DOYLE SOIL CONSULTING

SITE AND SOIL EVALUATION REPORT

ONSITE WASTEWATER ASSESSMENT

25 Hinman Drive

Kingston

September 2024

Updated May 2026

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

Document Set ID: 4783308
Version: 1, Version Date: 03/06/2026

SITE INFORMATION

Client: Micky Gelormini

Address: 25 Hinman Drive, Kingston 7050 (CT 125884/2)

Site Area: Approximately 2.0 ha

Date of inspection: 04/09/2024

Building type: Ancillary Dwelling

Services: Mains water and onsite wastewater

Relevant Planning Overlays: Landslide hazard area (low) over Northern and Eastern parts of property, Biodiversity protection area, Bushfire prone areas.

Mapped Geology - Mineral Resources Tasmania 1:25 000 Taroona sheet: **Jd** = Jurassic Dolerite

Soil Depth: 0.9 - 1.2 m

Subsoil Drainage: Moderately-well drained

Drainage lines/water courses: minor Stream 20 m north of property

Vegetation: bush and pasture

Rainfall in previous 7 days: Approximately 93 mm

Slope at LAA: Approximately 12° NW

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).

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SITE AND SOIL COMMENTS

The natural soil profiles are formed from clayey colluvium derived from the underlying Jurassic dolerite bedrock. The profiles are moderately shallow with refusal occurring at approximately 0.9 to 1.2 m. For land application purposes, the soils are constrained by Category 5 (light clay) subsoils which are weakly structured and moderately dispersive. The clays were tested for reactivity and found to be highly (H-1) reactive.

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

- Light clay (Cat. 5) subsoils
- Moderately dispersive clays
- Moderately shallow profiles (0.9 – 1.2 m)
- Moderately steep 12-degree slopes

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

- Very large area of well-established native bush available for land application

The site and soil constraints can be addressed by use of an aerated wastewater treatment system (AWTS) and surface irrigation into the native grassed area within the large area of established vegetation. A 20% reduction in design irrigation rate (DIR) shall be adopted (per Table M2 of AS1547-2012) to address the slope constraint. Use of surface irrigation means minimal disturbance to the moderately dispersive subsoil.

The site is exempt from Code E23 (Onsite Wastewater Management Code) of The Kingborough Interim Planning Scheme 2015, satisfying E23.4.1 (a, b, & c).

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SOIL PROFILES – Test Hole 1

Depth (m)	Horizon	Description and field texture grade	Soil Cat.
0 – 0.2	Fill	Local topsoil and clay fill	
0.2 – 0.3	$B2_1$	Dark yellowish brown (10YR 4/4), **Sandy Light Clay** with topsoil down cracks, moist soft consistency, massive.	**5**
0.2 – 0.6	$B2_2$	Dark yellowish brown (10YR 3/4), **Sandy Light Clay,** moist soft consistency, massive, common fine gavels from above. Dolerite stone line at 0-.3 m	**5**
0.6 – 1.0	C_{wk}	Light olive brown (2.5Y 5/4), **Gritty Sandy Light Clay,** single grain and weak fine angular blocky structure, carbonate at 1.0 m, slightly moist very dense consistency.	**5**
1.0 – 1.2	C	Olive brown (2.5Y 4/3), **Gritty Clay Loam,** weak fine angular blocky structure, single grain, slightly moist dense consistency. <u>Refusal on dolerite bedrock</u>	**4**

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SOIL PROFILES – Test Hole 2

Depth (m)	Horizon	Description and field texture grade	Soil Cat.
0 – 0.2	A1	Very dark greyish brown (10YR 3/2), **Sandy Clay Loam,** moist soft consistency, moderate fine angular blocky structure, abundant roots.	**4**
0.2 – 0.75	B2	Dark yellowish brown (10YR 3/4), **Sandy Light Clay,** moist soft consistency, massive, common fine gavels from 0.65 m.	**5**
0.75 – 1.2	Cw	Olive brown (2.5Y 4/4), **Clayey Gravels,** strong fine angular blocky structure, slightly moist very dense consistency. <u>Refusal on dolerite bedrock</u>	**1**

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SOIL PROFILES – Test Hole 3

Depth (m)	Horizon	Description and field texture grade	Soil Cat.
0 – 0.2	A1	Very dark greyish brown (10YR 3/2), **Sandy Clay Loam,** moist soft consistency, moderate fine angular blocky structure, abundant roots.	**4**
0.2 – 0.7	B2	Dark yellowish brown (10YR 3/4), **Sandy Light Clay,** moist soft consistency, massive.	**5**
0.7 – 0.9	Cw	Olive brown (2.5Y 4/4), **Clayey Gravels,** strong fine angular blocky structure, slightly moist very dense consistency. <u>Refusal on dolerite bedrock</u>	**1**

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WASTEWATER LAND APPLICATION AREA SETBACKS

Required setback from foundations: 6 m

Required setback from downslope surface water: 100 m (not achieved – risk assessment completed for 70 m setback)

Required setback from downslope boundary: 40 m

Required setback from upslope and side boundaries: 20 m

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

WASTEWATER CLASSIFICATION AND DESIGN

In accordance with AS1547-2012, the soil is assessed as **category 5** (Light Clay).

Secondary treatment is recommended.

Wastewater loading: 4 persons @ 150 L/day (mains water supply) - 600 L/day.

Maximum Design Irrigation Rate (DIR): 2.4 mm/day for LAA.

Minimum Land Application Area required: 250 m^2 irrigation area.

The two-bedroom dwelling has a maximum calculated daily loading of 600L/day. Using a DIR of 2.4 mm/day, a minimum LAA area of 250 m^2 is required. This may be installed as surface irrigation into the established native bush, via an AWTS with disinfection.

For surface application of treated effluent, use the specified sprinklers: **Senninger Mid-Angle Xcel-Wobblers® #8 Nozzle - Lavender – 3.18 mm.** Mount wobblers on rigid 500 mm risers to reduce vegetation interference with sprinkler plume.

To achieve a reasonable maximum daily pumping duration, five wobbler sprinklers are required. Installed at 5.0 m centres, the effective LAA is 285 m^2 and the effective DIR is 2.1 mm/day.

The minimum irrigation pump capacity for the proposed design is **27 L/min @ 18.4 m head**. If the minimum pump capacity is not achievable with the standard pump of the AWTS unit (check

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pump curve data), suitable alternatives include **Zenox ZHS-040-1A** or **Reefe RHV180** (or make/model with similar capacity). See Appendix 2 for hydraulic design calculations and minimum pump capacity requirements.

If subjected to the maximum design hydraulic load of 600 L/day, the pump would run for 22 minutes per day.

A **cylindrical screen filter (100 micron / 150 mesh)** is required on the distribution main of the AWTS. A non-return valve is required after the distribution pump to ensure the lines remain charged between pump cycles. All valves to be housed in lilac-coloured boxes, installed flush with the ground – see Site Plan

Wobblers to be installed, in series, along the contour.

Target pressure at the sprinkler head is 7.0 m head / 10.0 psi. The low pressure is to achieve a larger droplet size, less prone to spray drift. To ensure correct operating pressure, install a gate valve on the distribution main before the first sprinkler riser. Adjust gate valve during system testing to set target throw diameter (approx. 10.4 m). Measure throw distance and adjust each accordingly until correct. Alternatively, a Senninger PMR-10 MF (10 psi outlet pressure) valve may be installed at the same location.

25-32 mm lilac LDPE effluent supply line from the AWTS to be buried at min depth of 200 mm and irrigation lateral lines to 100-150mm to mitigate the risk of damage from vehicles and frost.

The LAA is located in a native grassed area within an established stand of bush with tall trees which will shelter the irrigation system from strong winds and reduce the risk of spray drift.

Suitable warning signs to be displayed around the disposal area indicating that reclaimed water is being used i.e. “Recycled Water, Avoid Contact, Do Not Drink”

A 100% reserve area is set aside for future wastewater requirements - See Site plan

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Compliance with *Directors Guidelines 2016* is shown in the attached table for acceptable criteria, as well as risk assessment for the relevant performance solutions, where the proposed design is not deemed to satisfy the acceptable solutions.

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
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Soil Scientist and Wastewater Designer
Licence no. CC7149

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

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APPENDIX 1 – TRENCH™

Doyle Soil Consulting

Land suitability and system sizing for on-site wastewater management

Trench 3.0 (Australian Institute of Environmental Health)

Assessment Report

New OSMS for proposed new ancillary building

Assessment for	Mickey Gelormini	Assess. Date	23-Sep-24
	25 Hinman Drive, kingston 7050	Ref. No.	
Assessed site(s)	As Above	Site(s) inspected	4-Sep-24
Local authority	Kingborough Council	Assessed by	R Doyle

This report summarises wastewater volumes, climatic inputs for the site, soil characteristics and sustem sizing and design issues. Site Capability and Environmental sensitivity issues are reported separately, where 'Alert' columns flag factors with high (A) or very high (AA) limitations which probably require special consideration for system design(s). Blank spaces on this page indicate data have not been entered into TRENCH.

Wastewater Characteristics

'astewater volume (L/day) used for this assessment = 600 (using the 'No. of bedrooms in a dwelling' method)

Septic tank wastewater volume (L/day) = 200

Sullage volume (L/day) = 400

Total nitrogen (kg/year) generated by wastewater = 4.4

'otal phosphorus (kg/year) generated by wastewater = 1.1

Climatic assumptions for site (Evapotranspiration calculated using the crop factor method)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mean rainfall (mm)	46	40	52	42	53	54	47	63	58	64	56	51
Adopted rainfall (R, mm)	46	40	52	42	53	54	47	63	58	64	56	51
Retained rain (Rr, mm)	37	32	42	34	43	43	37	50	46	51	45	41
Max. daily temp. (deg. C)												
Evapotrans (ET, mm)	130	106	90	57	40	24	25	37	57	81	102	121
Evapotr. less rain (mm)	**93**	**74**	**48**	**23**	**-2**	**-19**	**-13**	**-13**	**11**	**29**	**57**	**80**

Annual evapotranspiration less retained rain (mm) = 369

Soil characterisitics

Texture = Light Clay Category = 5 Thick. (m) = 0.9

Adopted permeability (m/day) = 0.06 Adopted LTAR (L/sq m/day) = 2 Min depth (m) to water = 3

Proposed disposal and treatment methods

Proportion of wastewater to be retained on site:	All wastewater will be disposed of on the site
The preferred method of on-site primary treatment:	In a package treatment plant
The preferred method of on-site secondary treatment:	Above-ground
The preferred type of in-ground secondary treatment:	None
The preferred type of above-ground secondary treatment:	Surface irrigation
Site modifications or specific designs:	Not needed

Suggested dimensions for on-site secondary treatment system

Total length (m) =	26
Width (m) =	11
Depth (m) =	0.9
Total disposal area (sq m) required =	570
comprising a Primary Area (sq m) of:	285
and a Secondary (backup) Area (sq m) of:	285

Sufficient area is available on site

To enter comments, click on the line below 'Comments'. (This yellow-shaded box and the buttons on this page will not be printed.)

Comments

The calculated DIR for the category 5 soil and 12-degree is 2.4 mm/day and an irrigation area of 250 sq m is required.

Doyle Soil Consulting

Land suitability and system sizing for on-site wastewater management

Trench 3.0 (Australian Institute of Environmental Health)

Site Capability Report

New OSMS for proposed new ancillary building

Assessment for	Mickey Gelormini 25 Hinman Drive, kingston 7050	Assess. Date Ref. No.	23-Sep-24
Assessed site(s)	As Above	Site(s) inspected	4-Sep-24
Local authority	Kingborough Council	Assessed by	R Doyle

This report summarises data relating to the physical capability of the assessed site(s) to accept wastewater. Environmental sensitivity and system design issues are reported separately. The 'Alert' column flags factors with high (A) or very high (AA) site limitations which probably require special consideration in site acceptability or for system design(s). Blank spaces indicate data have not been entered into TRENCH.

Alert	Factor	Units	Value	Confid level	Limitation Trench	Limitation Amended	Remarks
	Expected design area	sq m	5,000		Very low		
A	Density of disposal systems	/sq km	25		High		
	Slope angle	degrees	12		Moderate		
	Slope form	Convex spreading			Very low		
	Surface drainage	Mod. good			Low		
	Flood potential	Site floods <1:100 yrs			Very low		
	Heavy rain events	Rare			Low		
	Aspect (Southern hemi.)	Faces NE or NW			Low		
	Frequency of strong winds	Common			Low		
	Wastewater volume	L/day	600		Moderate		
	SAR of septic tank effluent		1.0		Low		
	SAR of sullage		2.5		Moderate		
	Soil thickness	m	0.9		Low		
	Depth to bedrock	m	1.2		Moderate		
	Surface rock outcrop	%	0		Very low		
	Cobbles in soil	%	3		Very low		
	Soil pH		6.0		Low		
	Soil bulk density	gm/cub. cm	1.4		Very low		
AA	Soil dispersion	Emerson No.	2		Very high		
	Adopted permeability	m/day	0.06		Low		
A	Long Term Accept. Rate	L/day/sq m	2		High		

To enter comments, click on the line below 'Comments' . (This yellow-shaded box and the buttons on this page will not be printed.)

Comments

The site is suitable for onsite wastewater disposal with a large area available. The site is limited by shallow light clay subsoils and secondary treatment and sprinkler irrigation in to the established bush is recommended. A DIR of 2.4 mm/day has been adopted.

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Doyle Soil Consulting

Land suitability and system sizing for on-site wastewater management

Trench 3.0 (Australian Institute of Environmental Health)

Environmental Sensitivity Report

New OSMS for proposed new ancillary building

Assessment for	Mickey Gelormini 25 Hinman Drive, kingston 7050	Assess. Date Ref. No.	23-Sep-24
Assessed site(s)	As Above	Site(s) inspected	4-Sep-24
Local authority	Kingborough Council	Assessed by	R Doyle

This report summarises data relating to the environmental sensitivity of the assessed site(s) in relation to applied wastewater. Physical capability and system design issues are reported separately. The 'Alert' column flags factors with high (A) or very high (AA) limitations which probably require special consideration in site acceptability or for system design(s). Blank spaces indicate data have not been entered into TRENCH.

Alert	Factor	Units	Value	Confid level	Limitation Trench	Limitation Amended	Remarks
	Cation exchange capacity	mmol/100g	60		Moderate		
	Phos. adsorp. capacity	kg/cub m	0.7		Moderate		
	Annual rainfall excess	mm	-369		Very low		
	Min. depth to water table	m	3		Very low		
	Annual nutrient load	kg	5.5		Low		
	G'water environ. value	Indust non-sensit			Very low		
A	Min. separation dist. required	m	40		High		
	Risk to adjacent bores						Factor not assessed
	Surf. water env. value	Agric non-sensit			Low		
A	Dist. to nearest surface water	m	70		High		
	Dist. to nearest other feature	m	40		Moderate		
	Risk of slope instability	Very low			Very low		
	Distance to landslip	m	1000		Very low		

To enter comments, click on the line below 'Comments'. (This yellow-shaded box and the buttons on this page will not be printed.)

Comments

There will be a low environmental risk due to the large available area and the distance to all downslope features means a very low risk of off-site movement. Wobbler sprinklers to be used with low target pressure to maximise droplet size. LAA located with min 20 of established bush on all sides means low risk of spray drift

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APPENDIX 2 – Hydraulic Design, System Componentry & Pump Requirements

System Sizing and Componentry: Surface Irrigation System				
Design Hydraulic Load (L/day)	Min. DIR ($L/m^2/day$)	Min. LAA (m^2)	Sprinkler model	
600	2.4	250	Senninger Xcel-Wobbler® **#8 Nozzle - lavender - 3.18 mm - Mid Angle**	
Target operating head @ wobbler (m)	Riser height (m)	Wobbler throw diameter (m)	Wetted area/wobbler (m^2)	Wobblers required
7.0 (10 psi)	0.5	10.4	84.9	5
Wobbler spacing (m)	Sprinkler overlap @ 5 m spacing	Wobbler flow rate (L/hr)	System flow rate (L/hr)	System flow rate (L/min)
5.0	35.0	318	1590	27
Supply line material	Supply line internal dia. (mm)	Supply line length (m)		
Lilac LDPE	25	70		
Filter Type	Filter grade	Filter gauge (mm)		
Cylindrical Screen	150 mesh (100 micron)	25		

Dynamic Head Calculation	
Component	Approx. Head loss (m)
Supply line (friction @ flow rate)	2.6
Filter (friction @ flow rate)	0.5
Other Fittings (friction)	0.8
Approx. Elevation differential (from bottom of AWTS to highest point of LAA)	7.5
Target pressure @ Wobbler	7.0
Total	**18.4**

Pump Requirements	
Min. pump capacity	Pump time (mins/day)
27L/min @ 18.4 m Head	22

Actual System Sizing	
Actual wetted area (m^2)	Actual DIR ($L/m^2/day$)
285	2.11

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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.	Non-Compliance with A2 P2 a & b) addressed. 70 m Horizontal separation distance to downslope water proposed.

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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.	Non-Compliance with A3 P2 a & b) addressed. 25-40 m setback to downslope boundary proposed. 20 m setback to side and upslope boundaries proposed.
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	No bore or well identified within 50m

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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	No groundwater encountered.
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

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ASSESSMENT OF HORIZONTAL AND VERTICAL SETBACK DISTANCES

(adapted from Table R1 in AS1547 - to be used in conjunction with Site Constraint Table)

Site feature	**Setback distance range** (m)	**Site constraint items of specific concern** (from Site Constraint Table)	**Assessment**	**Adopted setback distance** (m)
	Horizontal setback distance (m)			
Property boundary	1.5 – 50	A, D, J	40 m min downslope setback	25-40m to downslope and 20m to side and upslope boundaries
Buildings/houses	2.0 – > 6	A, D, J	31 m min downslope setback	>31 m from downslope building
Surface water	15 – 100	A, B, D, E, F, G, J	100 m min downslope setback required	70 m from downslope surface water
Bore, well	15 – 50	A, C, H, J	N/A	N/A
Recreational areas (Children's play areas, swimming pools and so on)	3 – 15	A, E, J	N/A	N/A
In-ground water tank	4 – 15	A, E, J	N/A	N/A
Retaining wall and Embankments, escarpments, cuttings	3.0 m or 45° angle from toe of wall (whichever is greatest)	D, G, H	N/A	N/A
	Vertical setback distance *(m)*			
Groundwater	0.6 – > 1.5	A, C, F, H, I, J	N/A	N/A
Hardpan or bedrock	0.5 – ≥ 1.5	A, C, J	N/A	N/A

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SITE CONSTRAINT RATING

(adapted from Table R2 in AS1547 - used as a guide in determining appropriate setback distances)

Item	Site/system feature	**Constraint scale** (see Note 1) LOWER ⟷ HIGHER **Examples of constraint factors** (see Note 2)		Sensitive features	Comment	Constraint Rating
A	Microbial quality of effluent	Effluent quality consistently producing ≤ 10 cfu/100 mL E. coli (secondary treated effluent with disinfection)	Effluent quality consistently producing ≥ 10^6 cfu/100 mL E. coli (for example, primary treated effluent)	Surface water pollution hazard, public health hazard	2° treatment with disinfection via AWTS	Low
B	Surface water	Category 1 to 3 soils, no surface water down gradient within > 100 m, low rainfall area	Category 4 to 6 soils, permanent surface water <50 m down gradient, high rainfall area, high resource/environmental value	Surface water pollution hazard for low permeable soils, low lying or poorly draining areas	2° treatment with disinfection, low 2.1 mm/day DIR, High ET and low rainfall area	Low
C	Groundwater	Category 5 and 6 soils, low resource/environmental value	Category 1 and 2 soils, gravel aquifers, high resource/environmental value	Groundwater pollution hazard	Category 5 soil. No groundwater encountered	Low. Complies with Acceptable Solutions
D	Slope	0 – 6% (surface effluent application) 0 – 10% (subsurface effluent application)	> 10% (surface effluent application), > 30% subsurface effluent application	Off-site export of effluent, erosion	Approx. 20% slope, surface application with low 2.1 mm/day DIR	Moderate
E	Position of land application area in landscape.	Downgradient of surface water, property boundary, recreational area	Upgradient of surface water, property boundary, recreational area	Surface water pollution hazard, off-site export of effluent	Downslope boundary 25-40 m, Downslope water 70 m	Low/Moderate
F	Drainage	Category 1 and 2 soils, gently sloping area	Category 6 soils, sites with visible seepage, moisture tolerant vegetation, low lying area	Groundwater pollution hazard	Category 5 soil.	Moderate
G	Flood potential	Above 1 in 20 year flood contour	Below 1 in 20 year flood contour	Off-site export of effluent, system failure, mechanical faults	Very low flood-risk of LAA or treatment unit	Low.

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SITE CONSTRAINT RATING (cont.)

Item	Site/system feature	Constraint scale (see Note 1) LOWER ⟷ HIGHER Examples of constraint factors (see Note 2)		Sensitive features	Comment	Constraint Rating
H	Geology and soils	Category 3 and 4 soils, low porous regolith, deep, uniform soils	Category 1 and 6 soils, fractured rock, gravel aquifers, highly porous regolith	Groundwater pollution hazard for porous regolith and permeable soils	Category 5 Soil. Deep, uniform, high permeability	Low. Complies with Acceptable Solutions
I	Landform	Hill crests, convex side slopes, and plains	Drainage plains and incise channels	Groundwater pollution hazard, resurfacing hazard	Crest of convex slope	Low. Complies with Acceptable Solutions
J	Application method	Drip irrigation or subsurface application of effluent	Surface/above ground application of effluent	Off-site export of effluent, surface water pollution	2° treatment with disinfection, low 2.1 mm/day DIR, High ET and low rainfall area	Low/mod

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CERTIFICATE OF THE RESPONSIBLE DESIGNER

Section 94
Section 106
Section 129
Section 155

Form **35**

To: Micky Gelormini *Owner name*
25 Hinman Drive *Address*
Kingston 7050 *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 Micky Gelormini
Designer's project reference No. 2024-09
Address: 25 Hinman Drive
Lot No: 2
Kingston 7050

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

Description of work:
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:

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Design documents provided:

The following documents are provided with this Certificate –

Document description:

Drawing numbers:	Prepared by: Doyle Soil Consulting	Date: May 2026
Schedules:	Prepared by:	Date:
Specifications:	Prepared by: Doyle Soil Consulting	Date: September 2024
Computations:	Prepared by:	Date:
Performance solution proposals:	Prepared by:	Date:
Test reports:	Prepared by: Doyle Soil Consulting	Date: September 2024, Updated May 2026

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:

Site and Soil Evaluation Report

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		5/5/2026
Licence No:	CC7418		

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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		5/5/2026

Document Set ID: 4783308
Version: 1, Version Date: 03/06/2026

DOYLE SOIL CONSULTING

AS1547:2012 – Loading Certificate – AWTS Design

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: 25 Hinman Drive, Kingston

System Capacity: 4 persons @ 150L/person/day

Summary of Design Criteria

DIR: 2.4 mm/day.

Irrigation area: 250 m^2

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

Water saving features fitted: Standard fixtures

Signage: Suitable warning signs to be displayed around the disposal area indicating that reclaimed water is being used i.e. “Recycled Water, Avoid Contact, Do Not Drink”

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

Typical loading change consequences: Expected to be minimal due to use of AWTS and large land area

Overloading consequences: Continued overloading may cause hydraulic failure of the irrigation area and require upgrading/extension of the area. Risk considered acceptable due to monitoring through quarterly maintenance reports.

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 in the irrigation areas and additional watering may be required. Risk considered acceptable due to monitoring through quarterly maintenance reports.

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

Other considerations: Owners/occupiers must be made aware of the operational requirements and limitations of the system by the installer/maintenance contractor/leasing agent. A copy of the entire design report shall be provided at change of ownership.

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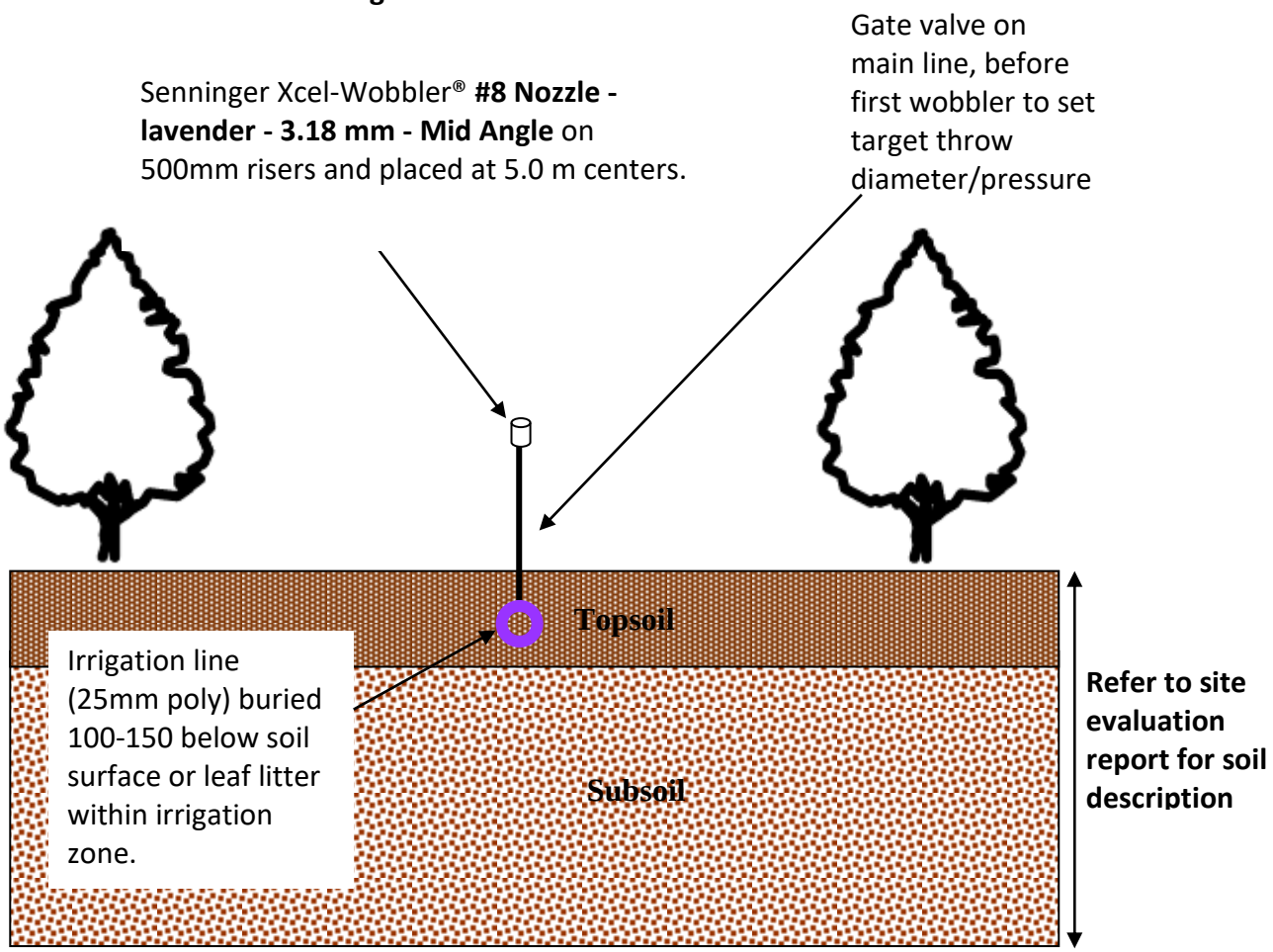
Surface Irrigation Specification

All other details can be found in a site evaluation report from Doyle Soil Consulting for construction of irrigation areas.

Recommended for sites with slopes of up to 10% (AS1547-2012 Table K1). Should surface irrigation be used on slopes exceeding 10%, the slope must be adequately vegetated. Existing established vegetation should be utilised where possible, or vegetation can be planned with the construction of the land application area.

Irrigation Area Cross Section



The irrigation area should be planted with or contain a minimum of 1 plant from the suggested list per $5m^2$, and supplementary planting may be required.

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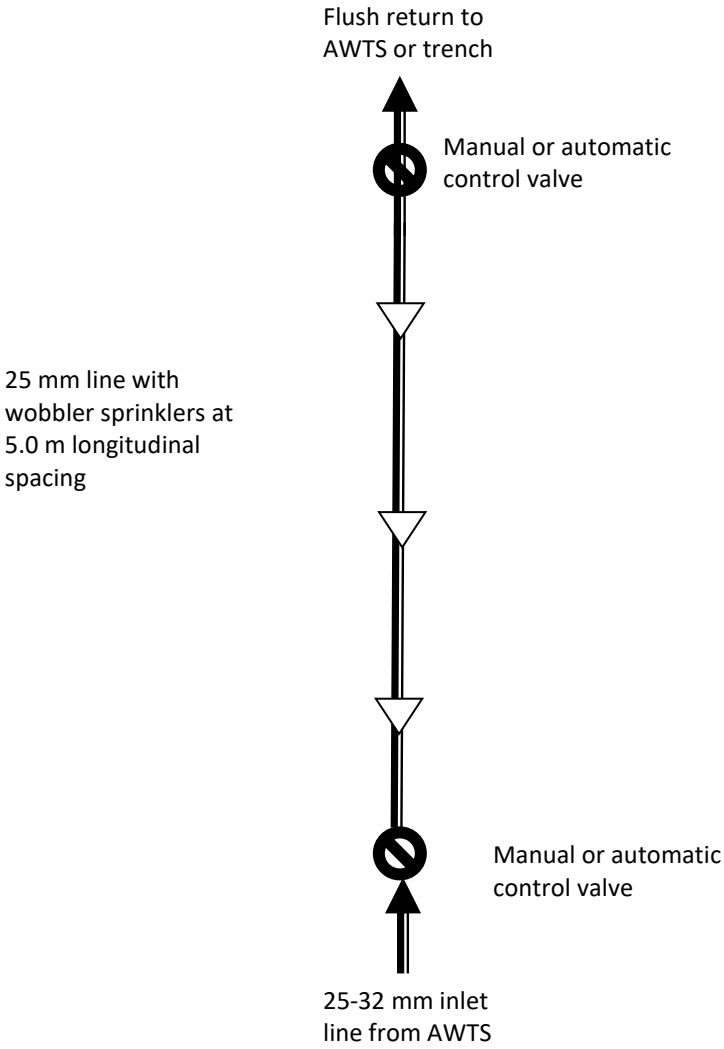
Irrigation Area Plan View



Design specifications:

1. Placed at 5.0 m centres.
2. Target wobbler throw diameter = 10.4 m at 7.0 m head (10.0 psi).
3. Wobblers to be placed on 500 mm secure staked risers with sufficient height to clear undergrowth such as grass and sedges.
4. A flush line must be installed at the lowest point/bottom of the irrigation area with a return valve for flushing back into the treatment chamber of the system or to a dedicated absorption trench.
5. The minimum irrigation pumping capacity = 18.4 m head @ flow rate = 27 L/min

Signage Within the surface irrigation disposal area warning signs must be clearly positioned to inform the occupants of the premises that reclaimed water is used for irrigation. Example wording: “WARNING RECLAIMED WATER NOT SUITABLE FOR HUMAN CONTACT/CONSUMPTION” or similar.

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DOYLE SOIL CONSULTING

25 Hinman Dr, Kingston

Wastewater system:

New AWTS.

150 mesh/100 micron cylindrical screen filter on pump outlet or in valve box.

Minimum surface irrigation area: 250m^2

5x Senninger Mid-Angle Xcel-Wobbler® sprinklers (#8 Nozzle - lavender (3.18 mm) on 500mm risers, installed at 5.0 m centres, along the contour.

Gate valves on supply main, installed before first sprinkler T-joiner. Use valve to adjust wobbler throw diameter to 10.4 m during system testing.

Effluent distribution line from AWTS to be buried min. 200 mm below the ground surface. Laterals buried at 100-150 mm under topsoil or leaf litter.

Min. downslope surface water setback: 100 m
Min. downslope boundary setback: 25-40 m
Min. upslope and side boundaries setback: 20 m

100% reserve area assigned.

Approximate test hole locations

Refer to DSC report

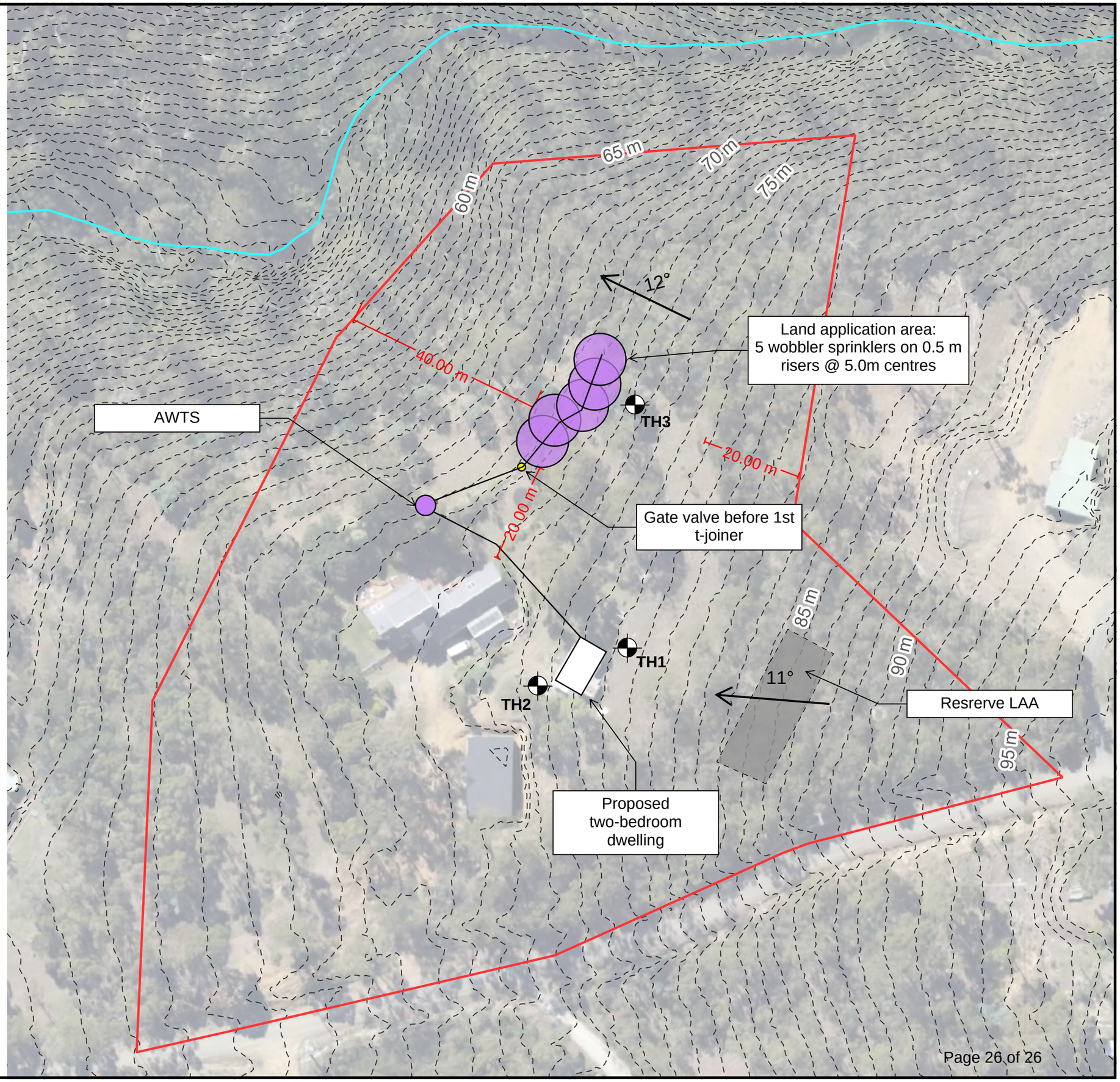
Prepared by
Rowan Mason

23/9/24

Robyn Doyle
Building Services Designer
Hydraulic
CC7418

25/9/2024
Updated 5/5/2026

02/06/2026



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