.

End of Report

APPENDIX A

STORMWATER DESIGN DRAWINGS

NEW SERVICES

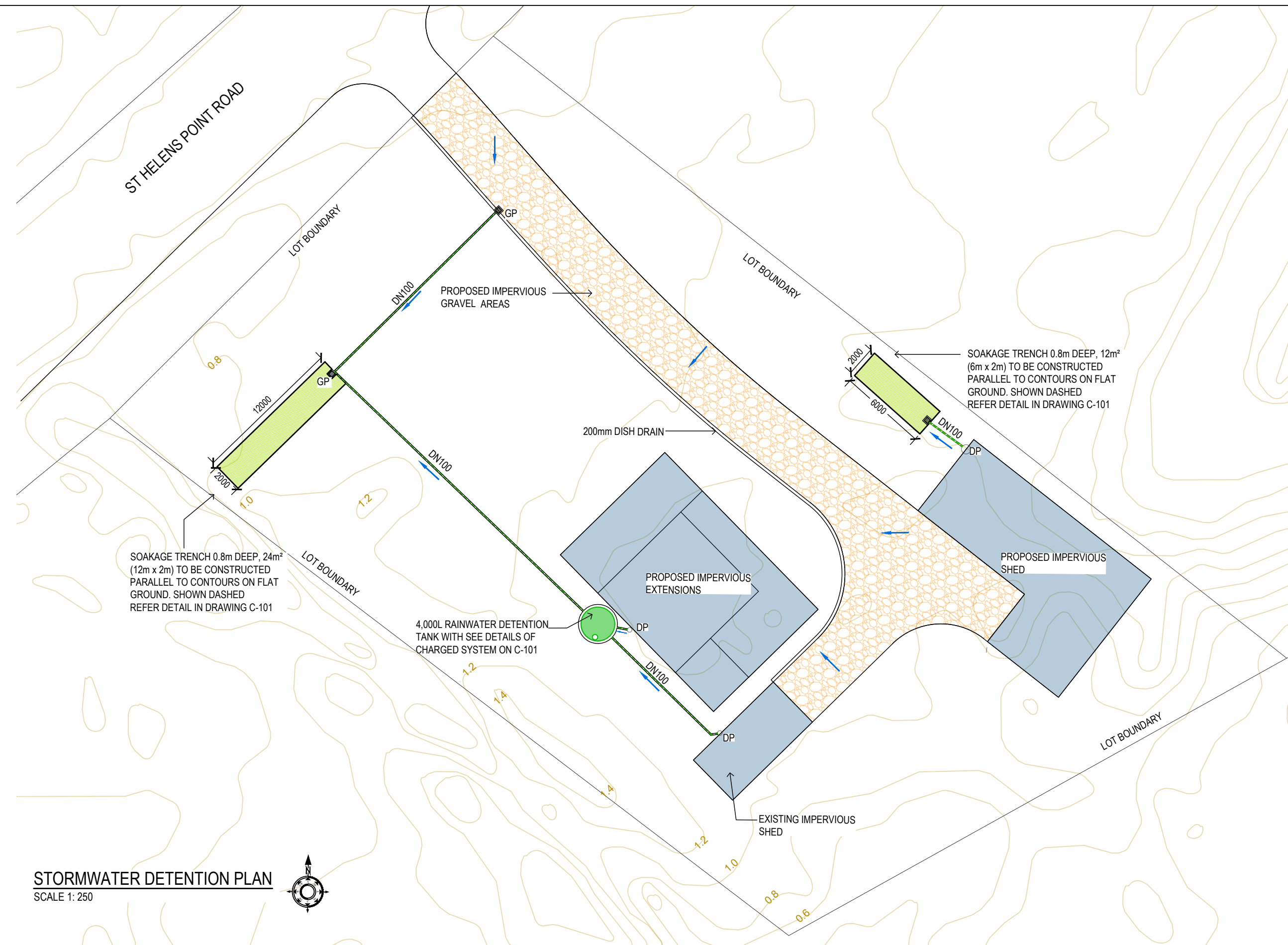
-  STORMWATER PIPE
-  STORMWATER FLOW DIRECTION
-  GRATED STORMWATER PIT. 450X450 CLASS A ACO DRAIN TYPE 66 POLYCRETE PIT OR SIMILAR ENGINEER APPROVED ACO GALVANISED HEELGUARD OR SIMILAR ENGINEER APPROVED
-  RAINWATER DETENTION TANK. DN30 UNDERFLOW AND DN100 OVERFLOW
-  DISH DRAIN

SITE AREA= 2170m²

-  IMPERVIOUS EXISTING ROOF 284m²
-  IMPERVIOUS TIMBER AREA 245m²

STORMWATER SERVICES NOTES:

1. ALL SITE SAFETY & MANAGEMENT PROCEDURES SHALL BE IN ACCORDANCE WITH THE DEPARTMENT OF STATE GROWTH SPECIFICATIONS: SECTION 168 OCCUPATIONAL HEALTH AND SAFETY & SECTION 176 ENVIRONMENTAL MANAGEMENT.
2. ALL PIPES UNDER TRAFFIC ABLE AREAS ARE TO BE BACK FILLED FULL DEPTH WITH 20 F.C.R. AND FULLY COMPACTED.
3. ALL STORM WATER PIPES TO BE PVC-U-SWJ CLASS "SN8" TO AS 1254 UNO.
4. ALL DRAIN AND TRENCH CONSTRUCTION SHALL COMPLY WITH THE LGAT STANDARD DRG TSD G01.
5. ANY EXCAVATED TRENCHES IN EXCESS OF 1.5M IN DEPTH ARE TO BE ADEQUATELY SHORED TO PREVENT COLLAPSE DURING WORKS.



STORMWATER DETENTION PLAN
SCALE 1: 250



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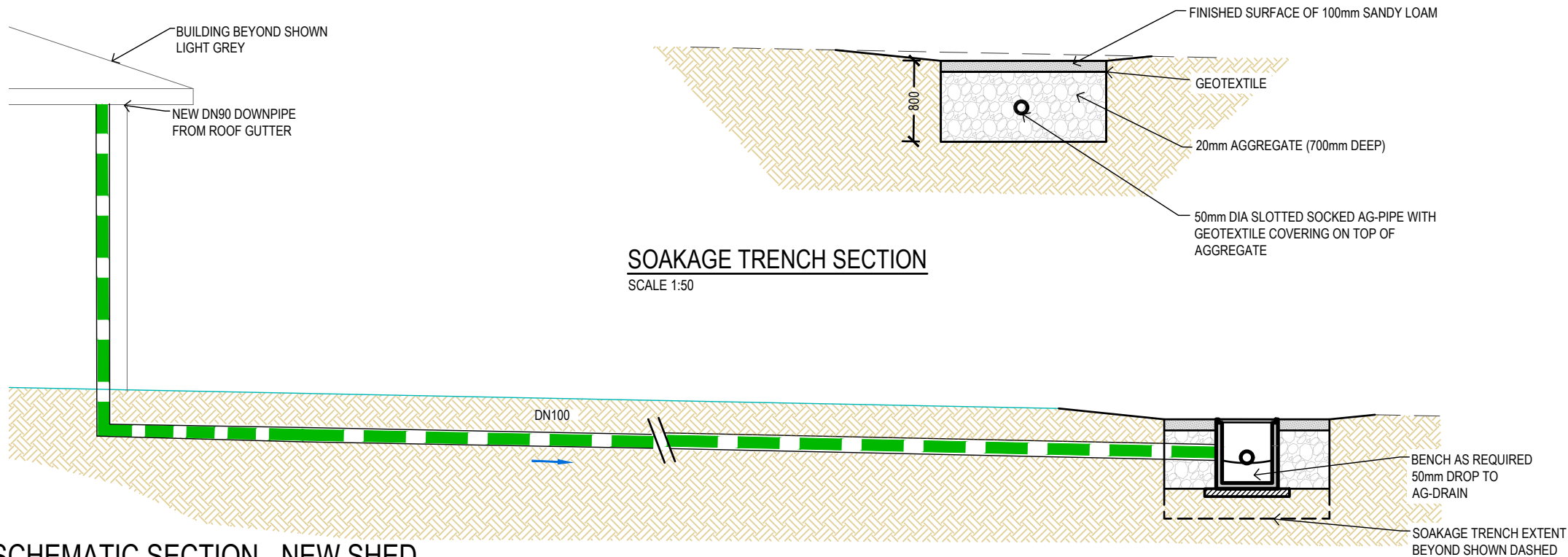
01	SOAKAGE TRENCH LOCATION	MA	05.05.23
REV:	DESCRIPTION:	BY:	DATE:
STATUS:	CONCEPT		

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e: admin@flussig.com.au
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a: 1 & 6 Bathurst St, Level 4 Hobart, 7000, TASMANIA

CLIENT:	GEO ENVIRONMENTAL SOLUTIONS PTY LTD
PROJECT:	PROPOSED DWELLING

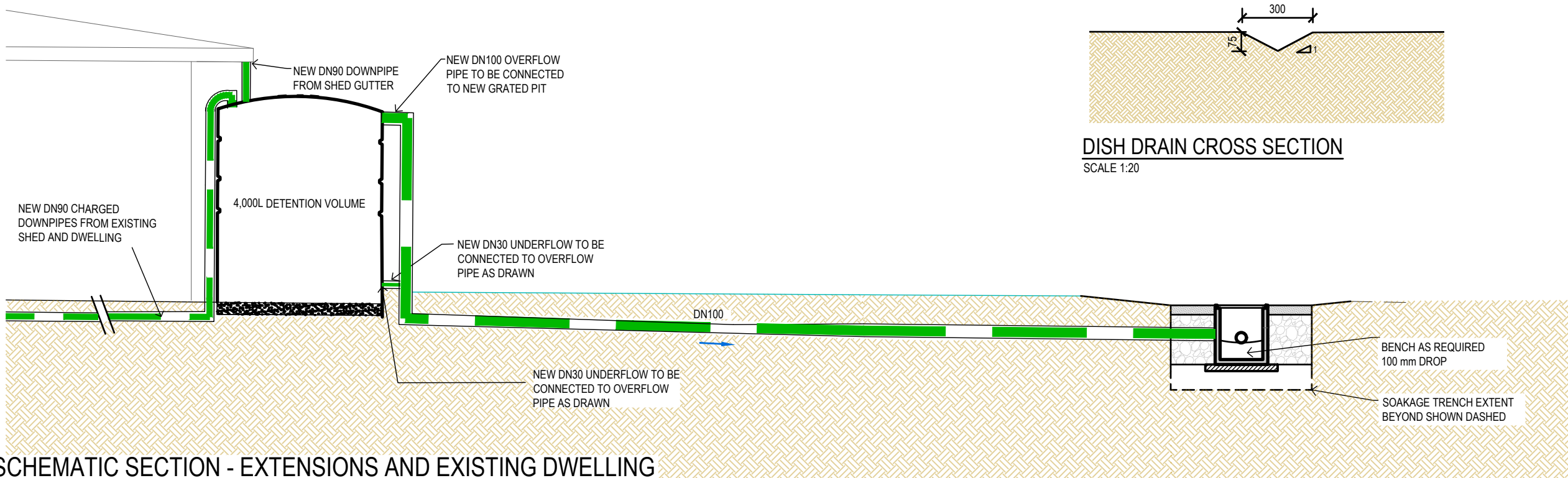
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TITLE:	STORMWATER DESIGN		
SCALE AT A3:	DATE:	DRAWN:	CHECKED:
AS SHOWN	28.03.2023	MA	MM
PROJECT NO:	DRAWING NO:	REVISION:	
FE-23007-022	C-100	01	



NEW SERVICES

-  STORMWATER PIPE
-  STORMWATER FLOW DIRECTION
-  GRATED STORMWATER PIT. 450X450 CLASS A
ACO DRAIN TYPE 66 POLYCRETE PIT OR SIMILAR ENGINEER APPROVED
-  6,000 LITRE RAINWATER DETENTION TANK. DN30 UNDERFLOW AND DN100 OVERFLOW

A
C101 **SCHEMATIC SECTION - NEW SHED**
SCALE 1:50



B
C101 **SCHEMATIC SECTION - EXTENSIONS AND EXISTING DWELLING**
SCALE 1:50

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01	SOAKAGE TRENCH LOCATION	MA	05.05.23
REV:	DESCRIPTION:	BY:	DATE:
STATUS:	CONCEPT		

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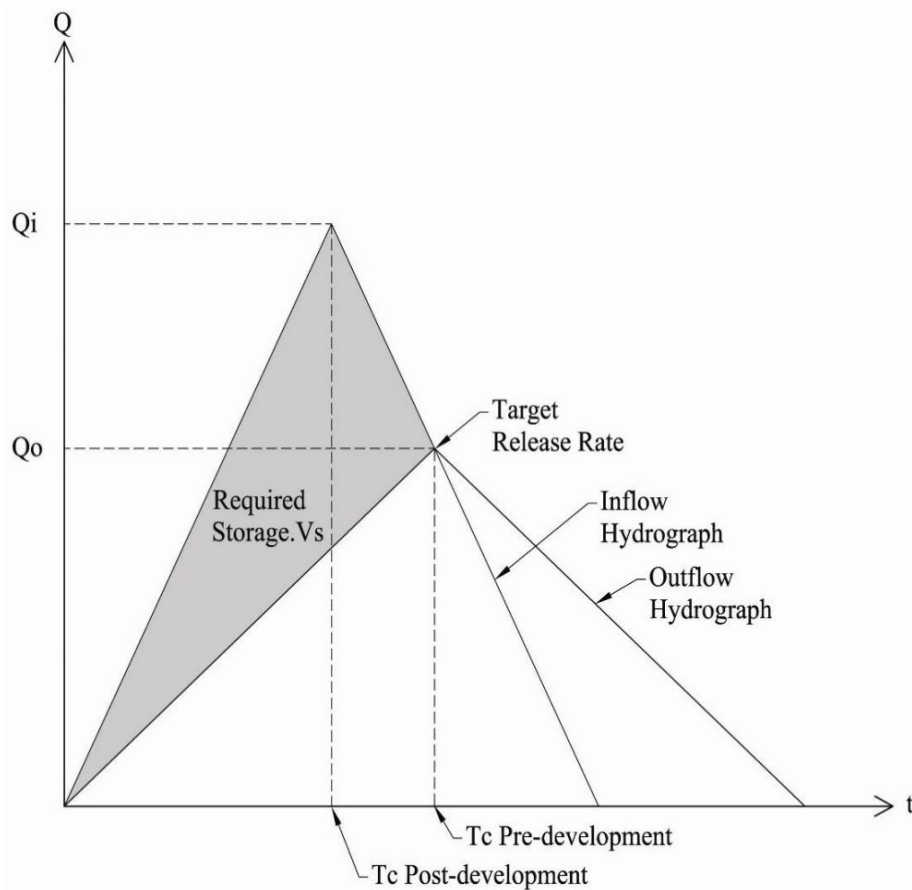
e: admin@flussig.com.au
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w: www.flussig.com.au
a: 116 Bathurst St, Level 4 Hobart, 7000, TASMANIA

CLIENT: GEO ENVIRONMENTAL SOLUTIONS PTY LTD	SITE: 56 ST HELENS POINT RD, ST HELENS TAS 7216
PROJECT: PROPOSED DWELLING	TITLE: STORMWATER DESIGN
SCALE AT A3: AS SHOWN	DATE: 28.03.2023
PROJECT NO: FE-23007-022	DRAWING NO: C-101
DRAWN: MA	CHECKED: MM
REVISION: 01	

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APPENDIX B

DETENTION COMPUTATIONS



Triangular Hydrograph Method Schematic

STORMWATER DETENTION V5.04

Location: St Helens, TAS
Site: 170m² with tc = 20 and tcs = 15 mins.
PSD: AEP of 5%, Above ground PSD = 1.06L/s
Storage: AEP of 5%, Above ground volume = 3.34m³

Design Criteria (Custom AEP IFD data used)

Location = St Helens, TAS
Method = E (A)RI 2001,A(E)P 2019

PSD annual exceedance probability (APE) = 5 %
Storage annual exceedance probability (APE) = 5 %

Storage method = A (A)bove,(P)ipe,(U)nderground,(C)ustom

Site Geometry

Site area (As) = 170 m² = 0.017 Ha
Pre-development coefficient (Cp) = 0.30
Post development coefficient (Cw) = 1.00

Total catchment (tc) = 20 minutes
Upstream catchment to site (tcs) = 15 minutes

Coefficient Calculations

Pre-development				Post development			
Zone	Area (m ²)	C	Area * C	Zone	Area (m ²)	C	Area * C
Concrete	0	0.90	0	Concrete	0	0.90	0
Roof	0	1.00	0	Roof	170	1.00	170
Gravel	0	0.50	0	Gravel	0	0.50	0
Garden	170	0.30	51	Garden	0	0.30	0
Total	170	m²	51	Total	170	m²	170
Cp = ΣArea*C/Total =			0.300	Cw = ΣArea*C/Total =			1.000

Permissible Site Discharge (PSD) (AEP of 5%)

PSD Intensity (I) = 72.0 mm/hr For catchment tc = 20 mins.
Pre-development (Qp = Cp*I*As/0.36) = 1.02 L/s
Peak post development (Qa = 2*Cw*I*As/0.36) = 6.80 L/s = (0.094 x I) Eq. 2.24

Storage method = A (A)bove,(P)ipe,(U)nderground,(C)ustom
Permissible site discharge (Qu = PSD) = 1.063 L/s

Above ground - Eq 3.8

$$0 = PSD^2 - 2*Qa/tc*(0.667*tc*Qp/Qa + 0.75*tc+0.25*tcs)*PSD + 2*Qa*Qp$$

Taking x as = PSD and solving

$$a = 1.0 \quad b = -14.1 \quad c = 13.9$$

$$PSD = -b \pm \sqrt{b^2 - 4ac} / (2a)$$

$$PSD = 1.063 \text{ L/s}$$

Below ground pipe - Eq 3.3

$$Qp = PSD*[1.6*tcs/(tc*(1-2*PSD/(3*Qa)))-0.6*tcs^{2.67}/(tc*(1-2*PSDp/(3*Qa)))^{2.67}]$$

$$= 1.02$$

$$PSD = 1.056 \text{ L/s}$$

Below ground rectangular tank - Eq 3.4

$$t = tcs/(tc*(1-2*PSD/(3*Qa))) = 0.834$$

$$Qp = PSD*[0.005-0.455*t+5.228*t^2-1.045*t^3-7.199*t^4+4.519*t^5]$$

$$= 1.02$$

$$PSD = 1.024 \text{ L/s}$$

STORMWATER DETENTION V5.04

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Design Storage Capacity (AEP of 5%)

Above ground (Vs) = $[0.5*Qa*td - [(0.875*PSD*td)(1-0.917*PSD/Qa) + (0.427*td*PSD^2/Qa)]] * 60/10^3 \text{ m}^3$ Eq 4.23
 Below ground pipe (Vs) = $[(0.5*Qa - 0.637*PSD + 0.089*PSD^2/Qa)*td] * 60/10^3 \text{ m}^3$ Eq 4.8
 Below ground rect. tank (Vs) = $[(0.5*Qa - 0.572*PSD + 0.048*PSD^2/Qa)*td] * 60/10^3 \text{ m}^3$ Eq 4.13

td (mins)	I (mm/hr)	Qa (L/s)	Above Vs (m ³)	Pipe Vs (m ³)	B/G Vs (m ³)
5	135.5	12.8	1.65		
14	87.9	8.3	2.75		
19	74.2	7.0	3.00		
23	66.3	6.3	3.13		
28	58.8	5.6	3.23		
32	54.2	5.1	3.29		
37	49.5	4.7	3.33		
41	46.4	4.4	3.34		
46	43.2	4.1	3.35		
50	41.1	3.9	3.35		

Table 1 - Storage as function of time for AEP of 5%

Type	td (mins)	I (mm/hr)	Qa (L/s)	Vs (m ³)
Above Pipe B/ground	40.2	47.0	4.4	3.34

Table 2 - Storage requirements for AEP of 5%

Frequency of operation of Above Ground storage

$Q_{op2} = 0.75$ Cl 2.4.5.1
 $Q_{p2} = Q_{op2} * Q_{p1}$ (where $Q_{p1} = PSD$) = 0.80 L/s at which time above ground storage occurs
 $I = 360 * Q_{p2} / (2 * C_w * A_s * 10^3) = 8.4 \text{ mm/h}$ Eq 4.24

Period of Storage

Time to Fill:
 Above ground (tf) = $td * (1 - 0.92 * PSD / Qa)$ Eq 4.27
 Below ground pipe (tf) = $td * (1 - 2 * PSD / (3 * Qa))$ Eq 3.2
 Below ground rect. tank (tf) = $td * (1 - 2 * PSD / (3 * Qa))$ Eq 3.2

Time to empty:
 Above ground (te) = $(Vs + 0.33 * PSD^2 * td / Qa * 60 / 10^3) * (1.14 / PSD) * (10^3 / 60)$ Eq 4.28
 Below ground pipe (te) = $1.464 / PSD * (Vs + 0.333 * PSD^2 * td / Qa * 60 / 10^3) * (10^3 / 60)$ Eq 4.32
 Below ground rect. tank (te) = $2.653 / PSD * (Vs + 0.333 * PSD^2 * td / Qa * 60 / 10^3) * (10^3 / 60)$ Eq 4.36

Storage period (Ps = tf + te) Eq 4.26

Type	td (mins)	Qa (L/s)	Vs (L/s)	tf (mins)	te (mins)	Ps (mins)
Above Pipe B/ground	40.2	4.4	3.3	31.3	63.3	94.7

Table 3 - Period of Storage requirements for AEP of 5%

Orifice

Permissible site discharge ($Q_u = PSD$) = 1.06 L/s (Above ground storage)
 Orifice coefficient (CD) = 0.61 For sharp circular orifice
 Gravitational acceration (g) = 9.81 m/s²
 Maximum storage depth above orifice (H) = 400 mm
 Orifice flow (Q) = $CD * A_o * \sqrt{2 * g * H}$

Therefore:
 Orifice area (Ao) = 622 mm²
 Orifice diameter (D = $\sqrt{4 * A_o / \pi}$) = 28.1 mm

STORMWATER DETENTION V5.04

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Location: St Helens, TAS
Site: 245m² with tc = 20 and tcs = 15 mins.
PSD: AEP of 5%, Above ground PSD = 1.49L/s
Storage: AEP of 5%, Above ground volume = 1.57m³

Design Criteria (Custom AEP IFD data used)

Location = St Helens, TAS
Method = E (A)RI 2001,A(E)P 2019

PSD annual exceedance probability (APE) = 5 %
Storage annual exceedance probability (APE) = 5 %

Storage method = A (A)bove,(P)ipe,(U)nderground,(C)ustom

Site Geometry

Site area (As) = 245 m² = 0.0245 Ha
Pre-development coefficient (Cp) = 0.30
Post development coefficient (Cw) = 0.50

Total catchment (tc) = 20 minutes
Upstream catchment to site (tcs) = 15 minutes

Coefficient Calculations

Pre-development				Post development			
Zone	Area (m ²)	C	Area * C	Zone	Area (m ²)	C	Area * C
Concrete	0	0.90	0	Concrete	0	0.90	0
Roof	0	1.00	0	Roof	0	1.00	0
Gravel	0	0.50	0	Gravel	245	0.50	123
Garden	245	0.30	74	Garden	0	0.30	0
Total	245	m²	74	Total	245	m²	123
Cp = ΣArea*C/Total =			0.300	Cw = ΣArea*C/Total =			0.500

Permissible Site Discharge (PSD) (AEP of 5%)

PSD Intensity (I) = 72.0 mm/hr For catchment tc = 20 mins.
Pre-development (Qp = Cp*I*As/0.36) = 1.47 L/s
Peak post development (Qa = 2*Cw*I*As/0.36) = 4.90 L/s = (0.068 x I) Eq. 2.24

Storage method = A (A)bove,(P)ipe,(U)nderground,(C)ustom
Permissible site discharge (Qu = PSD) = 1.492 L/s

Above ground - Eq 3.8

$$0 = PSD^2 - 2*Qa/tc*(0.667*tc*Qp/Qa + 0.75*tc+0.25*tcs)*PSD + 2*Qa*Qp$$

Taking x as = PSD and solving

$$a = 1.0 \quad b = -11.2 \quad c = 14.4$$

$$PSD = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$PSD = 1.492 \text{ L/s}$$

Below ground pipe - Eq 3.3

$$Qp = PSD * [1.6*tcs / \{tc*(1-2*PSD/(3*Qa))\} - 0.6*tcs^{2.67} / \{tc*(1-2*PSDp/(3*Qa))\}^{2.67}]$$

$$= 1.47$$

$$PSD = 1.477 \text{ L/s}$$

Below ground rectangular tank - Eq 3.4

$$t = tcs / \{tc*(1-2*PSD/(3*Qa))\} = 0.932$$

$$Qp = PSD * [0.005 - 0.455*t + 5.228*t^2 - 1.045*t^3 - 7.199*t^4 + 4.519*t^5]$$

$$= 1.47$$

$$PSD = 1.438 \text{ L/s}$$

Design Storage Capacity (AEP of 5%)

Above ground (Vs) = $[0.5*Qa*td - [(0.875*PSD*td)(1-0.917*PSD/Qa) + (0.427*td*PSD^2/Qa)]] * 60/10^3 \text{ m}^3$ Eq 4.23
 Below ground pipe (Vs) = $[(0.5*Qa - 0.637*PSD + 0.089*PSD^2/Qa)*td] * 60/10^3 \text{ m}^3$ Eq 4.8
 Below ground rect. tank (Vs) = $[(0.5*Qa - 0.572*PSD + 0.048*PSD^2/Qa)*td] * 60/10^3 \text{ m}^3$ Eq 4.13

td (mins)	I (mm/hr)	Qa (L/s)	Above Vs (m ³)	Pipe Vs (m ³)	B/G Vs (m ³)
5	135.5	9.2	1.02		
8	114.6	7.8	1.30		
10	104.0	7.1	1.41		
11	99.4	6.8	1.45		
13	91.4	6.2	1.51		
15	84.7	5.8	1.55		
16	81.8	5.6	1.56		
18	76.5	5.2	1.58		
19	74.2	5.0	1.58		
21	70.0	4.8	1.58		

Table 1 - Storage as function of time for AEP of 5%

Type	td (mins)	I (mm/hr)	Qa (L/s)	Vs (m ³)
Above Pipe B/ground	16.7	79.8	5.4	1.57

Table 2 - Storage requirements for AEP of 5%

Frequency of operation of Above Ground storage

$Q_{op2} = 0.75$ Cl 2.4.5.1
 $Q_{p2} = Q_{op2} * Q_{p1}$ (where $Q_{p1} = PSD$) = 1.12 L/s at which time above ground storage occurs
 $I = 360 * Q_{p2} / (2 * C_w * A_s * 10^3) = 16.4 \text{ mm/h}$ Eq 4.24

Period of Storage

Time to Fill:
 Above ground (tf) = $td * (1 - 0.92 * PSD / Qa)$ Eq 4.27
 Below ground pipe (tf) = $td * (1 - 2 * PSD / (3 * Qa))$ Eq 3.2
 Below ground rect. tank (tf) = $td * (1 - 2 * PSD / (3 * Qa))$ Eq 3.2

Time to empty:
 Above ground (te) = $(Vs + 0.33 * PSD^2 * td / Qa * 60 / 10^3) * (1.14 / PSD) * (10^3 / 60)$ Eq 4.28
 Below ground pipe (te) = $1.464 / PSD * (Vs + 0.333 * PSD^2 * td / Qa * 60 / 10^3) * (10^3 / 60)$ Eq 4.32
 Below ground rect. tank (te) = $2.653 / PSD * (Vs + 0.333 * PSD^2 * td / Qa * 60 / 10^3) * (10^3 / 60)$ Eq 4.36

Storage period (Ps = tf + te) Eq 4.26

Type	td (mins)	Qa (L/s)	Vs (L/s)	tf (mins)	te (mins)	Ps (mins)
Above Pipe B/ground	16.7	5.4	1.6	12.5	21.7	34.2

Table 3 - Period of Storage requirements for AEP of 5%

Orifice

Permissible site discharge ($Q_u = PSD$) = 1.49 L/s (Above ground storage)
 Orifice coefficient (CD) = 0.61 For sharp circular orifice
 Gravitational acceration (g) = 9.81 m/s²
 Maximum storage depth above orifice (H) = 1900 mm
 Orifice flow (Q) = $CD * A_o * \sqrt{2 * g * H}$

Therefore:
 Orifice area (A_o) = 401 mm²
 Orifice diameter ($D = \sqrt{4 * A_o / \pi}$) = 22.6 mm

Soakage Trench for tank overflow and driveway

Hydrology						
A1 = impervious area collected	170	sqm				
C1 = coefficient	1					
A2=Impervious area	245	sqm				
C2= Coefficient	0.5					
ARI = Annual Recurrence Interval	20	yr				
Ground Conditions						
Hydraulic conductivity K (absorption rate)	2.0833	mm/min				
Adjusted rate (15% clogging factor)	1.7708	mm/min				
Trench Design						
Length, L	12	m				
Width, B	2	m				
Depth, h	0.8	m				
Base area, BA	24	sqm				
Void space	35%					
Trench Storage	6.72	cum				
	6720.00	L				
Detention tank data		Final Check				
Tank storage	4.00	cum	Criteria	Required	Design	Check
Tank Underflow	1.06	L/s	Total Detention needed	4,910	10720	OK
Tank Underflow	63.60	L/m	Trench capacity underflow for 5% AEP 20-minute storm	3362	6720	OK
Total Available storage	10.72	cum				
	10720	L				

C(roof)	1
C(Gravel)	0.5

Checking storm

	Duration (min)	Intensity (mm/hr)	Vol in System(L)	Vol in Trench (L)	Vol out Trench (L)	Storage total System (L)	Storage Trench(L)	Hours to empty Trench
5Mins	5	136	3315	1706	213	3103	1494	1
6Mins	6	129.6	3791	1969	255	3536	1714	1
10Mins	10	104	5070	2759	425	4645	2334	1
20Mins	20	72	7020	4212	850	6170	3362	2
30Mins	30	56.4	8249	4249	1275	6974	2974	2
1Hr	60	36.7	10735	6735	2550	8185	4185	3
2Hrs	120	24.5	14333	10333	5100	9233	5233	4
3Hrs	180	19.8	17375	13375	7650	9725	5725	5
6Hrs	360	14.2	24921	20921	15300	9621	5621	8
12Hrs	720	10.2	35802	31802	30600	5202	1202	12
24Hrs	1440	6.96	48859	44859	61200	-12341	-16341	18
48Hrs	2880	4.26	59810	55810	122400	-62590	-66590	22
72Hrs	4320	3.02	63601	59601	183600	-119999	-123999	23

STORMWATER DETENTION V5.04

A | Flüssig Engineers

Location: St Helens, TAS
Site: 114m² with tc = 20 and tcs = 15 mins.
PSD: AEP of 5%, Above ground PSD = 0.71L/s
Storage: AEP of 5%, Above ground volume = 2.24m³

Design Criteria (Custom AEP IFD data used)

Location = St Helens, TAS
Method = E (A)RI 2001,A(E)P 2019

PSD annual exceedance probability (APE) = 5 %
Storage annual exceedance probability (APE) = 5 %

Storage method = A (A)bove,(P)ipe,(U)nderground,(C)ustom

Site Geometry

Site area (As) = 114 m² = 0.0114 Ha
Pre-development coefficient (Cp) = 0.30
Post development coefficient (Cw) = 1.00

Total catchment (tc) = 20 minutes
Upstream catchment to site (tcs) = 15 minutes

Coefficient Calculations

Pre-development				Post development			
Zone	Area (m ²)	C	Area * C	Zone	Area (m ²)	C	Area * C
Concrete	0	0.90	0	Concrete	0	0.90	0
Roof	0	1.00	0	Roof	114	1.00	114
Gravel	0	0.50	0	Gravel	0	0.50	0
Garden	114	0.30	34	Garden	0	0.30	0
Total	114	m²	34	Total	114	m²	114
Cp = ΣArea*C/Total = 0.300				Cw = ΣArea*C/Total = 1.000			

Permissible Site Discharge (PSD) (AEP of 5%)

PSD Intensity (I) = 72.0 mm/hr For catchment tc = 20 mins.
Pre-development (Qp = Cp*I*As/0.36) = 0.68 L/s
Peak post development (Qa = 2*Cw*I*As/0.36) = 4.56 L/s = (0.063 x I) Eq. 2.24

Storage method = A (A)bove,(P)ipe,(U)nderground,(C)ustom
Permissible site discharge (Qu = PSD) = 0.713 L/s

Above ground - Eq 3.8

$$0 = PSD^2 - 2*Qa/tc*(0.667*tc*Qp/Qa + 0.75*tc+0.25*tcs)*PSD + 2*Qa*Qp$$

Taking x as = PSD and solving

$$a = 1.0 \quad b = -9.5 \quad c = 6.2$$

$$PSD = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$PSD = 0.713 \text{ L/s}$$

Below ground pipe - Eq 3.3

$$Qp = PSD*[1.6*tcs/{tc*(1-2*PSD/(3*Qa))} - 0.6*tcs^{2.67}/\{tc*(1-2*PSDp/(3*Qa))\}^{2.67}]$$

$$= 0.68$$

$$PSD = 0.708 \text{ L/s}$$

Below ground rectangular tank - Eq 3.4

$$t = tcs / \{tc*(1-2*PSD/(3*Qa))\} = 0.834$$

$$Qp = PSD*[0.005-0.455*t+5.228*t^2-1.045*t^3-7.199*t^4+4.519*t^5]$$

$$= 0.68$$

$$PSD = 0.687 \text{ L/s}$$

Design Storage Capacity (AEP of 5%)

Above ground (Vs) = $[0.5*Qa*td - [(0.875*PSD*td)(1-0.917*PSD/Qa) + (0.427*td*PSD^2/Qa)]]*60/10^3$ m³ Eq 4.23
 Below ground pipe (Vs) = $[(0.5*Qa - 0.637*PSD + 0.089*PSD^2/Qa)*td]*60/10^3$ m³ Eq 4.8
 Below ground rect. tank (Vs) = $[(0.5*Qa - 0.572*PSD + 0.048*PSD^2/Qa)*td]*60/10^3$ m³ Eq 4.13

td (mins)	I (mm/hr)	Qa (L/s)	Above Vs (m ³)	Pipe Vs (m ³)	B/G Vs (m ³)
5	135.5	8.6	1.11		
14	87.9	5.6	1.84		
19	74.2	4.7	2.01		
23	66.3	4.2	2.10		
28	58.8	3.7	2.17		
32	54.2	3.4	2.20		
37	49.5	3.1	2.23		
41	46.4	2.9	2.24		
46	43.2	2.7	2.25		
50	41.1	2.6	2.25		

Table 1 - Storage as function of time for AEP of 5%

Type	td (mins)	I (mm/hr)	Qa (L/s)	Vs (m ³)
Above Pipe B/ground	40.2	47.0	3.0	2.24

Table 2 - Storage requirements for AEP of 5%

Frequency of operation of Above Ground storage

$Q_{op2} = 0.75$ Cl 2.4.5.1
 $Q_{p2} = Q_{op2} * Q_{p1}$ (where $Q_{p1} = PSD$) = 0.53 L/s at which time above ground storage occurs
 $I = 360 * Q_{p2} / (2 * C_w * A_s * 10^3) = 8.4$ mm/h Eq 4.24

Period of Storage

Time to Fill:
 Above ground (tf) = $td * (1 - 0.92 * PSD / Qa)$ Eq 4.27
 Below ground pipe (tf) = $td * (1 - 2 * PSD / (3 * Qa))$ Eq 3.2
 Below ground rect. tank (tf) = $td * (1 - 2 * PSD / (3 * Qa))$ Eq 3.2

Time to empty:
 Above ground (te) = $(Vs + 0.33 * PSD^2 * td / Qa * 60 / 10^3) * (1.14 / PSD) * (10^3 / 60)$ Eq 4.28
 Below ground pipe (te) = $1.464 / PSD * (Vs + 0.333 * PSD^2 * td / Qa * 60 / 10^3) * (10^3 / 60)$ Eq 4.32
 Below ground rect. tank (te) = $2.653 / PSD * (Vs + 0.333 * PSD^2 * td / Qa * 60 / 10^3) * (10^3 / 60)$ Eq 4.36

Storage period (Ps = tf + te) Eq 4.26

Type	td (mins)	Qa (L/s)	Vs (L/s)	tf (mins)	te (mins)	Ps (mins)
Above Pipe B/ground	40.2	3.0	2.2	31.3	63.3	94.7

Table 3 - Period of Storage requirements for AEP of 5%

Orifice

Permissible site discharge ($Q_u = PSD$) = 0.71 L/s (Above ground storage)
 Orifice coefficient (CD) = 0.61 For sharp circular orifice
 Gravitational acceration (g) = 9.81 m/s²
 Maximum storage depth above orifice (H) = 400 mm
 Orifice flow (Q) = $CD * A_o * \sqrt{2 * g * H}$

Therefore:
 Orifice area (Ao) = 417 mm²
 Orifice diameter (D = $\sqrt{4 * A_o / \pi}$) = 23.1 mm

Soakage Trench for new shed

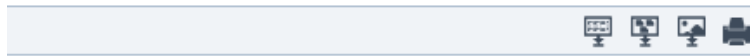
Hydrology		
A = total impervious area collected	114	sqm
C = coefficient	1	
ARI = Annual Recurrence Interval	20	yr
Ground Conditions		
Hydraulic conductivity K (absorption rate)	2.083	mm/min
Adjusted rate (15% clogging factor)	1.771	mm/min
Trench Design		
Length, L	6	m
Width, B	2	m
Depth, h	0.8	m
Base area, BA	12	sqm
Void space	35%	
Pit storage		
Available storage	4.2	cum
	4200	L

Checking storms

	duration (min)	Intensity (mm/hr)	Vol in (L)	Vol out (L)	Storage (L)	Hours to empty
5Mins	5	136	1292	106	1186	1
6Mins	6	129.6	1477	128	1350	1
10Mins	10	104	1976	213	1764	2
20Mins	20	72	2736	425	2311	2
30Mins	30	56.4	3215	638	2577	3
1Hr	60	36.7	4184	1275	2909	3
2Hrs	120	24.5	5586	2550	3036	4
3Hrs	180	19.8	6772	3825	2947	5
6Hrs	360	14.2	9713	7650	2063	8
12Hrs	720	10.2	13954	15300	-1346	11
24Hrs	1440	6.96	19043	30600	-11557	15
48Hrs	2880	4.26	23311	61200	-37889	18
72Hrs	4320	3.02	24788	91800	-67012	19

Final Check			
Criteria	Requirement	Design	Check
Detention needed	2,240	3360	OK

IFD Design Rainfall



Location

Label: 56 St Helens Point Rd, St Helens TAS 7216

Latitude: -41.338 [Nearest grid cell: 41.3375 (S)]

Longitude: 148.275 [Nearest grid cell: 148.2875 (E)]



IFD Design Rainfall Intensity (mm/h)

Issued: 08 March 2023

Rainfall intensity for Durations, Exceedance per Year (EY), and Annual Exceedance Probabilities (AEP).
[FAQ for New ARR probability terminology.](#)

Table Chart

Unit: **mm/h**

Duration	Annual Exceedance Probability (AEP)						
	63.2%	50%#	20%*	10%	5%	2%	1%
1 min	97.7	110	153	185	218	266	306
2 min	81.8	91.9	124	147	169	197	219
3 min	73.5	82.7	112	133	155	182	203
4 min	67.1	75.7	104	124	144	172	194
5 min	62.0	70.0	96.4	116	136	163	186
10 min	45.8	51.8	72.3	87.7	104	128	148
15 min	37.2	42.1	58.7	71.3	84.7	104	121
20 min	31.8	36.0	50.1	60.7	72.0	88.6	102
25 min	28.1	31.7	44.0	53.3	63.0	77.2	89.0
30 min	25.3	28.6	39.6	47.8	56.4	68.7	79.0
45 min	20.1	22.7	31.2	37.4	43.8	52.8	60.0
1 hour	17.1	19.3	26.4	31.5	36.7	43.8	49.4
1.5 hour	13.7	15.5	21.1	25.0	28.9	34.0	38.0
2 hour	11.8	13.3	18.1	21.4	24.5	28.7	31.9
3 hour	9.56	10.8	14.7	17.3	19.8	23.1	25.5
4.5 hour	7.77	8.84	12.1	14.2	16.2	18.9	20.9
6 hour	6.70	7.64	10.5	12.4	14.2	16.6	18.3
9 hour	5.38	6.17	8.59	10.2	11.7	13.8	15.4
12 hour	4.57	5.25	7.38	8.82	10.2	12.1	13.6
18 hour	3.55	4.10	5.84	7.05	8.24	9.91	11.2
24 hour	2.91	3.37	4.85	5.90	6.96	8.44	9.63
30 hour	2.47	2.87	4.15	5.07	6.02	7.34	8.43
36 hour	2.15	2.49	3.62	4.45	5.30	6.49	7.47
48 hour	1.70	1.97	2.88	3.55	4.26	5.24	6.04
72 hour	1.20	1.39	2.03	2.51	3.02	3.71	4.28
96 hour	0.930	1.07	1.56	1.93	2.32	2.84	3.26
120 hour	0.767	0.883	1.28	1.57	1.88	2.29	2.62
144 hour	0.660	0.759	1.09	1.34	1.59	1.92	2.18
168 hour	0.586	0.673	0.962	1.17	1.38	1.66	1.88

Note:

The 50% AEP IFD **does not** correspond to the 2 year Average Recurrence Interval (ARI) IFD. Rather it corresponds to the 1.44 ARI.

* The 20% AEP IFD **does not** correspond to the 5 year Average Recurrence Interval (ARI) IFD. Rather it corresponds to the 4.48 ARI.

CERTIFICATE OF THE RESPONSIBLE DESIGNER

Section 94
Section 106
Section 129
Section 155

Form **35**

To: Owner name

 Address
 Suburb/postcode

Designer details:

Name: Category:
 Business name: Phone No:
 Business address:
 Fax No:
 Licence No: Email address:

Details of the proposed work:

Owner/Applicant Designer's project reference No.
Address: Lot No:

Type of work: Building work Plumbing work (X all applicable)

Description of work:
 (new building / alteration / addition / repair / removal / re-erection / water / sewerage / stormwater / on-site wastewater management system / backflow prevention / other)

Description of the Design Work (Scope, limitations or exclusions): (X all applicable certificates)

Certificate Type:	Certificate	Responsible Practitioner
<input type="checkbox"/>	Building design	Architect or Building Designer
<input type="checkbox"/>	Structural design	Engineer or Civil Designer
<input type="checkbox"/>	Fire Safety design	Fire Engineer
<input checked="" type="checkbox"/>	Civil design	Civil Engineer or Civil Designer
	Hydraulic design	Building Services Designer
<input type="checkbox"/>	Fire service design	Building Services Designer
<input type="checkbox"/>	Electrical design	Building Services Designer
<input type="checkbox"/>	Mechanical design	Building Service Designer
<input type="checkbox"/>	Plumbing design	Plumber-Certifier; Architect, Building Designer or Engineer
<input type="checkbox"/>	Other (specify)	

Deemed-to-Satisfy: Performance Solution: (X the appropriate box)

Other details:
Onsite stormwater retention

Design documents provided:

The following documents are provided with this Certificate –

Document description:

Drawing numbers: FS-HOB-23007-22_REV01-C100 FS-HOB-23007-22_REV01-C101	Prepared by: Flussig Engineers	Date: 05.05.23
Schedules:	Prepared by:	Date:
Specifications: Performance Solution Report	Prepared by: Flussig Engineers	Date: 05.05.23
Computations: Performance solution Report	Prepared by: Flussig Engineers	Date:05.05.23
Performance solution proposals: Onsite stormwater retention	Prepared by: Flussig Engineers	Date:05.05.23
Test reports:	Prepared by:	Date:

Standards, codes or guidelines relied on in design process:

AS1547-2012 On-site domestic wastewater management.

AS3500 (Parts 0-5)-2013 Plumbing and drainage set.

Any other relevant documentation:

GES stormwater assessment 'Site assessment - 56 St Helens Point Road, Stieglitz'

Attribution as designer:

I Max W. Moller, am responsible for the design of that part of the work as described in this certificate;

The documentation relating to the design includes sufficient information for the assessment of the work in accordance with the *Building Act 2016* and sufficient detail for the builder or plumber to carry out the work in accordance with the documents and the Act;

This certificate confirms compliance and is evidence of suitability of this design with the requirements of the National Construction Code.

Max W. Moller



05.05.23

Licence No: 650370893

Assessment of Certifiable Works: (TasWater)

Note: single residential dwellings and outbuildings on a lot with an existing sewer connection are not considered to increase demand and are not certifiable.

If you cannot check ALL of these boxes, LEAVE THIS SECTION BLANK.

TasWater must then be contacted to determine if the proposed works are Certifiable Works.

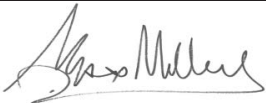
I confirm that the proposed works are not Certifiable Works, in accordance with the Guidelines for TasWater CCW Assessments, by virtue that all of the following are satisfied:

- The works will not increase the demand for water supplied by TasWater
- The works will not increase or decrease the amount of sewage or toxins that is to be removed by, or discharged into, TasWater's sewerage infrastructure
- The works will not require a new connection, or a modification to an existing connection, to be made to TasWater's infrastructure
- The works will not damage or interfere with TasWater's works
- The works will not adversely affect TasWater's operations
- The work are not within 2m of TasWater's infrastructure and are outside any TasWater easement
- I have checked the LISTMap to confirm the location of TasWater infrastructure
- If the property is connected to TasWater's water system, a water meter is in place, or has been applied for to TasWater.

Certification:

I Max W. Moller..... being responsible for the proposed work, am satisfied that the works described above are not Certifiable Works, as defined within the *Water and Sewerage Industry Act 2008*, that I have answered the above questions with all due diligence and have read and understood the Guidelines for TasWater CCW Assessments.

Note: the Guidelines for TasWater Certification of Certifiable Works Assessments are available at: www.taswater.com.au

	<i>Name: (print)</i>	<i>Signed</i>	<i>Date</i>
Designer:	Max W. Moller		05.05.23