Site Based Stormwater Management Plan

for

Vantage Building Group

Terrace Housing

at

Lot 8001 Baringa Dr, Baringa

Job Ref: SC-10827

Empire Engineering

EMPIRE ENGINEERING PTY LTD

www.empireengineering.com.au

ABN: 21 112 761 510

ACN: 112 614 510

Coral Coast Office

Street Address: 9 Princess Street, Bundaberg Qld 4670

Postal Address: PO Box 2052, Bundaberg Qld 4670

Phone: (07) 4154 4984

Email: admin.cc@empireengineering.com.au

Sunshine Coast Office

Street Address: 13 Norval Court, Maroocyhore Qld 4556

Postal Address: PO Box 102, Mooloolaba Qld 4557

Phone: (07) 5477 6437

Email: admin.sc@empireengineering.com.au

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AUTHORSHIP INFORMATION

REPORT TITLE	Site Based Stormwater Management Plan
Affected Properties	
Street Address	Lot 8001 Baringa Dr, Baringa
RP Description	8001 SP344660
Prepared For	Vantage Building Group
Report Status	For DA Approval
Prepared By	
Name	Sean Dwyer
Qualifications	BE (Civil) CPEng RPEQ
Phone Number	07 5477 6437
Reviewed By	
Name	Troy Paulsen
Qualifications	RPEQ 6990
Phone Number	07 5477 6437
Certified By	
Name	Troy Paulsen
Qualifications	RPEQ 6990
Phone Number	07 5477 6437

REVISION	DATE	Signature
A	06.08.2026	

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INTRODUCTION

1.1. Background

This report is to accompany and be considered part of an application to Economic Development Queensland (EDQ) to gain a Development Approval for a proposed terrace housing development at 1 Lukin Terrace, Baringa. This application seeks a PDA Development Permit for a Material Change of Use.

1.2. Scope

Empire Engineering Pty Ltd was commissioned by Vantage Building Group to develop a Site Based Stormwater Management Plan to outline stormwater management strategies for the proposed development in accordance with the relevant Local and State Government standards. A stormwater quality management strategy has been developed in accordance with relevant Sunshine Coast Council (SCC) guidelines and the State Planning Policy (SPP, 2017) and PDA Guideline No. 13 Engineering standards - Stormwater quality. The requirements are met through appropriately implementing stormwater quality improvement devices (SQID's).

1.3. Proposed Development

Preliminary architectural drawings prepared by Vantage Building Group in-house architects depict a proposed mixed residential and commercial use development with associated ground level parking and access driveways.

2.0 SITE CHARACTERISTICS

2.1. Location

The subject site is rectangular in shape, has an area of 0.772Ha with direct road frontage access off Baringa Dr and Patricia Lane.

2.2. Topography and Drainage

The site generally falls from south-west to north-east, towards Baringa Drive.. There is approximately 1m of fall across the lot. Earthworks for the site were previously completed as part of the Aura Estate, as such the site is generally cleared of large vegetation with low growing grass coverage. Presently, a carpark and display room reside on the site.

The downstream receiving environment is Council's road reserve. The road has a developed storm water system in the form of an underground piped drainage system in accordance with *QUDM*. Two existing stormwater lawful points of discharge have been identified, one to the corner of Baringa Dr / Aura Bvd, and another at the mid-point frontage to Baringa Dr. Both connections are DN450 pipe (IL approx. 3.80), designed to convey the storm water minor design event run-off from the development site to the larger downstream drainage network. These lawful point(s) of discharge were established for the site at the time of the estate subdivision.

There are no upslope external catchments traversing the subject site.



Figure 1.0 – Subject Site

(courtesy Nearmaps)

2.3. Design Objectives

Design objectives for stormwater quality management are that the development protects or enhances the environmental value and water quality of receiving waters within or downstream of the site prior to discharge. Triggers for development of lots exceeding 2,500m^2 or for urban purposes within population centres greater than 3000 persons require the application of Water Sensitive Urban Design (WSUD) load reduction targets. The scope typically encompasses the operational 'post construction' phase of the development however 'construction phase' water quality is briefly addressed in this report.

Development must incorporate the principles of Water Sensitive Urban Design (WSUD) in accordance with 'Urban Stormwater - Queensland Best Practice Environmental Management Guidelines' and current industry standards (e.g. Environmental Protection (Water) Policy, Queensland State Planning Policy 2017 – water quality).

Erosion and Sediment Control must be designed in accordance with the recommendations contained within the Environment Protection Agency's (EPA) 'Best Practice Urban Stormwater Management – Erosion and Sediment Control', International Erosion Control Association's (IECA) – 'Best Practice Erosion & Sediment Control' and 'Queensland Urban Drainage Manual' (QUDM).

3.0 STORMWATER QUALITY MANAGEMENT

3.1. Construction Phase

Table 3.1 has been adapted from Table C4.1 of Brisbane City Council's (BCC) *Stormwater Best Management Practices 2000* and details the typical stormwater pollutants which may be generated during the construction phase of the development.

Pollutant	Sources
Litter	Paper, construction packaging, food packaging, cement bags and off-cuts
Sediment	Unprotected exposed soils and stockpiles during earthworks and building
Hydrocarbons	Fuel and oil spills, leaks from construction equipment
Toxic Materials	Cement slurry, solvents, cleaning agents, wash waters
pH Altering Substances	Cement slurry, wash waters

Table 3.1 - Typical Construction Phase Pollutants

The following ESC measures should typically be implemented prior to the commencement of construction:

- Education of all site workers in sediment and erosion procedures;
- Specified storage areas for construction materials and plant that are bunded to prevent any spillages from escaping.

Table 3.2 illustrates the State Planning Policy objectives for construction phase stormwater quality that the erosion and sediment control plan to be submitted with the operational works approval is required to achieve.

Issue		Design objectives
Drainage control	Temporary drainage works	1. Design life and design storm for temporary drainage works: • Disturbed area open for <12 months—1 in 2-year ARI event • Disturbed area open for 12–24 months—1 in 5-year ARI event • Disturbed area open for > 24 months—1 in 10-year ARI event 2. Design capacity excludes minimum 150 mm freeboard 3. Temporary culvert crossing—minimum 1 in 1-year ARI hydraulic capacity
Erosion control	Erosion control measures	1. Minimise exposure of disturbed soils at any time 2. Divert water run-off from undisturbed areas around disturbed areas 3. Determine the erosion risk rating using local rainfall erosivity, rainfall depth, soil-loss rate or other acceptable methods 4. Implement erosion control methods corresponding to identified erosion risk rating
Sediment control	Sediment control measures Design storm for sediment control basins Sediment basin dewatering	1. Determine appropriate sediment control measures using: • Potential soil loss rate, or • Monthly erosivity, or • Average monthly rainfall 2. Collect and drain stormwater from disturbed soils to sediment basin for design storm event: • Design storm for sediment basin sizing is 80th% five-day event or similar 3. Site discharge during sediment basin dewatering: • TSS < 50 mg/L TSS, and • Turbidity not >10% receiving waters turbidity, and • pH 6.5–8.5
Water quality	Litter and other waste, hydrocarbons and other contaminants	1. Avoid wind-blown litter; remove gross pollutants 2. Ensure there is no visible oil or grease sheen on released waters 3. Dispose of waste containing contaminants at authorised facilities
Waterway stability and flood flow management	Changes to the natural waterway hydraulics and hydrology	For peak flow for the 1-year and 100-year ARI event, use constructed sediment basins to attenuate the discharge rate of stormwater from the site

Table 3.2 - Construction Phase Stormwater Quality Objectives

3.2. Operational Phase

During the operational stage of the development, the following impacts have been identified in relation to stormwater runoff and water quality of the receiving waterways:

- Gross pollutants which include human derived litter, course sediment and vegetation

To target these potential pollutants stormwater quality improvement devices (SQID's) are proposed to be incorporated within the design.

Nutrient treatment will be undertaken by the previously constructed regional infrastructure east of the subject site, these include;

- Sediment and suspended solids
- Nutrients such as phosphorous and nitrogen

3.2.1. Water Quality Objectives

The water quality objectives (WQO's) for this site were determined in accordance with State Planning Policy (SPP, 2017) as follows

Pollutant	Minimum Reduction Targets
Total Suspended Sediments (TSS)	N/A
Total Phosphorus (TP)	
Total Nitrogen (TN)	
Gross Pollutants (>5mm)	90%

Table 3.3 - Water Quality Objectives

3.2.2. SQID Treatment Train

GPT Baskets – A number of baskets installed to the top of field inlets to trap coarse sediment and gross pollutants prior to entering the downstream drainage network are proposed as follows:

- Lot 8001 - 6 x **Atlan 'Stormsack' GPT filters**;

Any alternate products (other than listed above) shall be on the approved SQIDEP verified product list.

4.0 CONCLUSION

This report has outlined the stormwater management strategies to be adopted in the construction and operational works phase of the development which satisfies State and Council planning scheme policies.

Two existing stormwater lawful points of discharge have been identified, one to the corner of Baringa Dr / Aura Bvd, and another at the mid-point frontage to Baringa Dr.

Primary water quality improvement devices are proposed including gross pollutant baskets to satisfy the Water Quality Objectives applicable to the subject site.

APPENDIX A

CONCEPTUAL STORMWATER MANAGEMENT PLAN

ATLAN STORMSACK LITTER BASKET TO BE INSTALLED TO ALL FIELD INLETS.

LEGEND

EXISTING	PROPOSED	
		CONCRETE PAVEMENT. REFER DWG C050
		CONCRETE FOOTPATH. REFER DWG C050
× ex23.00	× 23.00	SURFACE LEVEL
		DIRECTION OF FALL
		600x600 TYPE 2 FIELD INLET U.N.O.
		STD. CONC. Ø 1050 MANHOLE U.N.O.

LEGEND

EXISTING	PROPOSED	
		PROPERTY BOUNDARY
		PROPERTY EASEMENT
		KERB AND CHANNEL
		KERB ONLY
		EDGE OF CONCRETE
		ROAD CROWN
SW		DRAINAGE
S		SEWER
W		WATER
23.00		CONTOURS
		FENCE

BARINGA DRIVE

CORE AND GROUT SEAL NEATLY TO EXISTING STORMWATER CHAMBER

PULL UP AND DISPOSE OF EXISTING REDUNDANT STORMWATER

CORE AND GROUT SEAL NEATLY TO EXISTING STORMWATER CHAMBER

PULL UP AND DISPOSE OF EXISTING REDUNDANT STORMWATER

LUKIN TERRACE

LESLIE CRESCENT

AURA BOULEVARD

FFL 6.60 FFL 6.70 FFL 6.80 FFL 6.90 FFL 7.00 FFL 7.10 FFL 7.20 FFL 7.30 FFL 7.37

8001 SP344660

4000 SP344660

6 SP303516 7 SP303516 8 SP303516 1653 SP303516 1654 SP303516 9 SP303516

EMT 8W SP284351

EMT NW SP284351

EMT NH SP303516

Project North:

Scales:
A 0 2.5 5.0 7.5 10.0 12.5m
1:250 at A1
1:500 at A3

Status: PRELIMINARY

Issue	Amendment	Date	Dft

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2. Figured dimensions take precedence over scaled.
3. Verify all dimensions on site.

Empire Engineering
ACN 112761510 ABN 21112761510

Sunshine Coast Office
L2, 13 Norval Court Maroochydore Q 4558
PO Box 102 Mooloolaba Q 4557
P: 07 5477 6437
E: admin.sc@empireengineering.com.au

Bundaberg Office
9 Princess Street Bundaberg Q 4670
PO Box 2052 Bundaberg Q 4670
P: 07 4154 4894
E: admin.cc@empireengineering.com.au

Client:	VANTAGE BUILDING GROUP		
Project:	PROPOSED TERRACE HOUSING LOT 8001 BARINGA DRIVE, BARINGA		
Designed:	SFD	Drawn:	IDS
Approved:	SEAN DWYER / RPEQ: 17012		

Title: CONCEPT STORMWATER MANAGEMENT PLAN

Date: AUGUST 2026	Scale: AS NOTED	
Job Ref No:	Drawing No:	Issue:
SC-10827	SK01	