Site

134 Fairy Glen Rd, Collinsvale, TAS 7012

Applicable RFI Documents

Heritage Tasmania

1. Notice of Interest WA8859

GCC

1. First Additional Information Required PLN-26-073 329793
2. ECM_3607181_v4_Additional Information Required PLN-26-073 329793

Applicable RFI Response Documents

1. Landowner Consent – 146 Fairy Glen Rd
2. Fairy Glen Rd – Site Plan 1-500 – RevA
3. Large Hut Rev A
4. Small Hut Rev A

Note:

The proposed works in the DA include:

1. Internal fit out of 3x existing heritage structures (denoted by numbers 5, 6 and 7 on the site plan)
2. Construction of 3x external decks to facilitate access to the huts (denoted by the numbers 9, 10 and 12 on the site plan)
3. Installation of a Waste Water Treatment system (denoted by numbers 1 and 3 on the site plan)

The existing infrastructure relevant to this application includes:

4. 30,000L Firefighting tank and outlet (denoted by the number 2 on the site plan)
5. Existing gravel hardstand constructed to facilitate firetruck and guest access to the property (denoted by numbers 4 and 11 on the site plan)

RFI Response

Heritage Tasmania	
RFI	**Applicant Response**
RFI 1 **Site plan** The proposed onsite wastewater treatment system is not included in the site plan. Please amend the scope of works shown on the Site Plan, particularly items identified in the Legend	The onsite wastewater treatment system outlined in the WW – Site Plan – 134 Fairy Glen Rd submitted in the original proposal has now been incorporated into the architectural site plan.
RFI 2 **Small hut** Please clarify and justify the proposed removal of rafters for the skylight. The demolition plan shows one rafter removed whilst the south elevation plan shows all (two) rafters removed. It is recommended that existing rafters be retained, with the skylight installed over them where possible.	The removal of rafters outlined in the demolition plan was a mistake in drafting. No rafters or beams are proposed for removal and the architectural drawings have now been updated to reflect this.
RFI 3 **Double glazing** Please provide details on drawing of how the proposed double-glazed windows (Small hut) and double-glaze skylights (Large Hut, Small hut and Small Hut 2) will be installed to the existing fabric of the huts.	As noted in the drawings provided, the existing galvanised roof will be replaced with new galvanised iron given the age and integrity of the current roof. The double-glazed skylights will be installed around the existing rafters to prevent removal and installed in line with manufacturer's specifications (i.e. Velux). Please refer to Small Hut Rev A for typical details of skylight and window installation Please note that the roofing iron removed from the huts will be reused as much as possible for landscaping or repairing the existing chimney structures where they are compromised from rust.

RFI 4 **Gutter and downpipes** Please clarify if there will be gutters and downpipes; provide location and profile details on drawing if proposed.	To preserve to current look of the huts, as the existing roofline does not contain gutters or downpipes, no gutters or downpipes are proposed.
RFI 5 **Vent location** Please provide updated drawing showing location of vent for Large hut and Small hut as advised in pre-application consultation (preferred on wall).	The elevations for the Small and Large hut have been updated to show that a wall mounted stainless steel vent will be used for the bathroom extraction fans and a downdraft exhaust will be utilised in the kitchen with the exhaust being fitted to go through the floor and out of the subfloor bushfire mesh.
Glenorchy City Council – Document 1	
RFI 1 **General** • Please remove references to 'proposed extension and 'proposed pergola from plans as these have been previously approved. Plans should be clear what is being proposed. • Please confirm the proposed use of the third hut that is not proposed to be used as visitor accommodation (i.e. secondary residence). • Please confirm which huts are proposed for each use.	The Site Plan has been amended to detail all relevant existing and proposed infrastructure. The westernmost Small Hut (Small Hut Rev A) will be used as a 1 bed 1 bath accommodation. The middle Large Hut (Large Hut Rev A) will be used as a 2 bed 1 bath accommodation The easternmost Small Hut will be a multipurpose hut used to tell the Heritage story of the property to guests and other day activities such as reading, working etc. It will not be used to sleep guests overnight.
RFI 2 20.0 - Rural Zone • Please confirm details of the proposed visitor accommodation, including (but not necessarily limited to): o	As previously described the two huts used for visitor accommodation will have a total of 3 beds. 2 in the Large hut and 1 in the Smaller hut. Guests will arrive via the existing access and hardstand area outlined on the updated Site Plan and denoted by the number 4 in the Legend.

How many people are able to stay at each accommodation? o How will guests arrive and where will parking be, etc?		
RFI 3 C2.0 Parking and Sustainable Transport Code • Please confirm the number of parking spaces provided to each visitor accommodation/hut. Please also confirm the location of these spaces relative to each corresponding hut	See below responses to C2.0 Parking and Sustainable Transport Code	
Glenorchy City Council – Document 2		
RFI 1 **General** • Please confirm if the application involves access from the adjoining property. Please note that if it does, this will need to be added to the application	The access across 146 Fairy Glen Rd has been established for quite some time and is not new. Please see attached Landowner consent letter – 146 Fairy Glen Rd for details.	
RFI 2 **Code 2.0 Parking and Sustainable Transport Code** Please note that this application is **not** proposing the construction of any new car park. Rather it utilises existing access and parking hardstand previously constructed (see notes 4 and 11 on the updated Site Plan). The responses below to C2.6 demonstrates compliance on the existing space.		
Acceptable Solutions	**Performance Criteria**	**Applicants Assessment**
C2.5.1 Car Parking Numbers		

A1 The number of on-site car parking spaces must be no less than the number specified in Table C2.1, less the number of car parking spaces that cannot be provided due to the site including container refund scheme space,	Refer to planning scheme	*Response: The site provides 3 car parking spaces which complies with Table C2.1 which requires a minimum of 2. Complies with A1.*
C2.5.2 Bicycle Parking Numbers		
A1 Bicycle parking spaces must: a be provided on the site or within 50m of the site; and b be no less than the number specified in Table C2.1.	Refer to planning scheme	*Response: Not required under Table C2.1. Complies with A1*
C2.5.3 Motorcycle Parking Numbers		
A1 The number of on-site motorcycle parking spaces for all uses must: a be no less than the number specified in Table C2.4; and b if an existing use or development is extended or intensified, the number of on-site motorcycle parking spaces must be based on the proposed extension or intensification, provided the existing number of motorcycle parking spaces is maintained.	Refer to planning scheme	*Response: Not required under Table C2.4.Complies with A1*

C2.5.4 Loading Bays **C2.5.5** Number of car parking spaces within the General Residential Zone and Inner Residential Zone	Not applicable to the proposed use in this zone.	
C2.6 Development Standards for Buildings and Works	Please note that this application is not proposing the construction of any new car park. Rather it utilises existing access and parking hardstand previously constructed. The responses below to C2.6 demonstrates compliance of the existing space.	
Acceptable Solutions	**Performance Criteria**	**Applicants Assessment**
C2.6.1 Construction of Parking Areas		
A1 All parking, access ways, manoeuvring and circulation spaces must: a be constructed with a durable all weather pavement; b be drained to the public stormwater system, or contain stormwater on the site; and c excluding all uses in the Rural Zone, Agriculture Zone, Landscape Conservation Zone, Environmental Management Zone, Recreation Zone and Open Space Zone, be surfaced by a spray seal, asphalt, concrete, pavers or equivalent material to restrict abrasion from traffic and minimise entry of water to the pavement.	**P1** All parking, access ways, manoeuvring and circulation spaces must be readily identifiable and constructed so that they are useable in all weather conditions, having regard to: a the nature of the use; b the topography of the land; c the drainage system available; d the likelihood of transporting sediment or debris from the site onto a road or public place; e the likelihood of generating dust; and f the nature of the proposed surfacing.	*Response:* *a) The parking and access way was constructed by stripping unsuitable subgrade, replaced with geofabric and suitable road base overlaid with 40mm all in gravel.* *b) The access way and parking space was constructed on grade and does not change the natural (on average 4%) grade towards Myrtle Forest Creek.* *c) Rural Zone – spray seal, asphalt, concrete, pavers or equivalent are not required.* *Complies with A1*

C2.6.2 Design and Layout of Carparking areas		
A1.1 Parking, access ways, manoeuvring and circulation spaces must either: a comply with the following: i have a gradient in accordance with *Australian Standard AS 2890 - Parking facilities, Parts 1-6*; ii provide for vehicles to enter and exit the site in a forward direction where providing for more than 4 parking spaces; iii have an access width not less than the requirements in Table C2.2; iv have car parking space dimensions which satisfy the requirements in Table C2.3; v have a combined access and manoeuvring width adjacent to parking spaces not less than the requirements in Table C2.3 where	Refer to Planning Scheme	*Response:* *a)* *i. On grade construction with a maximum 4% fall which is less that the maximum 5% allowed in AS2890.* *ii. Cars have sufficient space to exit the premises in a forward direction even though this is not required based on the 3 parking spaces provided.* *iii. The access width of the existing drive is minimum 4m and therefore complies with Table C2.2.* *iv. The parking on site is 90 degrees. Each car park is approx*

there are 3 or more car parking spaces; vi have a vertical clearance of not less than 2.1m above the parking surface level; and vii excluding a single dwelling, be delineated by line marking or other clear physical means; or b comply with *Australian Standard AS 2890- Parking facilities, Parts 1-6.* **A1.2** Parking spaces provided for use by persons with a disability must satisfy the following: a be located as close as practicable to the main entry point to the building; b be incorporated into the overall car park design; and c be designed and constructed in accordance with *Australian/New Zealand Standard AS/NZS 2890.6:2009 Parking facilities, Off-street parking for people with disabilities.*[35]		*3.4m. Therefore the dimensions are larger than and compliant too Table C2.3.* *v. The car park length is 6m and access / manouvring width is 6m totalling 12m. Therefore the dimensions are larger than and compliant too Table C2.3.* *vi. No restriction on vertical clearance. Complies.* *vii. The parking spaces will be delineated based on the above dimensions and therefore complies* *The existing access and parking complies with A1.1 a)* *A1.2 - not applicable*
C2.6.3 Number of accesses for vehicles		

A1 The number of accesses provided for each frontage must: a be no more than 1; or b no more than the existing number of accesses, whichever is the greater.	Refer to the Planning Scheme	*Response: No new access points are proposed for this development. The application utilises a single existing access which is the only access to this portion of 134 Fairy Glen rd due to Myrtle Forest Creek intersecting the land.*
A2 Within the Central Business Zone or in a pedestrian priority street no new access is provided unless an existing access is removed.	Refer to the Planning Scheme	*Response: Rural Zone so not relevant*
C2.6.4 **C2.6.5** **C2.6.6** **C2.6.7** **C2.6.8**	Refer to the Planning Scheme	*Not applicable*

Table 2: Code 3.0 Road and Railway Assets Code

RFI 3 **C 3.0 Road and Railway Assets Code**		
C 3.5.1 Traffic generation at a vehicle crossing, level crossing or new junction	Please note that this application is not proposing the construction of any new access or car park. Rather it utilises existing access and parking hardstand previously constructed. The responses below to C2.6 demonstrates compliance on the existing space.	
Acceptable Solutions	Performance Criteria	Applicants assessment

A1.1 For a category 1 road or a limited access road, vehicular traffic to and from the site will not require: (a) a new junction; (b) a new vehicle crossing; or (c) a new level crossing. **A1.2** For a road, excluding a category 1 road or a limited access road, written consent for a new junction, vehicle crossing, or level crossing to serve the use and development has been issued by the road authority. **A1.3** For the rail network, written consent for a new private level crossing to serve the use and development has been issued by the rail authority. **A1.4** Vehicular traffic to and from the site, using an existing vehicle crossing or private level crossing, will not increase by more than: a the amounts in Table C3.1; or	Refer to Planning Scheme	*Response: No new vehicle crossing proposed and not a category 1 road. Complies with A1.1 / A1.2 / A1.3.* *A1.4 Vehicle movements using an existing access will be less that 40 per day for vehicles under 5.5m and less than 5 for vehicles greater than 5.5 and therefore complies with Table C3.1* *A1.5 Not a major road but vehicles will be able to enter and exit in a forward direction and therefore complies.*

b allowed by a licence issued under Part IVA of the *Roads and Jetties Act 1935* in respect to a limited access road. **A1.5** Vehicular traffic must be able to enter and leave a major road in a forward direction.		
RFI 4 **C 7.0 Natural Assets code**		
C 7.6.1 Buildings and works within a waterway and coastal protection area	That buildings and works within a waterway and coastal protection area or future coastal refugia area will not have an unnecessary or unacceptable impact on natural assets.	Response: As previously outlined in the original DA Report submitted. The application is not proposing any new gutters, downpipes or stormwater discharge points.

RFI 5 **C13 Bushfire-prone areas**	
C13.2 Application of this code **C13.2.1 This code applies to:**	*Applicant Response: A Bushfire Hazard Management Plan is not required at DA stage. In the original DA Report we have outlined our compliance to Code 13. A Bushfire Hazard Plan and Emergency Management Plan is a National Construction Code issue (as advised by BSTAS our Building Surveyor) and will be provided to Council during the CLC application stage of the process.*
A) subdivision means the act of subdividing or the lot subject to an act of subdividing. of land that is located within, or partially within, a bushfire-prone area; and	*No subdivsion proposed*

B) a use, on land that is located within, or partially within, a bushfire-prone area, that is a vulnerable use or hazardous use.	*The proposed Use is not classed as Vulnerable or Hazardous.*

DOYLE SOIL CONSULTING

134 Fairy Glen Rd, Collinsvale

GLENORCHY CITY COUNCIL
PLANNING SERVICES
APPLICATION No. : PLN-26-073
DATE RECEIVED: 31 March 2026

OWMS: Wisconsin Mound

New 3000 L dual-purpose septic tank with outlet filter, gravity feeding to pump well with min. 800 L capacity. Pump-dose to the Wisconsin mound. Set float switch to pump at **102 L per cycle for 70 L** mound doses.

Deep rip the ground surface below the planned mound. Orientate so the long dimension follows the natural contour. Mound to be constructed parallel to, and approx 4 m offset, the existing up-slope fence line.

Basal dimensions of the mound: 24.8 m long x 5.15 m wide. 400mm high retaining wall required to reduce mound basal area (due to site area constraints - effective DLR at basal area remains < 5mm/day)

Aggregate distribution bed (within mound) total area: 14.0 m^2
- Use dims: 20.0 long x 0.7 m wide x 0.2 m deep (see spec sheet).
- two distribution laterals within aggregate, sequentially dosed via indexing valve
- indexing valve installed INSIDE pumpwell

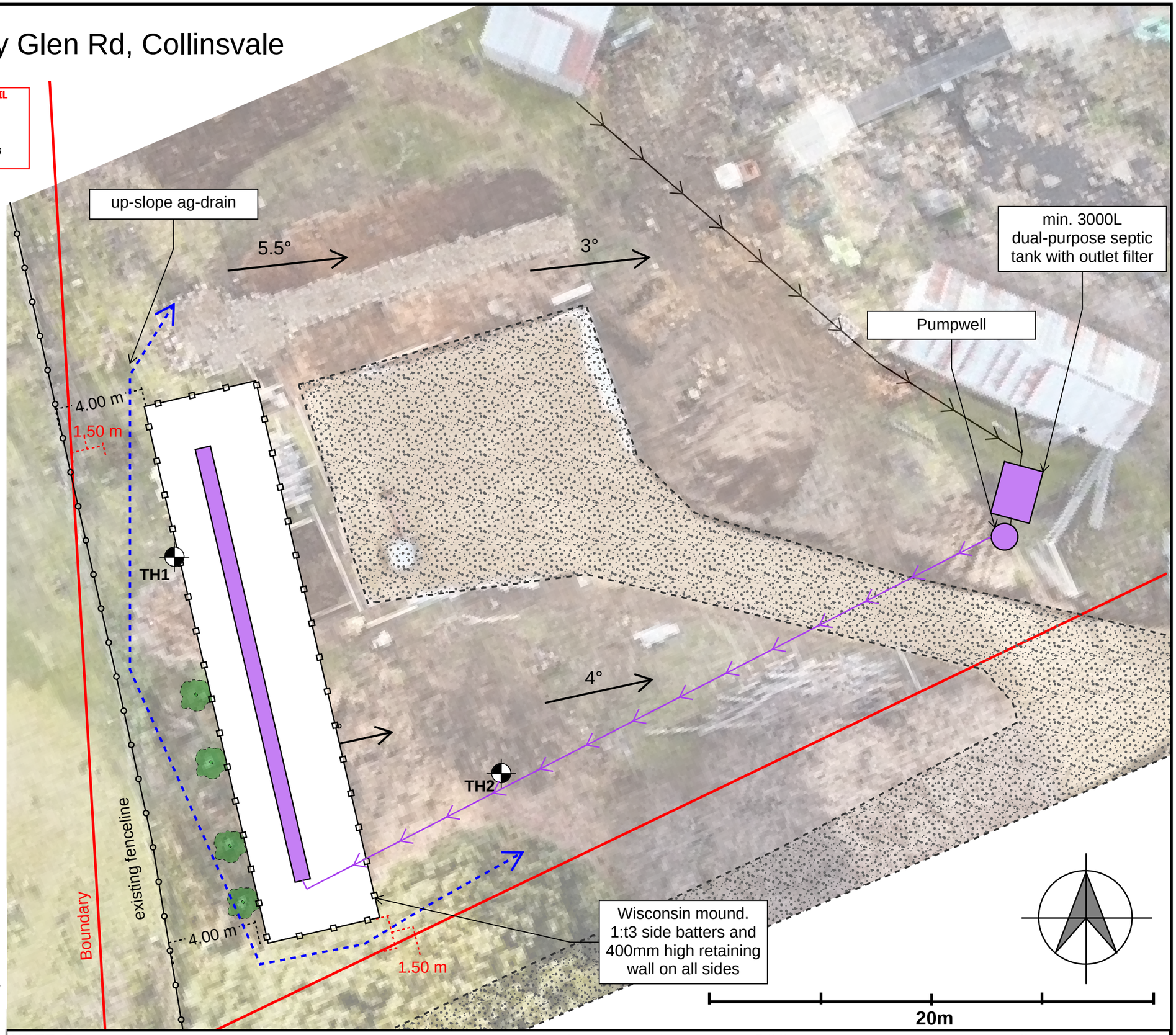
Up-slope cut-off ag-drain required.

LAA min. setback distances:
- foundations: 6 m
- downslope boundary: 5.5 m
- upslope and side boundaries: 1.5 m
- downslope surface water: 23 m

Please refer closely to DSC report and all spec sheets.

Prepared by
Rowan Mason
19/6/25

Robyn Doyle
Building Services Designer
Hydraulic
CC7418
23/6/2025



NOTE: Designs for onsite wastewater management systems are site-specific. Installer to refer closely to DSC report and design spec sheets. Contact the system designer with any questions or proposed changes to the system prior to proceeding with changes. Failure to do so may prevent designer certification/sign-off

DOYLE SOIL CONSULTING

SITE AND SOIL EVALUATION REPORT

ONSITE WASTEWATER ASSESSMENT

134 Fairy Glen Rd

Collinsvale

June 2025

ATTENTION:
Printed Copies of this report must be printed in colour, and in full.
No responsibility is otherwise taken for its contents

Doyle Soil Consulting: 6/76 Auburn Rd Kingston Beach 7050 – 0488 080 455 – robyn@doylesoilconsulting.com.au

SITE INFORMATION

Client: James McAlpine

Address: 134 Fairy Glen Rd, Collinsvale, 7012 (CT 219456/1)

Site Area: 9150 m^2

Date of inspection: 21/05/2025

Building type: New visitor accommodation/huts

Services: Tank water supply and onsite wastewater management

Relevant Planning Overlays: Landslip hazard band (low)

Mapped Geology - Mineral Resources Tasmania 1:25 000 Collinsvale sheet:
Jd = dolerite

Soil Depth: 0.6 – 0.9 m

Subsoil Drainage: poorly drained

Drainage lines/water courses in zone of influence: Myrtle Forest creek running through property

Vegetation: bush

Rainfall in previous 7 days: approximately 4 mm

Slope: approximately 5° to the northeast

SITE ASSESSMENT AND SAMPLE TESTING

Site and soil assessment in accordance with AS1547-2012 *Onsite domestic wastewater assessment and design*.

Emerson Dispersion test on subsoils.

Test holes were dug using a Christie Post Driver Soil Sampling Kit, comprising CHPD78 Christie Post Driver with Soil Sampling Tube (50 mm OD x 1600/2100 mm).

SITE AND SOIL COMMENTS

The site is in the transition zone where distal colluvial slope deposits meet the modern-day floodplain. The natural soil profiles are formed from clayey colluvium/alluvium derived from Jurassic dolerite. Coarse alluvial dolerite gravels and boulders are present at approximately 0.6 – 0.8 m depth. A water table is also present at 0.6 – 0.8 m depth. For land application purposes, the soil materials are limited by Category 5 soils (light clay) and the water table at 0.6 – 0.8 m

Site constraints (to be addressed by suitably designed OWMS):

- Light Clay subsoils (Category 5 material)
- Shallow soil profiles (0.6 – 0.8 m)
- Shallow water table
- Limited area available
- Estimated maximum linear loading rate (LLR) of approx. 27 L/m/day (per Table 2.2 of *Designing and Installing, Sydney Catchment Authority Current Recommended Practice*)

Site strengths: (to be exploited by suitably designed OWMS):

- Gentle slope angles approx. 4° at proposed LAA

The shallow soil profiles are not suitable for in-ground absorption (e.g. trenches or beds). Land application of primary treated effluent via a Wisconsin Mound (for additional secondary treatment) is suitable. Mounds are pump-dosed, provide a high level of additional treatment and spread the effluent over a large area at the mound-soil interface.

Mounds are best suited to slopes ≤ 10% / 6°. The proposed mound location has approximately a 4° slope angle. The completed mound must be protected from run-on water with a subsurface cut-off drain (ag-drain)

It is recommended that the plumber be highly experienced in OWMS installation.

SOIL PROFILES – Test Hole 1

Depth (m)	Horizon	Description and field texture grade	Soil Cat.
0 – 0.3	A1	Brown (7.5YR 4/2), **Silty Clay Loam,** strong fine to medium angular blocky structure, slightly moist firm friable consistency, stone line at 0.3m	**4**
0.3 – 0.9	B2	Dark yellowish brown (10YR 4/6), **Sandy Light Clay,** moderate medium blocky structure, moist soft consistency **Refusal on dolerite boulder**	**5**

SOIL PROFILES – Test Hole 2

Depth (m)	Horizon	Description and field texture grade	Soil Cat.
0 – 0.5	A1	Dark grey (7.5YR 4/31) **Sandy Clay Loam**, strong fine to medium angular blocky structure, moist soft consistency, abundant roots.	**4**
0.5 – 0.6	C	Alluvial channel gravels and boulders: Saturated sand, gravel and cobble-sized river stones with minor clay fines. Water table at 0.5 m **Refusal dolerite boulder**	**?**

Soil PROFILES – Test Hole 3

Depth (m)	Horizon	Description and field texture grade	Soil Cat.
0 – 0.15	A1	Dark grey (7.5YR 4/31) **Sandy Clay Loam**, strong fine to medium angular blocky structure, moist soft consistency, abundant roots.	**4**
0.15 – 0.3	$B2_1$	Grey (7.5YR 5/1), with common strong brown (7.5YR 5/6), **Mottles Sandy Clay Loam,** strong fine platy structure, slightly firm friable	**4**
0.35 – 0.6	$B2_2$	Mottled Grey (7.5YR 5/1), and brownish yellow (10 YR 6/6), **Sandy Light Clay,** strong moderate angular blocky structure, slightly moist stiff consistency **Refusal on dolerite boulder**	**5**

EMERSON AGGREGATE DISPERSION TEST

Soils with an excess of exchangeable sodium ions on the cation exchange complex (clays), can cause clay dispersion. Under some circumstances the presence of dispersive soils can also lead to significant erosion, and in particular tunnels leading to eventual gully erosion. Dispersive clay subsoil materials can also cause sealing of the soil surface – if left out in wet weather, they then dry and set very hard in dry weather. Based upon field survey of the property and the surrounding area, no erosion was identified at the site.

The subsoil was tested for dispersion using the Emerson Aggregate Test (EAT). Photos of test results are available on request. Testing resulted in Emerson class 2(1), indicating clays with mild dispersion characteristics. Exposure to rainfall/low-electrolyte water may therefore, lead to spontaneous clay dispersion.

To minimise the likelihood of this, we recommend treating the base of the land application area with gypsum at 0.5 Kg/m^2. During and after construction, cover any exposed subsoil with topsoil and grass seed (or regular treatment gypsum at 0.5 Kg/m^2). Minimise subsoil disturbance where possible.

TH #	Depth (m)	Visual sign	Class
1	0.4 - 0.6	Some dispersion (Slight milkiness immediately adjacent to aggregate)	2(1)
4	0.5 - 0.6	Some dispersion (Slight milkiness immediately adjacent to aggregate)	2(1)
4	0.1 - 0.5	Some dispersion (Slight milkiness immediately adjacent to aggregate)	2(1)

WASTEWATER LAND APPLICATION AREA SETBACKS

Required setback from foundations: 6 m

Required setback from downslope surface water: 23 m

Required setback from downslope boundary: 12 m

Required setback from upslope and side boundaries: 5.5 m

Required vertical setback to bedrock: 0.5 m below the LAA (Table R1 of AS1547-2012)

Required vertical setback to groundwater: 0.6 m below the LAA (Table R1 of AS1547-2012)

WASTEWATER CLASSIFICATION AND DESIGN

In accordance with AS1547-2012, the soil is **Category 5** material (Light Clay).

Primary treatment, pumped to Wisconsin Mound for final polishing and land application is recommended.

Design hydraulic load (DHL): 6 persons @ 90 L/day = 540 L/day (tank water supply, no laundry)

Max. Design Loading Rates (DLR):

- For specified sand fill within mound: 40 mm/day.
- For mound basal area (Cat. 5 soil): 5 mm/day.

Minimum Land Application Areas (LAA) required:

- 14.0 m^2 mound distribution cell (aggregate layer)
- 108 m^2 mound basal area (128m^2 adopted)

Estimated **linear loading rate** (LLR) of underlying soil materials (light clay, 4° slope, 600 mm thick): 27 L/m/day

Distribution cell (aggregate bed) dims: 20.0 x 0.7 m

- length = DHL ÷ LLR = 540 L/day ÷ 27 L/m/day = 20 m
- ∴ width = 41.0 m^2 ÷ 20 m = 0.7 m

Adopted mound basal area dims: 24.8 x 5.15 m

- Resulting from 1:3 side batter angles with all sides boxed in with 400 mm high retaining wall.
- ∴ actual DLR mound basal area = 4.2 mm/day

The (proposed) 1-bedroom and 2-bedroom visitor accommodation (huts) have an estimated combined design hydraulic load of 540 L/day (up to 6 persons @ 90 L/person/day). The proposal is to install a dual-purpose septic tank (min 3000 L with outlet filter) which feeds into a pump-well (min 800 L). The pump well will dose a Wisconsin mound for additional (2°) treatment and land application. A wired-in highwater alarm is required on the pumpwell.

Secondary treatment via the mound is best achieved using small, frequent, doses. Pump float switches should be set up to deliver approx. 102 L doses (see Appendix 1 for mound dosing calcs). At the design hydraulic load (540L/day), this will result in about eight 70 L, doses per day. The supply main to the mound shall drain back to the pumpwell between cycles.

The minimum pump capacity for the proposed design is 101 L/min @ 16.3 m head. A **Zenox ZHS-075** is suitable unit for pump dosing the system. See Appendix 1 for hydraulic design calculations and minimum pump capacity requirements.

The two distribution laterals within the treatment mound are to be sequentially dosed via an indexing valve. This shall be installed inside the pumpwell to allow the system to drain between pumping cycles. A four port Fimco/Netafim indexing valve (with two port cam) is recommended due its relatively low minimum operation pressure (7 m head / 0.4 bar / 5.7 psi).

The area required for the aggregate distribution cell is calculated using a DLR of **40 L/m^2/day for the filter-grade sand** (see specs below). At 540 L/day, 14.0 m^2 of distribution area is required.

The estimated maximum linear loading rate for the underlying light clay is 27/L/m/day (Table 2.2 of *Designing and Installing, Sydney Catchment Authority Current Recommended Practice*). The distribution bed should therefore be a minimum of 20.0 m long. **Distribution bed dimensions to be 20.0 m long x 0.70 m wide x 0.2 m deep** – see Spec Sheet.

The *minimum* basal area of the mound is calculated using the daily loading of 540 L/day and a DLR of 5 mm/day. Therefore, the *minimum required* basal area is 108 m^2. Standard side batter angles for Wisconsin mounds are 1:3, which leads to very large basal areas when designed on clay soils. Due to site area constraints the proposal is to box in all sides of the mound with a 400 mm high retaining wall. The resulting **dimensions: 24.8 m long x 5.15 m wide for the mound basal area** – see Spec Sheet and Site Plan. The effective basal area DLR is therefore 4.2 mm/day.

Prior to mound construction, the ground surface should be pegged out to the specified dimensions of the basal area. The mound shall be constructed in-line with the contour – care must be taken to establish the line of the contour so that the linear loading is consistent.

Vegetation, including pasture, within the mound area is to be removed by scarification and the exposed soil is to be ploughed/deep ripped to approx. 200 mm depth. Ploughing/ripping not to be completed when soil conditions are wet, as smearing will compromise the structure and permeability of the soil. Deep rip 1 m beyond up- and cross-slope sides of the mound and 2 m beyond the downslope side.

Once prepared, a transition layer shall be created by mixing some filter sand with the worked-up soil (approx. 1:1 ratio) – this will aid infiltration of effluent from the mount into the natural soil.

Form the mound using layers of medium sand (0.25 - 1.0 mm grain size, uniformity coefficient less than 4, less than 3% fines passing a 200 sieve (< 0.074 mm), free of clay, limestone and organic material - per AS1547-2012). Crushed glass-type media (sourced from Hazle Brothers, Southern TAS) is a viable alternative.

All side batter angles to be approx. 1:3 - see Spec Sheet.

The aggregate distribution bed is to be constructed within the formed mound so that a min. 600mm of filter sand/media is in place below the upslope edge of the distribution bed. Distribution manifold to be constructed level, at approx. 100 mm depth within the 200 mm deep aggregate bed. Top the finished bed with geotextile.

Inspection openings to be placed at approximately 1/4 and 3/4 along the length of the distribution bed.

Form a soil "cap" (with the local sandy clay loam soil) over the finished distribution bed. Taper thickness of the cap toward the edges - see spec sheet). This is to direct rainwater away from the area of effluent application.

A minimum of 150 mm of sandy loam topsoil is to cover the entire finished mound, and turf established – Instant, rollout, turf is ideal. It shall be adequately protected from animals and vehicular traffic with fencing. The area should be mowed to encourage grass growth, evapotranspiration and nutrient removal - clippings removed. Irrigate during grass establishment if required.

Please note: On sloping sites, Wisconsin mounds can be susceptible to downslope toe leakage. If this occurs, additional (approx. 100mm sandy loam topsoil should be laid down in the adjoining area downslope of the mound and sown with grass seed or other deep-rooted vegetation to aid evapotranspiration and absorption.

Compliance with *Directors Guidelines 2016* is shown in the attached table for acceptable criteria. It is recommended that during construction Doyle Soil Consulting be notified of any major variation to the soil conditions or loading rate as predicted in this report.

Robyn Doyle
B.Agr.Sc.
Soil Scientist and
Wastewater Designer
Licence no. CC7149

Rowan Mason
B.Agr.Sc.(hons)
Soil Scientist

APPENDIX 1 – Design Hydraulics, System Componentry, Pump Capacity and float Switch Setup

System sizing and componentry for pump-dosed Wisconsin mound - 134 Fairy Glen Rd, Collinsvale			
Design hydraulic load (L/day)	Design Loading Rate (mm/day)	Application area (m^2)	System flow rate (L/min)
540	38.5	14.0	101
dosed laterals within mound	Sequencing valve required?	Make & model	
2	Yes	1.25 inch Fimco hydro-indexing valve	
Supply line material	Supply main ID (mm)	Supply line length (m)	
LILAC LDPE PRESSURE PIPE (32/3)	31.7	40	
Distribution lateral length (m)	Number of distribution laterals	Distribution lateral material	Distribution lateral ID (mm)
19.4	2	PVCU - DN25 - (PN12)	29.8
Perforation Spacing (mm)	Number of perforations (total)	Perforation diameter (mm)	Estimated perforation flow rate @ 1.5 m head (L/min)
700	56	5	3.62

Dynamic Head Calculation	
Component	Approx. Head loss (m)
Supply line (friction @ flow rate)	5.9
Sequencing valve (friction @ flow rate)	2.8
Other Fittings (friction)	2.2
Approx. Elevation differential (bottom of pumpwell to distribution manifold)	4.0
Required head @ distribution manifold	1.5
Total Dynamic Head (TDH)	**16.3**

Pump Requirements	
Min. pump capacity	Max. pumping time @ 540 L/day
101.36 L/min @ 16.3 m Head	5 mins/day
Suitable pump	**Xenox ZHS-075**

Dose Volume and Pump Float-switch Setup			
Supply main void volume (L)	Distribution manifild void volume (L)	Set float-switches to pump (L)	Dose volume delivered (L)
32	14	102	70

Dosing rates in accordance with: *Converse, 2000. Pressure Distribution Network Design* - i.e., individual dose volume to:

(a) be minimum 5 times the distribution manifold total void volume; and ✓

(b) not exceed 20% the daily hydraulic load volume ✓

Acceptable Solutions	**Performance Criteria**	**Compliance**
A1 Horizontal separation distance from a building to a land application area must comply with one of the following: a) be no less than 6m; or b) be no less than: i) 3m from an upslope building or level building; ii) If primary treated effluent to be no less than 4m plus 1m for every degree of average gradient from a downslope building; iii) If secondary treated effluent and subsurface application, no less than 2m plus 0.25m for every degree of average gradient from a downslope building	P1 The land application area is located so that a) the risk of wastewater reducing the bearing capacity of a building's foundations is acceptably low.; and b) is setback a sufficient distance from a downslope excavation around or under a building to prevent inadequately treated wastewater seeping out of that excavation	Complies with A1 (a) Land application area will be located with minimum separation distance to proposed building of 6m.
A2 Horizontal separation distance from downslope surface water to a land application area must comply with (a) or (b) a) be no less than 100m; or b) be no less than the following: i) if primary treated effluent 15m plus 7m for every degree of average gradient to downslope surface water; or ii) if secondary treated effluent and subsurface application, 15m plus 2m for every degree of average gradient to down slope surface water.	P2 Horizontal separation distance from downslope surface water to a land application area must comply with all of the following: a) Setback must be consistent with AS/NZS 1547 Appendix R; b) A risk assessment in accordance with Appendix A of AS/NZS 1547 has been completed that demonstrates that the risk is acceptable.	Complies with A2 (b) (ii) Land application area will be located with a minimum separation distance of 35 m of downslope surface water (23 m required)

A3 Horizontal separation distance from a property boundary to a land application area must comply with either of the following: a) be no less than 40m from a property boundary; or b) be no less than: i) 1.5m from an upslope or level property boundary; and ii) If primary treated effluent 2m for every degree of average gradient from a downslope property boundary; or iii) If secondary treated effluent and subsurface application, 1.5m plus 1m for every degree of average gradient from a downslope property boundary.	P3 Horizontal separation distance from a property boundary to a land application area must comply with all of the following: a) Setback must be consistent with AS/NZS 1547 Appendix R; and b) A risk assessment in accordance with Appendix A of AS/NZS 1547 has been completed that demonstrates that the risk is acceptable.	Complies with A3 (b) (i) Land application area will be located with a minimum separation distance of 1.5m from an upslope or level property boundary Complies with A3 (b) (iii) Land application area will be located with a minimum separation distance of 5.5m of downslope property boundary (5.5m required)
A4 Horizontal separation distance from a downslope bore, well or similar water supply to a land application area must be no less than 50m and not be within the zone of influence of the bore whether up or down gradient.	P4 Horizontal separation distance from a downslope bore, well or similar water supply to a land application area must comply with all of the following: a) Setback must be consistent with AS/NZS 1547 Appendix R; and b) A risk assessment completed in accordance with Appendix A of AS/NZS 1547 demonstrates that the risk is acceptable	Complies with A4

A5 Vertical separation distance between groundwater and a land application area must be no less than: a) 1.5m if primary treated effluent; or b) 0.6m if secondary treated effluent	P5 Vertical separation distance between groundwater and a land application area must comply with the following: a) Setback must be consistent with AS/NZS 1547 Appendix R; and b) A risk assessment completed in accordance with appendix A of AS/NZS 1547 that demonstrates that the risk is acceptable	Complies with A5 (b)
A6 Vertical separation distance between a limiting layer and a land application area must be no less than: a) 1.5m if primary treated effluent; or b) 0.5m if secondary treated effluent	P6 Vertical setback must be consistent with AS/NZS1547 Appendix R.	Complies with A6 (b)
A7 nil	P7 A wastewater treatment unit must be located a sufficient distance from buildings or neighbouring properties so that emissions (odour, noise or aerosols) from the unit do not create an environmental nuisance to the residents of those properties	Complies

Performance Criteria	
P1.1 Buildings and works within a waterway and coastal protection area must avoid or minimise adverse impacts on natural assets, having regard to:	
(a) impacts caused by erosion, siltation, sedimentation and runoff;	Complies – retained sand mound specified
(b) impacts on riparian or littoral vegetation;	Complies – site void of riparian vegetation
(c) maintaining natural streambank and streambed condition, where it exists;	Complies – no works specified near or within stream bank or stream bed
(d) impacts on in-stream natural habitat, such as fallen logs, bank overhangs, rocks and trailing vegetation;	Complies – no works specified near or within stream bank or stream bed
(e) the need to avoid significantly impeding natural flow and drainage;	Complies – no works specified near or within stream bank or stream bed
(f) the need to maintain fish passage, where known to exist;	Complies – no works specified near or within stream bank or stream bed
(g) the need to avoid land filling of wetlands;	Complies – retained sand mound specified to reduce total footprint
(h) the need to group new facilities with existing facilities, where reasonably practical;	Complies – no existing facilities of this nature
(i) minimising cut and fill;	Complies – retained sand mound specified to reduce total footprint. No cutting required
(j) building design that responds to the particular size, shape, contours or slope of the land;	Complies – retained sand mound to be constructed along the natural contour as required in AS1547:2012

(k) minimising impacts on coastal processes, including sand movement and wave action;	Complies – not a coastal environment
(l) minimising the need for future works for the protection of natural assets, infrastructure and property;	Complies – retained sand mound specified to gain suitable setback to groundwater and provide secondary treatment
(m) the environmental best practice guidelines in the *Wetlands and Waterways Works Manual*; and	Complies – developer/installer to familiar themselves with the relevant practices set out in *Wetlands and Waterways Works Manual*
(n) the guidelines in the *Tasmanian Coastal Works Manual*.	Complies – not a coastal environment

CERTIFICATE OF THE RESPONSIBLE DESIGNER

Section 94
Section 106
Section 129
Section 155

Form **35**

To: James MacAlpine *Owner name*
134 Fairy Glen Rd *Address*
Collinsvale TAS 7012 *Suburb/postcode*

Designer details:

Name: Robyn Doyle
Category: Bldg srvcs dsgnr-hydraulic domestic
Business name: Doyle Soil Consulting
Phone No: 0488080455
Business address: 6/76 Auburn Rd
Kingston Beach 7050
Fax No:
Licence No: CC7418
Email address: robyn@doylesoilconsulting.com.au

Details of the proposed work:

Owner/Applicant James MacAlpine
Designer's project reference No. 2025-6
Address: 134 Fairy Glen Rd
Lot No: 1
Collinsvale TAS 7012

Type of work: Building work ☐ Plumbing work ☒ *(X all applicable)*

Description of work:
On-site wastewater Design

(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
	☐ Building design	Architect or Building Services Designer
	☐ Structural design	Structural Engineer
	☐ Fire Safety design	Fire Engineer
	☐ Civil design	Civil Engineer
	☒ Hydraulic design	Building Services Designer
	☐ Fire service design	Building Services Designer
	☐ Electrical design	Building Services Designer
	☐ Mechanical design	Building Service Designer
	☐ Plumbing design	Plumber
	☐ Other (specify)	

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

Other details:

Design documents provided:

The following documents are provided with this Certificate –

Document description:

Drawing numbers:	Prepared by: Doyle Soil Consulting	Date: June 2025
Schedules:	Prepared by:	Date:
Specifications:	Prepared by: Doyle Soil Consulting	Date: June 2025
Computations:	Prepared by:	Date: June 2025
Performance solution proposals:	Prepared by:	Date:
Test reports:	Prepared by: Doyle Soil Consulting	Date: June 2025

Standards, codes or guidelines relied on in design process:

AS1547-2012 On site domestic wastewater management.

National Construction Code 2022 Vol 3

Directors Guidelines for On-site Wastewater Management Systems, Director of Building Control (Tasmania) 2017

Any other relevant documentation:

Site and soil evaluation and design report -Proposed onsite wastewater management system by Robyn Doyle

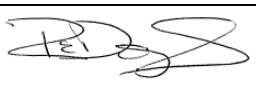
Cromer, W. C. (2021). *Site and Soil Evaluation Report, and System Design for Upgraded On- site Wastewater Management, 91 Spitfarm Ro9ad, Opossum Bay.* Unpublished report for J. Mackerprang by William C. Cromer Pty. Ltd., 29 November 2021

Attribution as designer:

I, Robyn Doyle, 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.

	Name: (print)	*Signed*	*Date*
Designer:	R Doyle		05/05/2025
Licence No:	CC7418		

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.

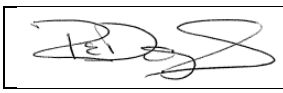
I confirm that the proposed works are not Certifiable Works, in accordance with the Guidelines for TasWater CCW Assessments, by virtue that all of the following are satisfied:

- [X] The works will not increase the demand for water supplied by TasWater
- [X] 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
- [X] The works will not require a new connection, or a modification to an existing connection, to be made to TasWater's infrastructure
- [X] The works will not damage or interfere with TasWater's works
- [X] The works will not adversely affect TasWater's operations
- [X] The work are not within 2m of TasWater's infrastructure and are outside any TasWater easement
- [X] I have checked the LISTMap to confirm the location of TasWater infrastructure
- [X] 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, ……Robyn Doyle……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

	Name: (print)	*Signed*	*Date*
Designer:	Robyn Doyle		05/06/2025

CERTIFICATE OF QUALIFIED PERSON – ASSESSABLE ITEM

Section 321

Form **55**

To: James MacAlpine *Owner name*

134 Fairy Glen Rd *Address*

Collinsvale TAS 7012 *Suburb/postcode*

Qualified person details:

Qualified person: Robyn Doyle

Address: 6/76 Auburn Rd

Kingston Beach 7050

Phone No: 0488 080 455

Fax No:

Licence No: N/A

Email address: robyn@doylesoilconsulting.com.au

Qualifications and Insurance details: Certified Professional Soil Scientist (CPSS)
Professional Indemnity cover –

About Underwriting -Lloyd's of London
ENG 21 000305

(description from Column 3 of the Director's Determination - Certificates by Qualified Persons for Assessable Items

Speciality area of expertise: Site and Soil evaluation and land application system design

(description from Column 4 of the Director's Determination - Certificates by Qualified Persons for Assessable Items)

Details of work:

Address: 134 Fairy Glen Rd

Collinsvale TAS 7012

Lot No: 1

Certificate of title No: 219456/1

The assessable item related to this certificate: Onsite wastewater management -Site evaluation and soil classification for onsite wastewater management capability

Including
Characterisation of wastewater and predicted hydraulic loadings
Selection of land application area
Determination of design loading rate

(description of the assessable item being certified)
Assessable item includes –
- *a material;*
- *a design*
- *a form of construction*
- *a document*
- *testing of a component, building system or plumbing system*
- *an inspection, or assessment, performed*

Certificate details:

Certificate type: On-site wastewater management - Site and soil evaluation

(description from Column 1 of Schedule 1 of the Director's Determination - Certificates by Qualified Persons for Assessable Items n)

This certificate is in relation to the above assessable item, at any stage, as part of - *(tick one)*

building work, plumbing work or plumbing installation or demolition work: X

or

a building, temporary structure or plumbing installation:

In issuing this certificate the following matters are relevant –

Documents:	AS/NZS 1547-2012 On-Site Domestic Wastewater Management
Relevant calculations:	
References:	AS1547-2012 On-Site Domestic Wastewater Management Directors Guidelines for On-Site wastewater Management Systems - CBOS -2017

Substance of Certificate: *(what it is that is being certified)*

Site and soil evaluation

Scope and/or Limitations

The classification applies to the site as inspected and does not account for future alteration to foundation conditions as a result of earthworks, drainage condition changes or variations in site maintenance.

I certify the matters described in this certificate.

	Signed:	*Certificate No:*	*Date:*
Qualified person:		1745	5/06/2025

DOYLE SOIL CONSULTING

AS1547:2012 – Loading Certificate – Wisconsin Mound

This loading certificate is provided in accordance with Clause 7.4.2(d) of AS/NZS 1547:2012 and sets out the design criteria and the limitations associated with use of the system.

Site Address: 134 Fairy Glen Rd, Collinsvale

System Capacity: 540 L/day (6 persons @ 90 L/person/day)

Summary of Design Criteria:

DLR of basal area 4.2 mm/day **Basal area:** 128 m^2

Reserve area location /use: Not assigned – more than 100% available

Water saving features fitted: Standard fixtures

Allowable variation from design flows: 1 event @ 200% daily loading per quarter

Typical loading change consequences: Expected to be minimal due to demand dosing with very small 7 L doses to mound.

Overloading consequences: Continued overloading (i.e. > 540 L/day) may cause hydraulic failure of the mound. If this occurs, additional (approx. 100mm sandy loam topsoil should be laid down in the adjoining area downslope of the mound and sown with grass seed or other deep-rooted vegetation to aid evapotranspiration and absorption.

Underloading consequences: Lower than expected flows will have minimal consequences on system operation unless the house has long periods of non-occupation. Under such circumstances additional maintenance of the system may be required. Long term under loading of the system may also result in vegetation die off on the mound – in this case additional watering may be required.

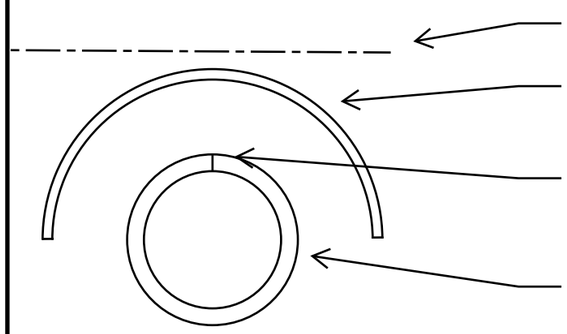
Lack of maintenance / monitoring consequences: Issues of underloading/overloading and condition of the absorption area require monitoring and maintenance by the property owner, if not completed system failure may result in unacceptable health and environmental risks. Monitoring and regulation by the permit authority required to ensure compliance.

Regular Maintenance Requirements (owner): depending on occupation rate, the septic tank should be pumped every 3-5 years to maintain adequate 'primary treatment'. Failure to do so may result in carryover of solids to the treatment mound, clogging the sand media and mound failure as a result. Manually flush the distribution manifold (min) every 12 months. Owners/occupiers must be made aware of the operational requirements and limitations of the system by the installer/estate agent. A copy of the entire design report shall be provided at change of ownership.

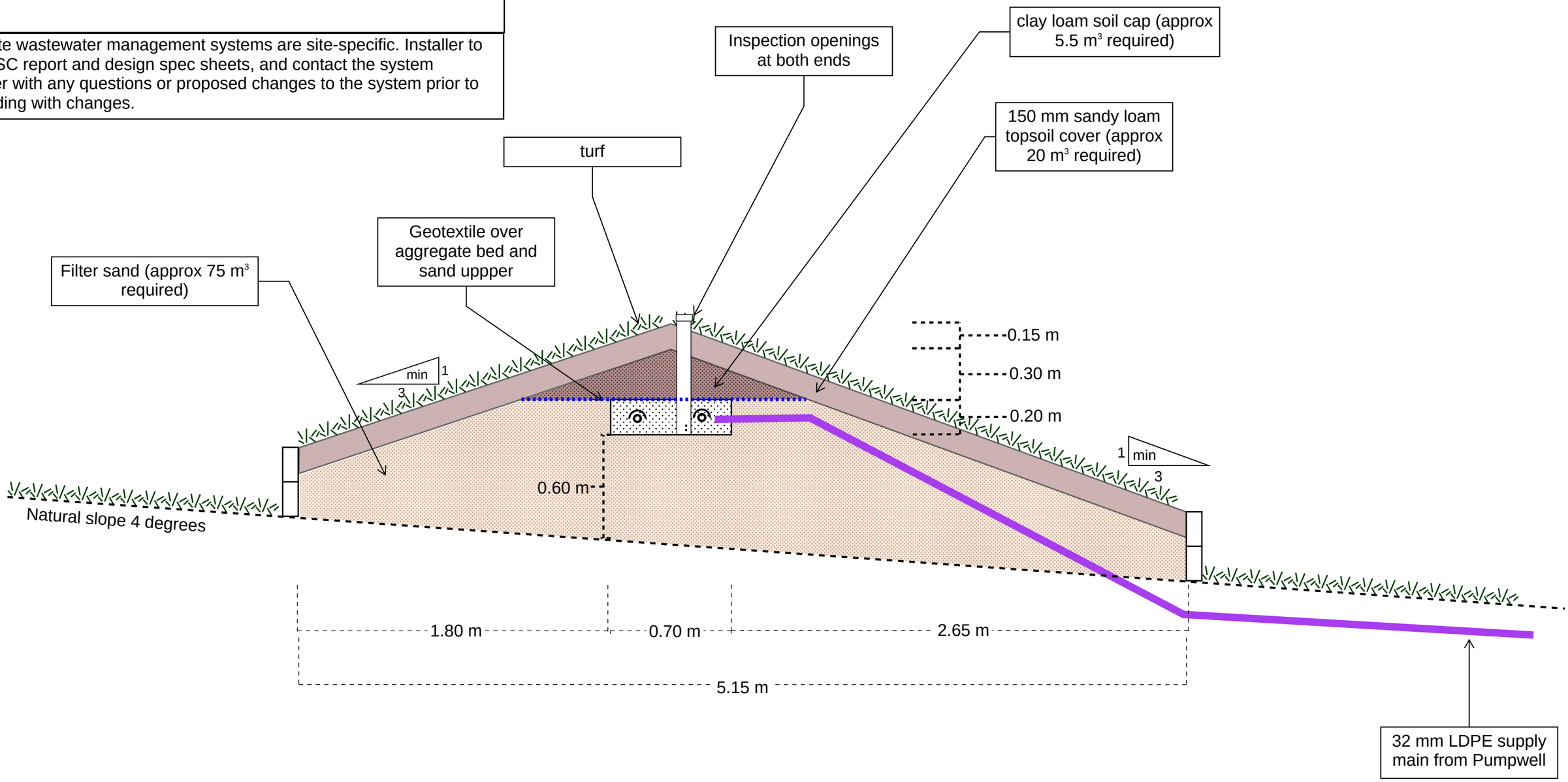
Wisconsin Mound
134 Fairy Glen Rd, Collinsvale

DOYLE SOIL CONSULTING

Distribution pipe detail



All onsite wastewater management systems are site-specific. Installer to refer DSC report and design spec sheets, and contact the system designer with any questions or proposed changes to the system prior to proceeding with changes.



Design notes:

1. Mound **basal area dims:** 24,800 mm long x 5,150 mm wide - constructed inline with the natural contour at the proposed LAA

2. Aggregate **distribution bed dims**: 20,000 mm long by 700 mm wide - constructed within the formed mound of filter sand. Ensure that a min. 600mm of filter sand is in place below the upslope edge of the distribution bed.

3. All sides of mound with a 1:3 batter angle. 400 mm high retaining wall to box-in the mound on all sides and reduce required mound footprint.

4. Sand fill media specifications: medium (0.25 - 1.0 mm grain) sand, with uniformity coefficient less than 4, less than 3% fines passing a 200 sieve (< 0.074 mm), free of clay, limestone and organic material (as set out in AS1547-2012).

5. Install the distribution manifolds at 100mm depth within the aggregate.

6. The distribution manifold must be level to allow even distribution of effluent around the absorption area, before backfilling and commissioning the mound.

7. Distribution manifold: 25 mm (PVCU - DN25 - PN12) distribution pipes drilled with 5 mm holes in the top of the pipe at 700 mm centres. Half circle 100 mm PVC pipe (non-perforated), laid over each perforated lateral.

8. Allow supply main and distribution manifold to drain back to pump well between cycles

9. Inspection openings to be place at approximately 1/4 and 3/4 along the length of the aggregate layer.

10. Geotextile to top the finished aggregate distribution bed and sand upper

11. Form the soil "cap" with fine textured soil (loam / clay loam)

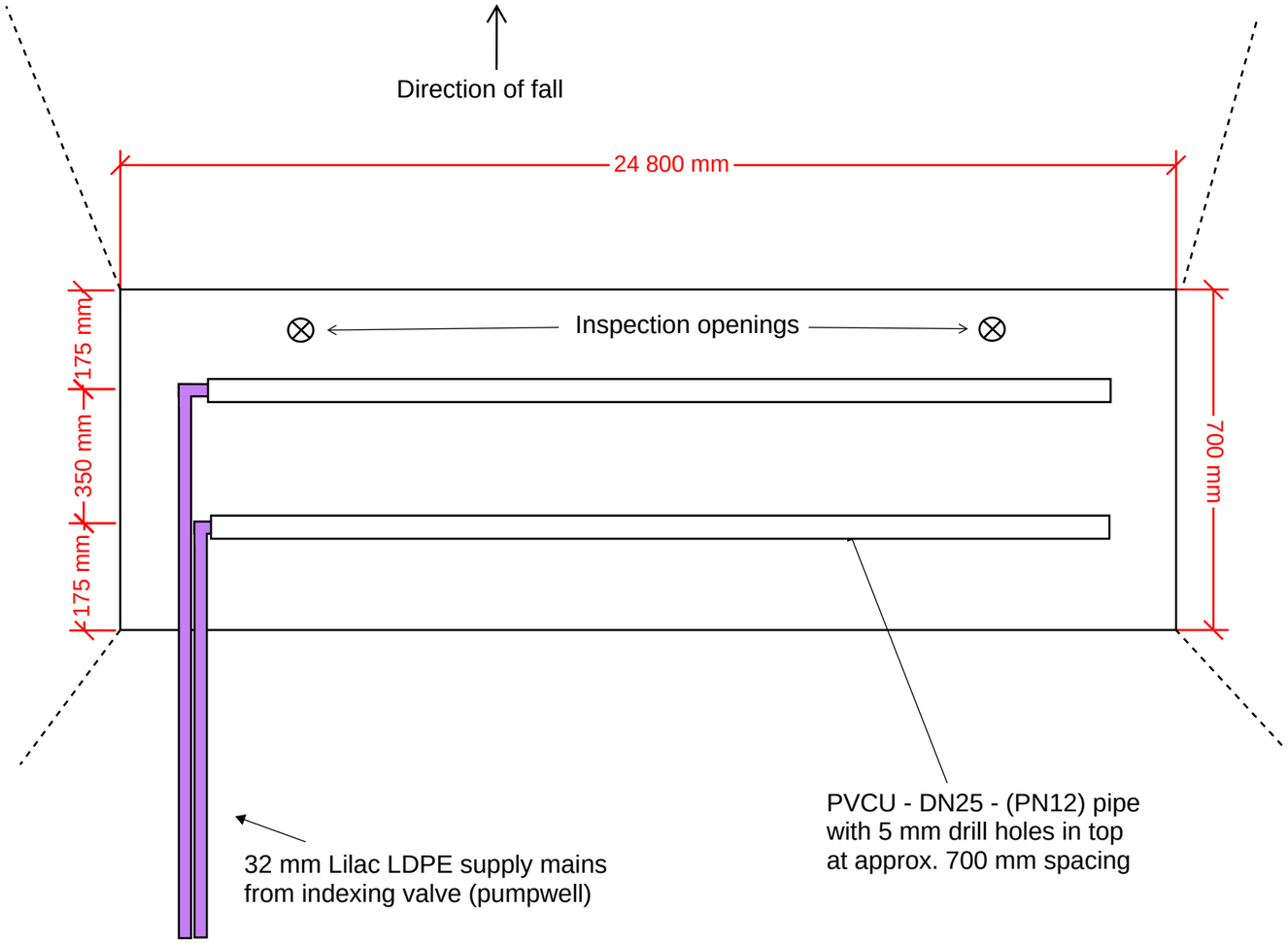
12. Cover entire mound with instant turf or seed with grass and aid establishment. The turf is an essential component of the system and must be protected from rabbits, etc. Irrigate to aid establishment if necessary. Maintained by mowing as appropriate.

13. All works on site to comply with AS3500 and Australian Plumbing Code.

14. Minimum pump capacity for the proposed design is 101 L/min @ 16.3 m head. A Zenox ZHS-075 is suitable unit for pump dosing the system. See Appendix 2 for hydraulic design calculations and minimum pump capacity requirements. Wired-in high-water alarm required in pumpwell. Indexing valve to be installed within pumpwell to allow system to drain between pumping cycles.

Aggregate Distribution Bed Of Wisconsin Mound - Plan View (not to scale)

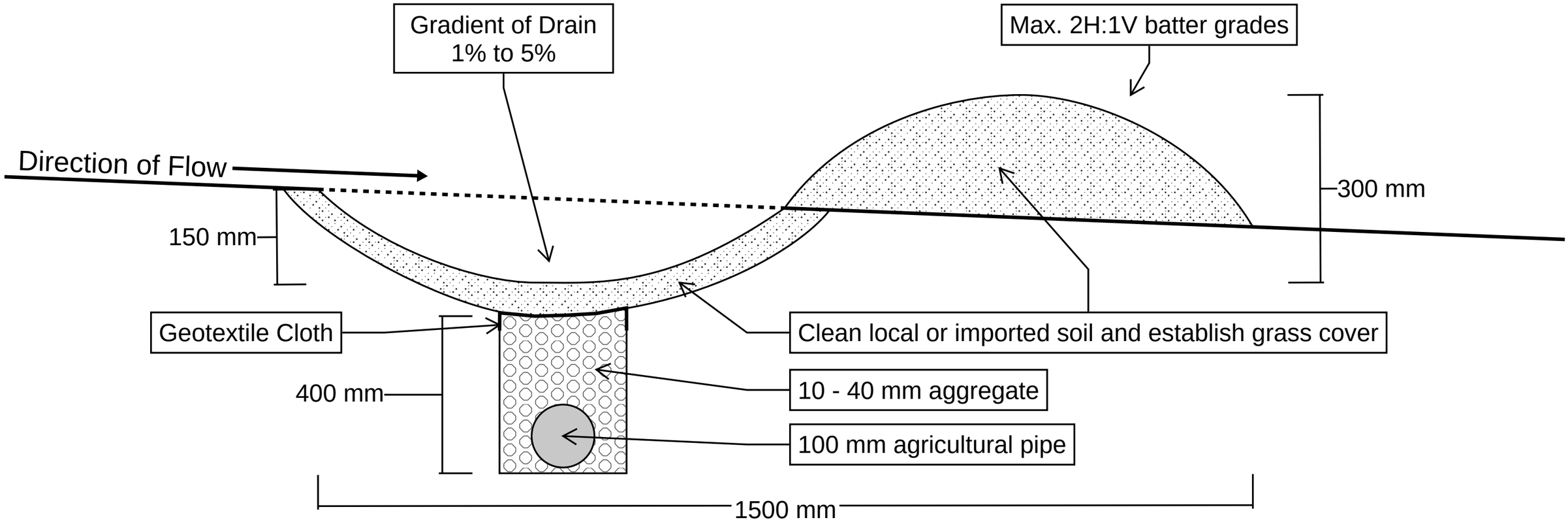
DOYLE SOIL CONSULTING



NOTE: Designs for onsite wastewater management systems are site-specific. Installer to refer closely to DSC report and design spec sheets. Contact the system designer with any questions or proposed changes to the system prior to proceeding with changes. Failure to do so may prevent designer certification/sign-off

DOYLE SOIL CONSULTING

Cross Section: Upslope Diversion Drain



Extracted from: Designing and Installing On-Site Wastewater Systems - Water NSW - CRP 2019
Standard Drawing 8A - Upslope Diversion Drain
(not to scale)

DOYLE SOIL CONSULTING

134 Fairy Glen Rd, Collinsvale

OWMS: Wisconsin Mound

New 3000 L dual-purpose septic tank with outlet filter, gravity feeding to pump well with min. 800 L capacity. Pump-dose to the Wisconsin mound. Set float switch to pump at **102 L per cycle for 70 L** mound doses.

Deep rip the ground surface below the planned mound. Orientate so the long dimension follows the natural contour. Mound to be constructed parallel to, and approx 4 m offset, the existing up-slope fence line.

Basal dimensions of the mound: 24.8 m long x 5.15 m wide. 400mm high retaining wall required to reduce mound basal area (due to site area constraints - effective DLR at basal area remains < 5mm/day)

Aggregate distribution bed (within mound) total area: 14.0 m^2
- Use dims: 20.0 long x 0.7 m wide x 0.2 m deep (see spec sheet).
- two distribution laterals within aggregate, sequentially dosed via indexing valve
- indexing valve installed INSIDE pumpwell

Up-slope cut-off ag-drain required.

LAA min. setback distances:
- foundations: 6 m
- downslope boundary: 5.5 m
- upslope and side boundaries: 1.5 m
- downslope surface water: 23 m

Please refer closely to DSC report and all spec sheets.

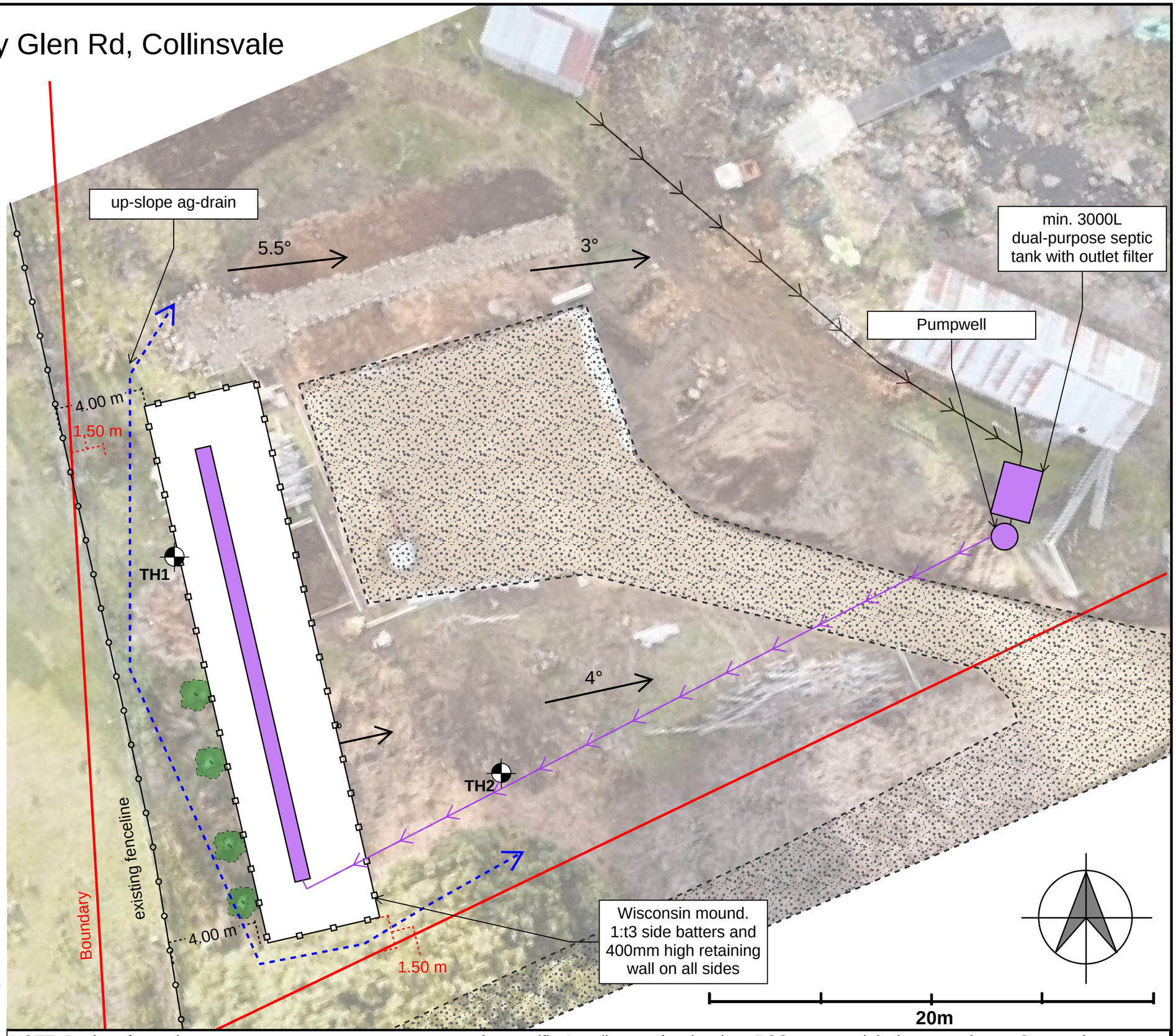
Prepared by
Rowan Mason

19/6/25

Robyn Doyle
Building Services Designer
Hydraulic
CC7418

23/6/2025

19/03/2026



NOTE: Designs for onsite wastewater management systems are site-specific. Installer to refer closely to DSC report and design spec sheets. Contact the system designer with any questions or proposed changes to the system prior to proceeding with changes. Failure to do so may prevent designer certification/sign-off