

STORMWATER MANAGEMENT PLAN

PLANNING PROPOSAL FOR GENERAL INDUSTRIAL LAND



At
40 The Tunnell Road
Brunswick Heads NSW 2483

Upon
Land Title
Part Lot 15 DP 1236885

Date: May 2024
(Rev -)

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1 INTRODUCTION

SDS Civil Enterprises have prepared a Stormwater Management Plan (SWMP) to accompany a planning proposal to rezone 4,220m² of part Lot 15 DP 1236885 from RU2 Rural Landscape to a new Zone E4 General Industrial landuse. Refer Figure 1 for locality details.

An existing development (DA10.2022.219.1) has been granted for a truck depot and amenities building within this rezoning proposal footprint. The approximate area of the approved truck depot site is 2,574m² and the hardstand footprint can be seen within/under the arial shading in Figure 1.



Figure 1 – Planning Proposal Footprint Including Existing Truck Depot (Source: Google Earth)

1.2 Report Reference Documents

The preparation of this report has had regard to the following documents:

- Byron Shire Council *DCP 2014 – Chapter D6 Subdivision (April 2018)*
- Byron Shire Council *NRLGM – Handbook of Stormwater Drainage Design (2013)*
- Byron Shire Council - *Comprehensive Guidelines For Stormwater Management (2014)*
- LANDCOM – *Managing Urban Stormwater: Soils and Construction (2004)*

2 EXISTING STORMWATER PIPE NETWORK

An existing piped stormwater network is present within Lucky Lane and discharges into an existing waterway which traverses through Lot 15 DP1236885 immediately adjacent to Lucky Lane road reserve. Refer Figure 1 and Plate 1 below.

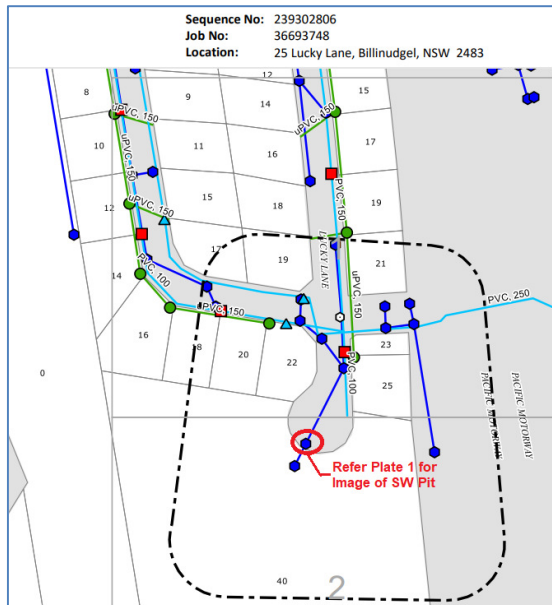


Figure 2 – DBYD Services



Plate 1 – Existing Stormwater Pit Lucky Lane

The legal point of discharge for the planning proposal lands will be to this existing stormwater pit. The outlet from this stormwater pit is a 450 diameter RCP (to be confirmed as pipe is currently 2/3 underwater). The invert level of the stormwater pit is RL0.99 AHD. With the existing filled portions of the planning proposal lands ranging between RL4.9 to RL5.1 AHD, there is ample elevation available to install new onsite stormwater with a pipe outlet falling to the existing Lucky Lane stormwater pit.

2.1 Onsite Catchment and Flows

The development does not have any external catchments which drain onto the filled industrial site and therefor the catchment is self contained within the planning proposal lands. Based upon field survey, the developed footprint for industrial use

would be a minimum of 2,574m² and could be up to 2,900m² which would generate a runoff for a Q_{10yr} ARI for a 6min time of concentration of:

$$Q_{10yr} = CI_{10}A/360 \quad \text{where } Q = \text{m}^3/\text{s} \quad C = \text{coefficient of discharge}$$

$$A = \text{ha} \quad I_{10} = \text{mm/hr intensity}$$

Adopting C = 0.9 and I₁₀ = 210mm/hr and A = 0.29ha

$$Q_{10yr} = 0.9 \times 210 \times 0.29 / 360 = 0.172\text{m}^3/\text{s} = \mathbf{172 \text{ litres per second runoff}}$$

This runoff flow could be accommodated within a 300dia pipe at 3% gradient, however until a building proposal is prepared, a more complete hydraulic assessment would be undertaken at the time of preparing a development application inclusive of attenuation tank sizing. Refer to Figure 3 for location of the typical onsite piped stormwater concept to enable a discharge regime to Lucky Lane.



Figure 3 – Indicative Site Future Stormwater

The 100yr ARI overland flow path for the site would be for excess waters to simply overflow down the earthen / vegetated batters about the perimeter of the filled industrial footprint.

3 STORMWATER QUALITY

A generic industrial layout has been modelled via MUSIC software to ensure consideration (ie sufficient size / location / quality compliance) to treatment of stormwater runoff can be effectively managed for the proposal. In summary, it was found that the treatment train of using:

Rainwater re-use tanks (10kL) + Bioretention Swales (100m²)

+ Filter Baskets Within Pits

would achieve a compliant stormwater quality discharge outcome. A copy of the treatment train as modelled is shown in Figure 4 and the MUSIC model configuration used is shown in Figure 5.

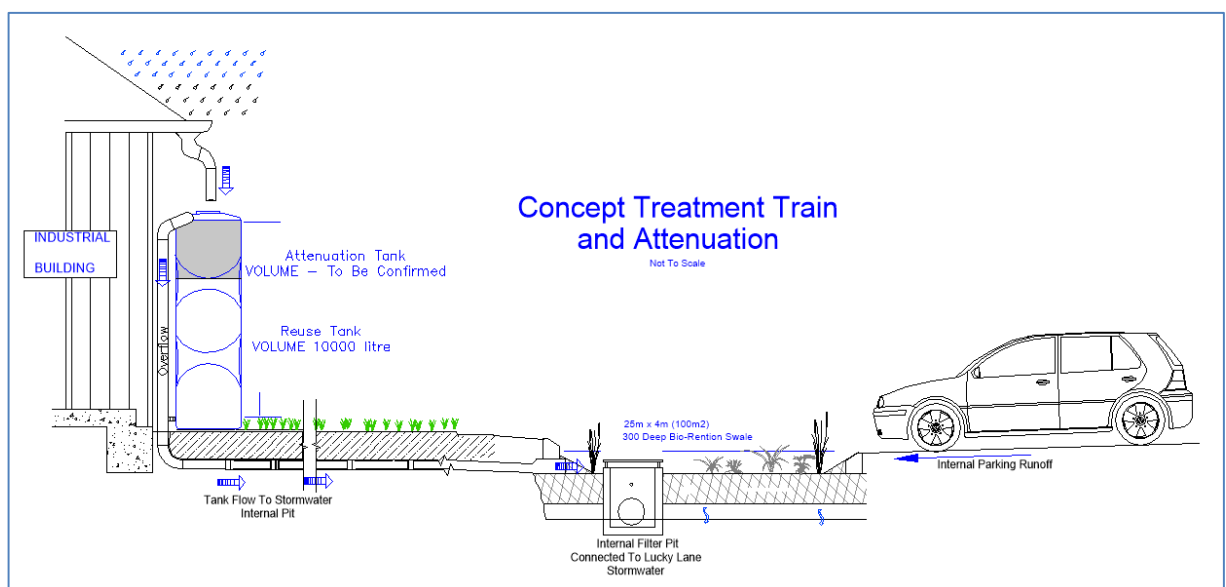


Figure 4 – Stormwater Treatment Train

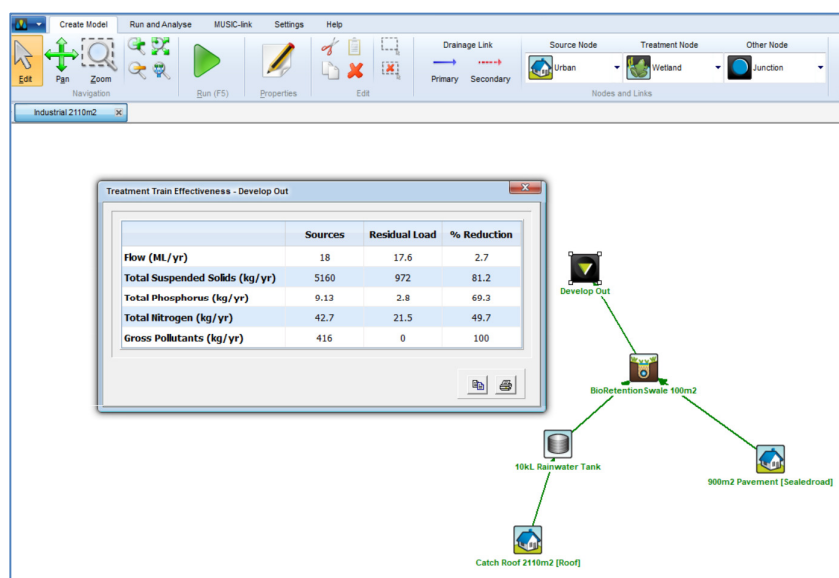


Figure 5 – MUSIC Model Network

The modelling demonstrated compliance with Councils pollutant reduction target as compared below in Table 6 and model SQZ files can be issued to Council if requested:

Table 6 – MUSIC Comparison To BSC Targets

Pollutant	BSC Target	MUSIC Output	Complies (Yes / No)
Total Suspended Solids	80%	81%	✓ Yes
Total Phosphorus	45%	69%	✓ Yes
Total Nitrogen	45%	49%	✓ Yes
Gross Pollutants	70%	100%	✓ Yes

4 CONSTRUCTION SOIL AND WATER MANAGEMENT

Future development upon the site would involve excavation of footings / building construction and services as well as the installation of car parking civil works.

To implement these works, typical building construction activities and their sequence will be:

- (i) Implementing erosion and sediment controls inclusive of:
 - controlled site vehicular access points
 - sediment protection of existing road gully pits
 - sediment fence protection about the perimeter of the site
- (ii) Stripping of topsoil and stockpile of same where internal pavements and site level adjustments are required;
- (iii) Infrastructure service trenching and laying of same (ie water / sewer / stormwater);
- (iv) Provide gully pit entry sediment protection of new stormwater treatment works;
- (v) Install driveway and pavement materials and kerbing;
- (viii) Install turf buffer strips about kerb edging as soon as possible – for filtering water runoff which may occur.
- (ix) Topsoil and seed general allotments as soon as possible once driveway pavement levels are finalised.

5 STORMWATER MAINTENANCE MANAGEMENT

The development has various stormwater treatment devices which remain the responsibility of each industrial user / holding as per below:

- | | | |
|--|---|--------------------------|
| (a) Rainwater tank maintenance | - | Landowner responsibility |
| (b) Sediment filter baskets in grated pits | - | Landowner responsibility |
| (c) Bio-retention vegetation maintenance | - | Landowner responsibility |