

29 May 2024

Ref: 55/2020_osms v2.0
Glenn Wright
55 Settlement Road
MAIN ARM NSW 2482

Dear Glenn

**Onsite sewer Management System Review Dwelling and Detached Dual
Occupancy Dwelling Lot 4 DP 585928, No 55 Settlement Road Main Arm**

1. Introduction

In response to the Gateway Determination dated 18th January 2024 (see **Attachment F**), Tim Fitzroy & Associates (TFA) have been engaged to include the assessment of the detached dual occupancy dwelling to the *Onsite sewer Management System Review* prepared by this office dated 25 January 2022.

This letter provides the results of an *Onsite sewer Management System Review* with respect to an amended Planning Proposal to Byron Shire Council (BSC) to amend the Byron Local Environmental Plan (BLEP) 2014 to formalise the use of the dwelling and the detached dual occupancy dwelling located at Lot 5 DP585928, No 55 Settlement Road Main Arm (see Site Locality plan in **Attachment A**).

The site is an irregular shape, covers an area of about 23.85ha and is located on the southern side of Settlement Road. The site is undulating ranging from 130m AHD in the south to 40m AHD in the north interspersed with a series of gullies. The vast bulk of site (estimated at over 80%) is covered with vegetation. A portion of the central and north west of the site has been partially cleared whereupon the dwelling, shed and dam are located.

There are a number of constraints which impact the site's capabilities to effectively assimilate treated effluent namely a mix of :

- Steep to moderate sloping land;
- Protected vegetation;
- Numerous gullies and intermittent water courses; and
- Light clay soils

This review has included:

- Discussions with Glenn Wright; and
- A site assessment inclusive of discussions of the key components of the existing OSMS's.

2. Existing Onsite wastewater Management Systems

- a. There are 2 OSMS's onsite. One servicing the 3 bedroom dwelling and a second servicing the 1 bedroom detached dual occupancy dwelling.
- b. 3 bedroom dwelling
 - i. The OSMS for the dwelling comprises:
 1. Grease Trap (50 litres),
 - ii. 3.0kL septic (plastic) tank located in gully 20m west of dwelling, trenches in gully (unknown length and size)
- c. 1 bedroom detached dual occupancy dwelling:
 - i. 3.0k/L (plastic) septic tank located about 3.5m north west of the dual occupancy drains to an absorption bed (unknown length and size)
 - ii. to be converted to shed (kitchen to be removed)
 - iii. The OSMS appears to be operating satisfactorily

See photos of existing OSMS in Attachment B.

3. Proposed Development

The planning proposal comprises:

- An application to BSC to amend the Byron Local Environmental Plan (BLEP) 2014 to formalise the use of the dwelling and detached dual occupancy dwelling located at Lot 5 DP585928, No 55 Settlement Road, Main Arm.

4. Site Assessment

The site:

- is undulating ranging from 130m AHD in the south to 40m AHD in the north interspersed with a series of gullies
- drains in a north and north easterly direction via a series of gullies to the Brunswick River (450m offsite)
- There are no registered groundwater bores on the subject site. A search of NSW Department of Primary Industries Office of Water noted 3 registered bores within 250m and 49 registered bores within a 2km radius of the site. The results of the groundwater bore search (within 250m of the subject site) are summarised in Table 4.1 and below and included in full in **Attachment C**.
- comprises 3 different geological units:
 - Southern section
 - are described as Lismore Basalt
 - Middle section
 - are described as Neranleigh-Fernvale beds
 - Northern section

- are described as Undifferentiated alluvial deposits; sand, silt, clay and gravel; some residual and colluvial deposits

The area where wastewater disposal occurs is located within the Burringbar soil landscape (light clay) (see **Attachment D**).

Table 4.1 Summary of Registered Groundwater Bores within 250m of the subject site

GW No.	Licence No	Work Type	Owner Type	Authorised Purpose	Intended Purpose	Name	Complete Date	Final Depth (m)	Drilled Depth (m)	Salinity (mg/L)	SWL (m bgl)	Yield (L/s)	Elev (AHD)	Dist	Dir
GW303 945	30BL180 384	Bore	Private	Domestic	Domestic		03/12/2002	27.00	27.00	220	10.0 0	1.010		86m	North West
GW307 045	30BL185 863	Bore	Private	Farming	Farming		22/01/2012	36.60	36.60	105	18.0 0	1.263		192m	North East
GW306 766	30BL180 808	Bore	Private	Domestic, Stock	Domestic, Stock		01/01/1992	36.50			35.5 0	0.200		233m	South West

While the OSMS servicing the detached dual occupancy dwelling comprising a 3kL septic tank and absorption trench appears to be operating satisfactorily the OSMS for the dwelling is located within a gully and intermittent water course and the location of the effluent trenches is unknown but likely to either be within or in close proximity to the gully. The location of the dwelling's OSMS within the gully is in contravention of Council's OSMS Guidelines and requires relocation free of this constraint.

5. OSMS Assessment

As part of our due diligence, we have conducted a series of calculations for a new secondary treated wastewater management system for the 3-bedroom dwelling to be located free of environmental constraints at the subject site based on current modelling requirements. A conceptual onsite wastewater management system has been prepared for each of the following scenarios:

- A 3 bedroom dwelling
 - With conventional combined black and grey water treatment
 - With separate black water (compost toilets) and separate grey water treatment

These preliminary calculations are based on the current Byron Shire Council OSMS Design Model (see **Attachment E**).

The conceptual onsite wastewater management system has been designed to achieve the following general objectives:

- Protection of public health: applied effluent is to be assimilated in the soil profile and remain beneath the soil surface. No effluent resurfacing is to occur.
- Ecologically Sustainable Beneficial Reuse: design is to maximise assimilation of nutrients and pathogens within the land applications areas.

3. Neutral or Beneficial Impact Test: design is to produce a sustainable net beneficial of neutral impact over the long term.

To achieve the objectives listed above, the following analyses have been completed:

1. Evaluation of predicted wastewater generation for the nominated scenarios;
2. Conceptual design of system to public health standards (AS/NZS 1547, 2000); NSW EPA (2005) and the Byron Shire Council Guidelines for Onsite Wastewater Generation; and
3. Assessment of local site and soil conditions.

Key parameters used in the model for 3 Bedroom dwelling include:

- Soils based on light clay texture;
- Lot size was:
 - 12,500m² (based on 50% of total area due to existing osms for the detached dual occupancy dwelling)
- Secondary Treated Aerated wastewater treatment system (AWTS);
- Evapo transpiration bed beds; and
- Hydraulic flow rate of 115 litre per person per day

For dwelling with compost toilets

- Hydraulic flow rate of 90 litre per person per day
- Reduced nutrients

Note: The existing septic tank, grease trap and absorption beds servicing the 3-bedroom dwelling are to be decommissioned

Site Constraints

- Steep to moderate sloping land;
- Protected vegetation; and
- Numerous gullies and intermittent water courses.

The results of preliminary OSMS modelling are provided in **Table 5.1**

Table 5.1 Onsite Wastewater Modelling for upgrade 3 bedroom dwelling

Scenario	Hydraulic Area (m2)	Nitrogen Area (m2)	Phosphorus Area (m2)	Land Area Requirement (m2) – based on largest area of preceding 3 columns	Soil Type
3 Bedroom Dwelling					
AWTS + ETA	55	68	66	68	Light Clay
AWTS + CT+ ETA	54	0.00	32	54	Light Clay

AWTS = Aerated Wastewater Treatment System
ETA = Evapo transpiration beds
CT = Compost Toilet

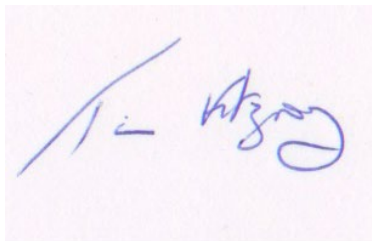
Model scenarios provided in Table 5.1 are located in **Attachment E**.

6. Conclusion

- a. Our site assessment has revealed that:
- i. The site is capable of assimilating treated effluent from the 3 bedroom dwelling and 1 bedroom detached dual occupancy dwelling;
 - ii. The existing OSMS (comprising a 3kL septic tank and absorption trench) servicing the detached dual occupancy dwelling is operating satisfactorily and suitable to service the 1 bedroom residence; and
 - iii. The existing OSMS servicing the 3 bedroom dwelling is to be decommissioned and replaced with an OSMS to be located free of existing gullies and intermittent water courses.

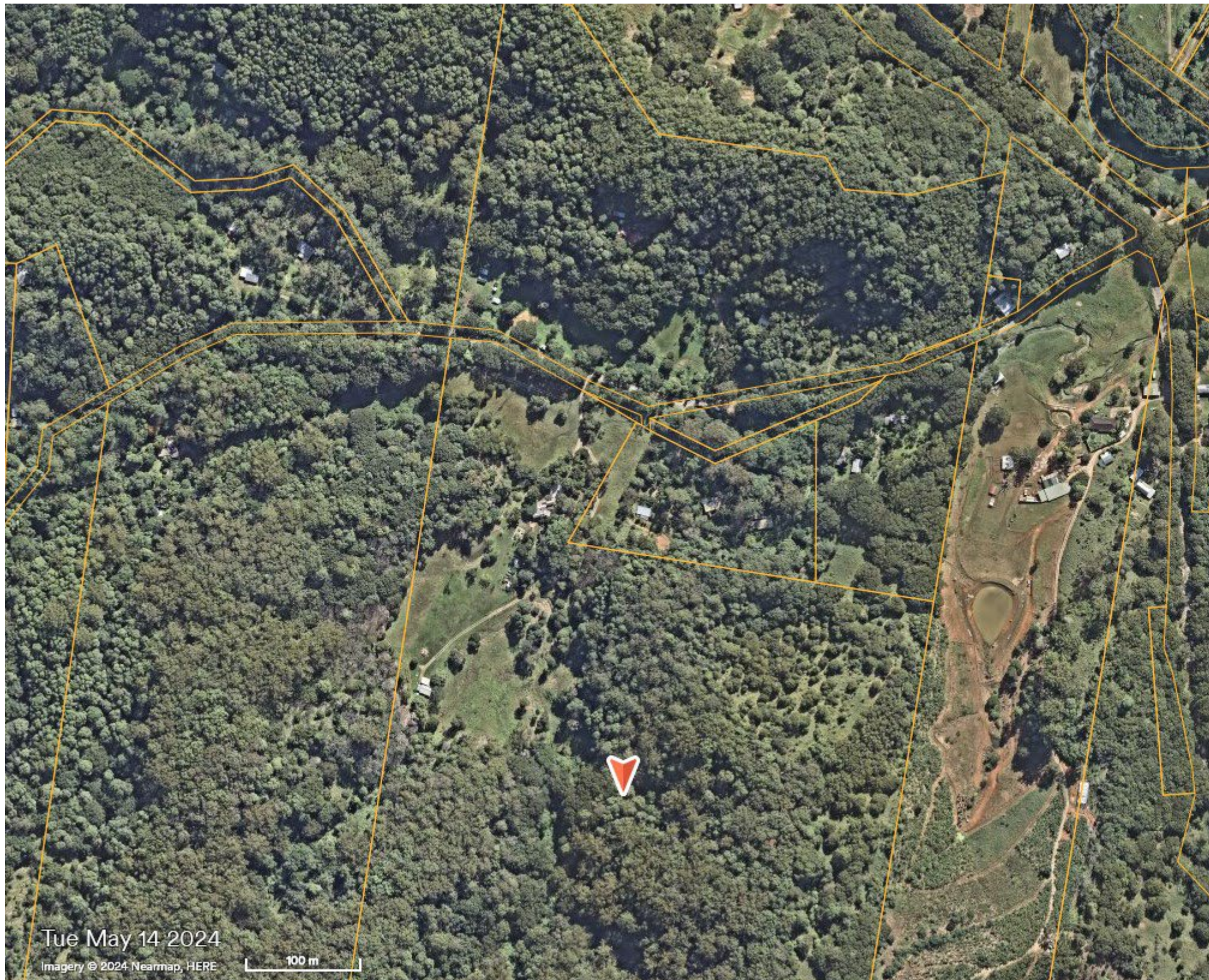
If you have any enquiries with regard to the content of this correspondence do not hesitate to contact me on 044 848 3837 or tim@timfitzroy.com.au

Kind regards,



Tim Fitzroy
Environmental Health Scientist
Environmental Auditor

Attachment A Site Locality



Attachment B Site Photos



Photo A Dwelling



Photo B OSMS for Dwelling



Photo C **Dual Occupancy Dwelling**



Photo D **OSMS for Dual Occupancy Dwelling**



Photo E Potential for new OSMS for Dwelling

Attachment C

Registered Boreholes within 2km of subject site

61 Pine Avenue

ABN: 94120188829

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East Ballina NSW 2478

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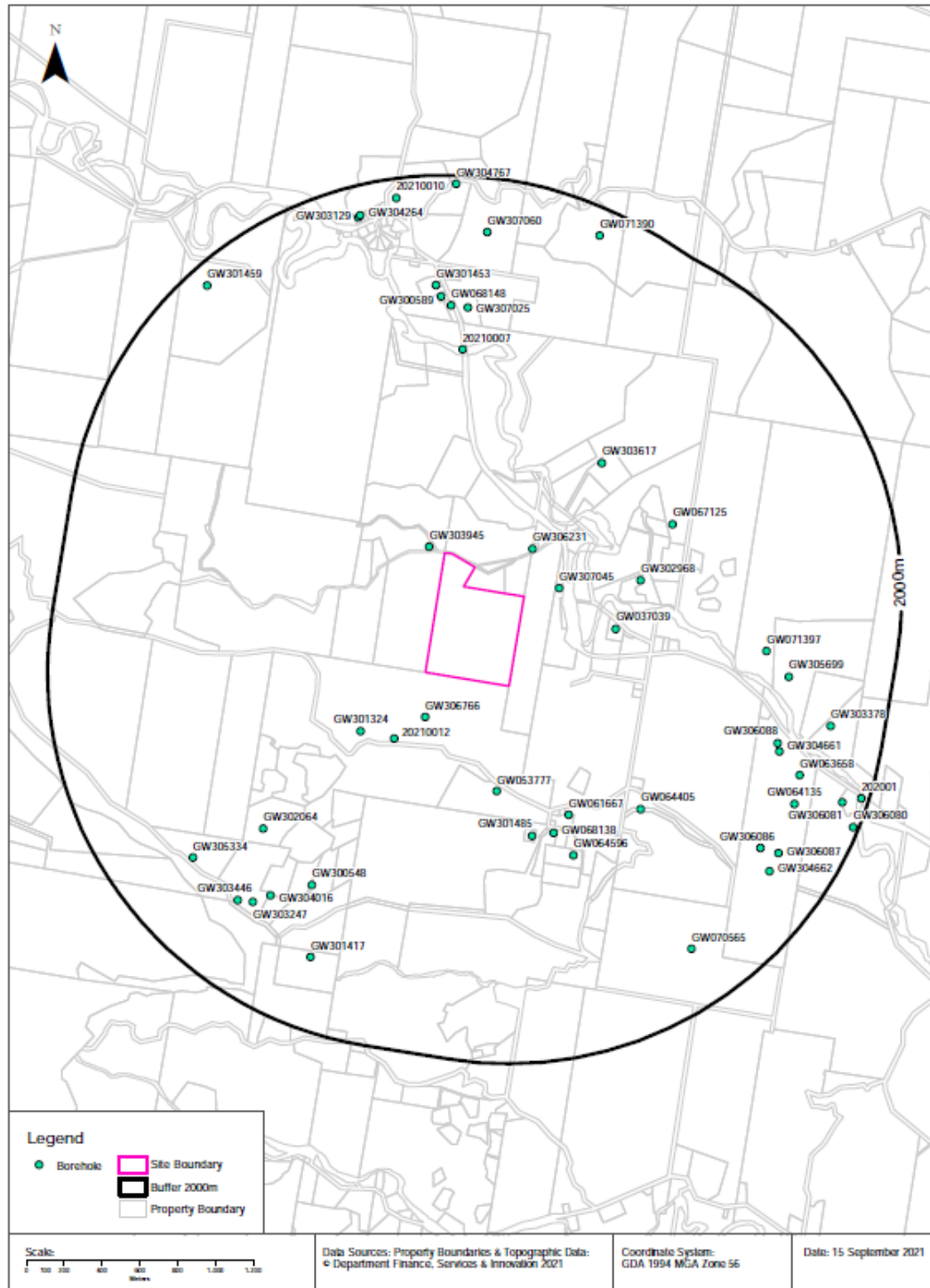
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Groundwater Boreholes

55 Settlement Road, Main Arm, NSW 2482



Groundwater Boreholes

Boreholes within the dataset buffer:

GW No.	Licence No	Work Type	Owner Type	Authorised Purpose	Intended Purpose	Name	Complete Date	Final Depth (m)	Drilled Depth (m)	Salinity (mg/L)	SWL (m bgl)	Yield (L/s)	Elev (AHD)	Dist	Dir
GW303 945	30BL180 384	Bore	Private	Domestic	Domestic		03/12/2002	27.00	27.00	220	10.0 0	1.010		86m	North West
GW307 045	30BL185 863	Bore	Private	Farming	Farming		22/01/2012	36.60	36.60	105	18.0 0	1.263		192m	North East
GW306 766	30BL180 808	Bore	Private	Domestic, Stock	Domestic, Stock		01/01/1992	36.50			35.6 0	0.200		233m	South West
GW306 231	30BL184 454	Bore	Private	Domestic	Domestic		20/09/2007	30.50	30.50	140	12.0 0	0.632		256m	North East
202100 12					UNK								66.80	387m	South West
GW301 324	30BL176 989	Bore		Domestic	Domestic			24.00	24.00	Good	6.00	0.505		463m	South West
GW037 039		(Unkn own)	Other Govt		General Use		01/01/1968	29.50	29.60					507m	East
GW053 777	30BL122 276, 30BL178 740	Excav ation	Private	Domestic, Irrigation, Stock	Irrigation		01/02/1983	3.00	3.00	0-500 ppm				562m	South
GW302 968	30BL179 165	Bore		Domestic, Stock	Domestic, Stock		10/12/2000	42.00	42.00	200	12.0 0	1.000		623m	East
GW051 667	30BL134 081	Excav ation	Private	Domestic, Stock	General Use			1.80						753m	South East
GW301 485	30BL178 039	Bore		Domestic	Domestic		07/05/1998	35.00	35.00		9.80	0.688		803m	South
GW058 138	30BL139 891	Bore	Private	Domestic, Stock			09/08/1989	19.50	19.50	Good	3.00	0.470		814m	South
GW303 617	30BL181 010	Bore		Domestic	Domestic		13/12/2002	30.50	30.50	120	9.00	5.052		818m	North East
GW067 125	30BL144 721			Domestic	Domestic		06/12/1991	36.00	36.00	Good	20.0 0	0.708	75.00	873m	North East
GW064 405	30BL136 481	Bore	Private	Domestic, Stock	Domestic, Stock		01/09/1987	25.00	25.00	Good				956m	South East
GW064 596	30BL136 554	Bore	Private	Domestic	Domestic		01/07/1987	27.00	27.00					962m	South East
202100 07					UNK								32.47	1082m	North
GW302 064	30BL178 195	Bore	Private	Domestic	Domestic, Irrigation									1192m	South West
GW300 548	30BL177 501	Bore		Domestic	Domestic		30/11/1996	31.00	31.00	Good	8.00	7.578		1275m	South West
GW307 025	30WA30 7417	Bore	Private	Domestic	Domestic		14/10/2011	18.00	18.00		7.50	0.320		1304m	North
GW058 148	30BL139 950	Bore	Private	Domestic			23/08/1989	12.00	12.00		4.00	0.300		1311m	North
GW071 397	30BL153 320	Bore		Domestic	Domestic		26/10/1993	41.00	41.00	Good	23.0 0	0.354		1315m	East
GW300 589	30BL177 400	Bore		Domestic	Domestic		21/11/1996	15.25	15.25		6.50	0.375		1357m	North
GW301 453	30BL177 764	Bore		Domestic	Domestic		04/08/1997	13.70	13.70		5.80	0.750		1418m	North
GW304 016	30BL181 170	Bore	Private	Domestic	Domestic		31/12/1996	15.00	15.00		10.0 0	5.500		1437m	South West
GW305 699	30BL180 737	Bore	Private	Stock	Domestic, Stock		08/10/2005	24.00	24.00			1.000		1454m	East
GW306 088	30BL184 037	Bore	Local Govt	Monitoring Bore	Monitoring Bore		03/10/2006	7.50	7.50		3.80			1457m	East

GW No.	Licence No	Work Type	Owner Type	Authorised Purpose	Intended Purpose	Name	Complete Date	Final Depth (m)	Drilled Depth (m)	Salinity (mg/L)	SWL (m bgl)	Yield (L/s)	Elev (AHD)	Dist	Dir
GW304 661	30BL179 971	Bore	Local Govt	Monitoring Bore	Monitoring Bore		25/02/2002	3.50	3.50					1475m	East
GW303 247	30BL179 958	Bore		Domestic, Stock	Domestic, Stock		23/04/2002	17.00	17.00					1520m	South West
GW303 446	30BL180 342	Bore		Domestic, Farming, Irrigation, Stock	Domestic, Farming, Irrigation, Stock		01/06/2002	48.80	48.80			2.970		1561m	South West
GW305 334	30BL183 922	Bore		Domestic, Farming, Irrigation	Domestic, Stock		13/09/2005	30.00	30.00	90	16.0 0	0.700		1573m	South West
GW306 086	30BL184 037	Bore	Local Govt	Monitoring Bore	Monitoring Bore		03/10/2006	7.00	7.00		4.00			1586m	South East
GW063 658	30BL135 210	Bore	Private	Domestic, Stock	Domestic, Stock		01/10/1986	4.00	4.00					1612m	South East
GW301 417	30BL177 217	Bore		Domestic, Stock	Domestic, Stock		05/02/1996	22.00	22.00	Good	6.00	0.300		1625m	South West
GW064 135	30BL136 176	Bore	Private	Domestic, Stock	Domestic, Stock		01/02/1987	14.00	17.00					1638m	South East
GW306 087	30BL184 037	Bore	Local Govt	Monitoring Bore	Monitoring Bore		03/10/2006	7.00	7.00		4.50			1681m	South East
GW304 662	30BL179 971	Bore	Local Govt	Monitoring Bore	Monitoring Bore		25/02/2004	5.80	5.80					1694m	South East
GW070 565	30BL150 663	Bore	Private	Domestic	Domestic		01/09/1992	22.00	22.00	Good	10.0 0	0.590	30.00	1696m	South East
GW307 060	30BL181 223	Bore	Private	Domestic	Domestic		04/07/2002	50.00	50.00	280	15.0 0	0.500		1712m	North
GW303 378	30BL179 759	Bore		Domestic	Domestic		01/06/2002	3.20			2.00	1.000		1717m	East
GW303 129	30BL179 667	Bore		Domestic	Domestic		21/11/2001	32.00	32.00					1833m	North
GW304 264	30BL181 500	Bore	Private	Domestic	Domestic		03/09/2003	26.00	26.00		15.0 0	0.531		1842m	North
GW071 390	30BL152 942	Bore		Domestic, Stock	Domestic, Stock		21/09/1993	55.00	55.00	Good	30.0 0	0.700		1857m	North
GW306 081	30BL184 036	Bore	Local Govt	Monitoring Bore	Monitoring Bore		04/10/2006	6.00	6.00		1.20			1872m	South East
GW301 459	30BL177 813	Bore		Domestic, Farming, Stock	Domestic, Farming, Stock		25/10/1997	25.90	25.90		4.00	2.250		1892m	North West
202100 10					UNK								37.23	1896m	North
GW304 767	30BL180 876	Bore		Domestic	Domestic		05/06/2004	54.00	54.00		2.50	2.500		1965m	North
202001					UNK								17.31	1960m	South East
GW306 080	30BL184 036	Bore	Local Govt	Monitoring Bore	Monitoring Bore		04/10/2006	7.50	7.50		4.50			1972m	South East

Borehole Data Source : NSW Department of Primary Industries - Office of Water / Water Administration Ministerial Corporation for all bores prefixed with GW. All other bores © Commonwealth of Australia (Bureau of Meteorology) 2015. Creative Commons 3.0 © Commonwealth of Australia <http://creativecommons.org/licenses/by/3.0/au/deed.en>

Attachment D

Soil Conditions

61 Pine Avenue

ABN: 94120188829

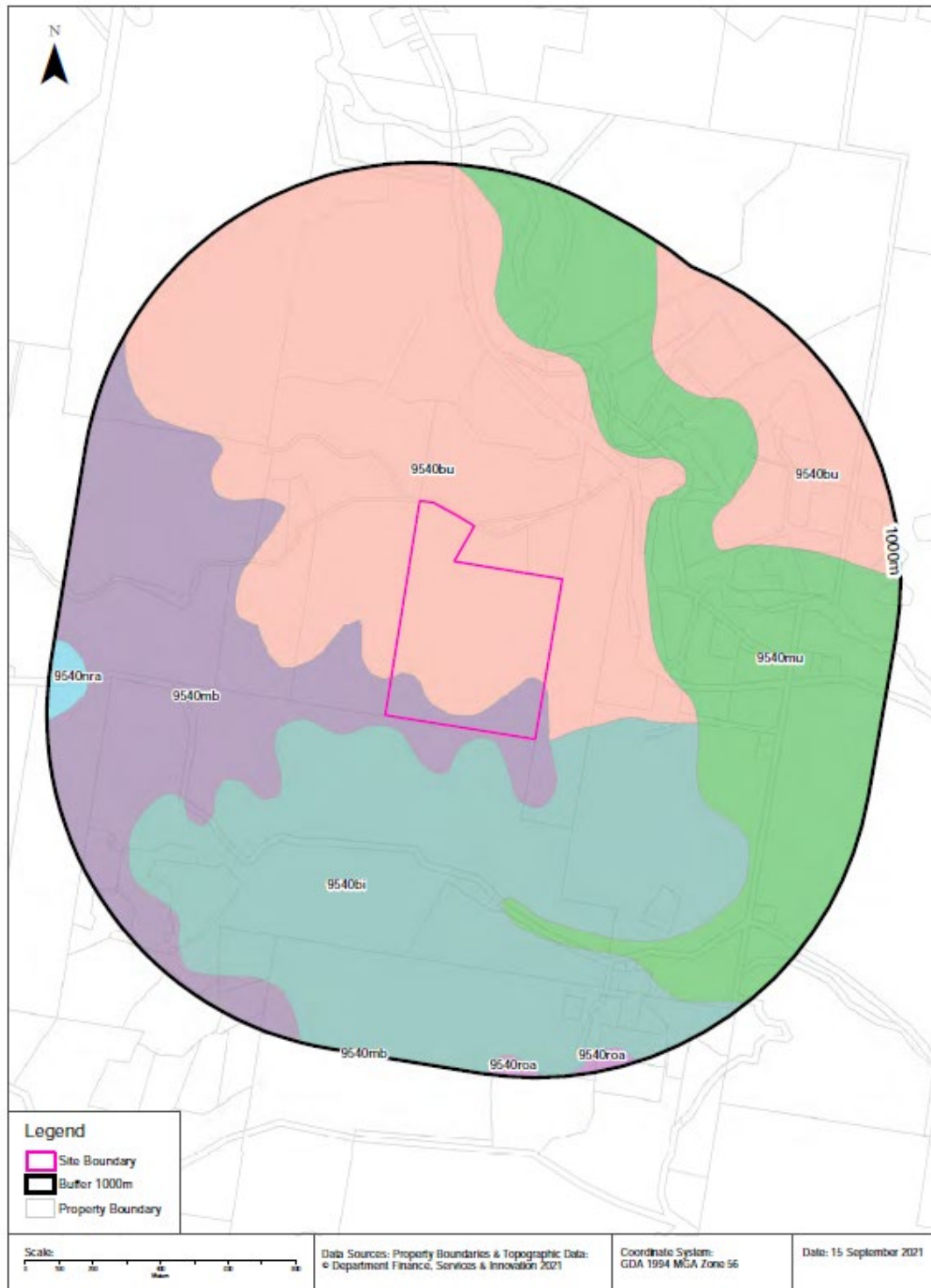
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Soil Landscapes of Central and Eastern NSW
55 Settlement Road, Main Arm, NSW 2482



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Soils

55 Settlement Road, Main Arm, NSW 2482

Soil Landscapes of Central and Eastern NSW

Soil Landscapes of Central and Eastern NSW within the dataset buffer:

Soil Code	Name	Distance	Direction
9540bu	Burringbar	0m	On-site
9540mb	Mount Burrell	0m	On-site
9540bi	Billnudge	17m	South
9540mu	Mulumbimby	248m	East
9540nra	Nimbin Rocks variant a	881m	West
9540roa	Rosebank variant a	937m	South

Soil Landscapes of Central and Eastern NSW: NSW Department of Planning, Industry and Environment
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Attachment E

OSMS Model Results

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Appendix F Gateway Determination 18 January 2024

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Gateway Determination

Planning proposal (Department Ref: PP-2021-5766): to permit a dual occupancy (detached) with development consent at Lot 5 DP 585928, 55 Settlement Road, Main Arm.

I, the Acting Director, Northern Region at the Department of Planning, Housing and Infrastructure, as delegate of the Minister for Planning and Public Spaces, have determined under section 3.34(2) of the *Environmental Planning and Assessment Act 1979* (the Act) that an amendment to the Byron Local Environmental Plan 2014 to permit a dual occupancy (detached) with development consent at Lot 5 DP 585928, 55 Settlement Road, Main Arm should proceed subject to the following conditions:

The Council as planning proposal authority is authorised to exercise the functions of the local plan-making authority under section 3.36(2) of the Act subject to the following:

- (a) the planning proposal authority has satisfied all the conditions of the gateway determination;
- (b) the planning proposal is consistent with applicable directions of the Minister under section 9.1 of the Act or the Secretary has agreed that any inconsistencies are justified; and
- (c) there are no outstanding written objections from public authorities.

The LEP should be completed within 9 months of the Gateway determination.

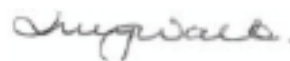
Gateway Conditions

1. Prior to agency and community consultation:

- (a) the planning proposal must be updated to:
 - correct the reference to zone R2 on page 3;
 - include additional discussion of Aboriginal cultural heritage, including a recent AHIMS search;
 - reflect the required upgrades to the driveway access, internal driveway and Settlement Road outlined in the submitted Traffic Safety Assessment and Bushfire Assessment;
 - include additional information regarding flooding, such as a map that illustrates inundation of the site and further details regarding access (including the type of flood event that will affect the access as well as the duration that the road is inaccessible); and
 - address the outcomes and recommendations of the updated reports required by conditions 1(b) and 1(c).
- (b) the following reports must be updated to include an assessment of both dwellings on the land:
 - Preliminary Site Contamination Report
 - On-Site Wastewater Management System Review
 - Traffic Safety Assessment
 - Land Use Conflict Risk Assessment

- Ecological Assessment
 - Bush Fire Assessment Report
- (c) the Ecological Assessment must be amended to address the required upgrades to the driveway access, internal driveway and Settlement Road outlined in the submitted Traffic Safety Assessment and Bushfire Assessment.
2. Public exhibition is required under section 3.34(2)(c) and clause 4 of Schedule 1 to the Act as follows:
- (a) the planning proposal is categorised as standard as described in the *Local Environmental Plan Making Guideline* (Department of Planning, Housing and Infrastructure , August 2023) and must be made publicly available for a minimum of 20 working days; and
- (b) the planning proposal authority must comply with the notice requirements for public exhibition of planning proposals and the specifications for material that must be made publicly available along with planning proposals as identified in *Local Environmental Plan Making Guideline* (Department of Planning, Housing and Infrastructure , August 2023).
3. Consultation is required with the following public authorities and government agencies under section 3.34(2)(d) of the Act and/or to comply with the requirements of applicable directions of the Minister under section 9 of the Act:
- NSW Rural Fire Service
 - NSW State Emergency Service
 - Tweed Byron Local Aboriginal Land Council
 - Arakwal Corporation
- Each public authority is to be provided with a copy of the planning proposal and any relevant supporting material via the NSW Planning Portal, where possible, and given at least 30 working days to comment on the proposal.
4. A public hearing is not required to be held into the matter by any person or body under section 3.34(2)(e) of the Act. This does not discharge Council from any obligation it may otherwise have to conduct a public hearing (for example, in response to a submission or if reclassifying land).

Dated 18 January 2024



Lucy Walker
A/Director, Northern Region
Local and Regional Planning
Department of Planning, Housing and
Infrastructure

**Delegate of the Minister for Planning and
Public Spaces**

PP-2021-5766 (IRF23/3162)