

Our Reference: J5950-225_TERRANORA_RD-OWSA_01-REVC

12 May 2023

Alan Hope & Greg Vink

Wrenn Pty Ltd

Via Email: alanhope@gmail.com gregoryvink@gmail.com

Dear Alan and Greg,

**Onsite Water Supply Assessment
3x Lot Rural Residential Subdivision
225 Terranora Road, Banora Point NSW 2486**

We thank you for the opportunity to provide an onsite Water Supply Assessment to support the proposed development at 225 Terranora Road, Banora Point NSW 2486.

As Planit understands, the proposal is for the creation of 3x new large lot residential lots, plus a residue lot, at the abovementioned site. Whilst reticulated water services are provided within Terranora Road, the subject site is outside of the current Development Servicing Plan (DSP) area and as such has been designed without connection to Tweed Shire Council's (TSC) potable water reticulation network. Of note, the subject site is also identified as bushfire prone, and as such this assessment has had regard to:

- Onsite water storage requirements of the relevant authorities (TSC and NSW Rural Fire Service (RFS)).
- Recommended minimum roof area to be provided in order to capture the annual average rainfall volume.
- The approximate amount of days the proposed onsite water system can service each dwelling without rain occurring (excluding volumes for firefighting requirements).

In summary, our assessment concludes:

- Advices from TSC indicate requirement for a minimum of 15,000L of water storage per room to be provided on each lot for consumption. Assuming a 4 bedroom dwelling is to be built on each lot, TSC requires 60,000L of water storage for consumption is to be provided on each lot.
- RFS requires a minimum of 10,000L of water storage be provided on each lot for firefighting requirements (10,000L for lots <1ha, 20,000L for lots >1ha). It should be noted that this volume is purely for firefighting requirements and accordingly is not to be used for any other purposes other than for firefighting (i.e. not to be plumbed into dwelling and used for consumption as this volume needs to be available for use in the event of a bushfire in the area).
- A minimum roof area of 175m² is recommended to be connected to the proposed water supply system in order to capture the average annual demand volumes. We note that the character of the area includes large residential dwellings, with roof areas typically greater than 350m² and often above 500m².
- Providing 60,000L of water storage for consumption on each lot is estimated to provide approximately 92 days of potable water servicing if no rain occurs. Given TSC's relatively high annual rainfall and historic rainfall records, 92 days without rain is unlikely and accordingly the risk is appropriate.

- In the event the provided rainwater tank systems do run dry, potable water will be required to be imported from an external source. This will be at the cost to the lot owner.
- If the lot owner wishes, larger rainwater tank volumes can be provided to increase the number of days the system is capable of servicing without rain and therefore reduce the risk of requiring potable water to be imported to the lot.

Calculations and parameters used to determine the above information is provided overpage.

I trust that the above provides a satisfactory onsite water supply assessment for 225 Terranora Road but if you have any further concerns, please feel free to contact the undersigned on JakeB@planitconsulting.com.au.

Yours sincerely



Jake Bentley
Civil Engineer.

Onsite Water Supply Assessment

3x Lot Rural Residential Subdivision

225 Terranora Road, Banora Point NSW 2486

www.planitconsulting.com.au

Onsite Water Supply Assessment

Project Details

Job No.: J5950**Project Name:** 225 Terranora Rd**Address:** 225 Terranora Rd, Banora Point NSW 2486**Development type:** Rural Subdivision**Site Area:** Approx. 10ha

Tweed Shire Council and Rural Fire Service Requirements

Tweed Shire Council Building and Environmental Health Unit requirements	Rate	Units
Minimum tank storage capacity per bedroom	15000 L	
Minimum tank storage capacity per bedroom	15 KL	
Number of bedrooms per dwelling	4 rooms	
Minimum tank storage capacity per dwelling	60000 L	
Minimum tank storage capacity per dwelling	60 KL	
Firefighting Requirements	Rate	Units
Additional storage volume for each dwelling	10000 L	
Additional storage volume for each dwelling	10 KL	

Onsite Water Supply Assessment

Demands	Rate	Units
Estimated average daily demand per person for indoor use	180 L	
Estimated average daily demand per dwelling for outdoor use	150 L	
Equivalent Person (EP) conversion factor to Equivalent Tenement (ET)	2.8	
Estimated average daily demand per dwelling	654 L	
Estimated average yearly demand per dwelling	238710 L	
Estimated average yearly demand per dwelling	238.71 KL	
Rainfall (Station: Tweed Heads Golf Club)	Rate	Units
Mean annual average rainfall (based on the average annual rainfall depth from and including 2011 - 2020)	1736 mm	
Estimated rainfall capture efficiency	80 %	
Estimated effective rainfall depth	1388.8 mm	
Storage requirements	Rate	Units
Proposed dwelling roof area (per dwelling)	175 m ²	
Estimated volume of rainfall collected from dwelling roof area	243040 L	
Estimated volume of rainfall collected from dwelling roof area	243.04 KL	
Proposed total tank volume	60000 L	
Proposed tank volume	60 KL	
Number of days till tank is empty	91.7 days	

Rainwater Tank Summary

Proposed tank storage to be provided	Rate	Units
No. of Lots/dwellings:	3 lots	
Minimum roof area of each proposed dwelling	175 m ²	
Total storage to be provided for consumption	180 KL	
Total storage to be provided for firefighting requirements	30 KL	
Storage to be provided on each dwelling for consumption	60 KL	
Storage to be provided on each dwelling for firefighting requirements	10 KL	
Total rainwater tank volume to be provided on each dwelling (inclusive of consumption and firefighting storage requirements)	70 KL	
Proposed number of tanks to be connected to each dwelling	1 tanks	
*Proposed size of rainwater tanks	70 KL	

Notes

*Any size and number of rainwater tanks can be provided given that a minimum volume of 70KL is achieved within rain water tanks attached to each dwelling. It should be noted that the water supply connection for consumption is to be taken off a high level to ensure 10KL of storage is available within rainwater tank/s base for firefighting requirements.