



STORM WATER MANAGEMENT PLAN

ST COLUMBIA'S COLLEGE

Prepared by Brogue Consulting Engineers

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1. Introduction

St Columbia's College is situated south of Buckley Road in Essendon and occupies about 1.60 hectares. A proposed application to develop the NW of the site with a new STEAM college building and outdoor sports court is planned.

The proposed development covers the lots at 145-153 Buckley Street, and a partial area within the 2 Leslie Street lot in Essendon.

2. Objectives of the Stormwater Management Strategy

Brogue Consulting Engineers have prepared this stormwater management strategy to outline the proposed development stormwater management and:

- Describe the strategy for compliance to the local legal point of discharge requirements and
- Describe the strategy for compliance to best practice water quality targets

Refer to Figure 1.1 below for the selected extent of proposed development at the college.

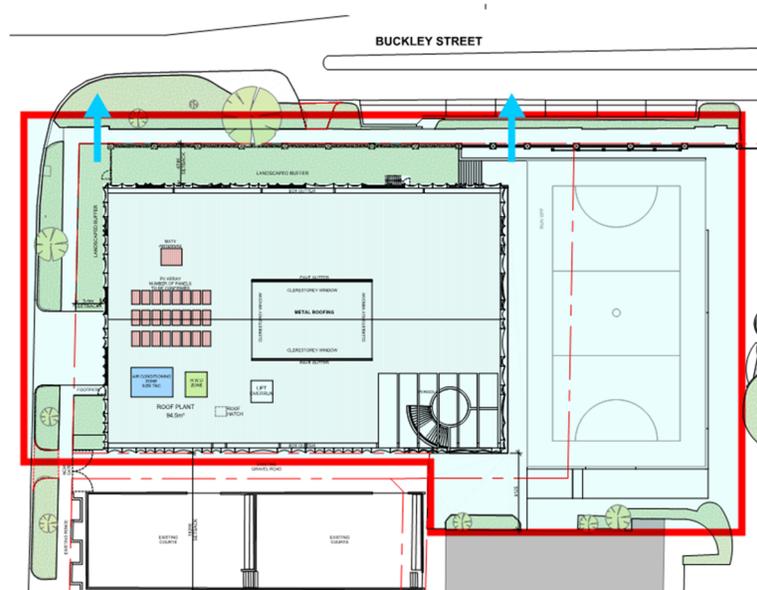


Figure 1.1: Extent of Proposed Development Works (in red boundary)

3. Pre-Development Stormwater Management Conditions

The main campus at No. 2 Leslie Road currently discharges into the Buckley St stormwater drain (375mm θ) and is independent of the proposed new development works.

2 Leslie Street:

The existing sports court here currently collects stormwater runoff on the Northwest corner of the boundary before discharging directly into the in-ground drain on Buckley Street. The surface is largely impervious, and stormwater runoff exits the site via a 225mm θ underground drain.

145-153 Buckley Street:

This area was previously occupied by 4 single-family dwellings. The natural surface here had about 50% collective permeability and was known to have discharged to the kerb and channel at Buckley Street. It is recognized that Buckley Street road and drainage upgrade works were carried out in 2018 and these property kerb outlets have since been decommissioned.

Refer to Figure 3.1 for the existing stormwater connections from Buckley Street to the development site.

Refer to Figure 3.2 for the hydrological sub-catchments contributing to these existing drainage connections.



Figure 3.1: Existing Stormwater Point of Connections

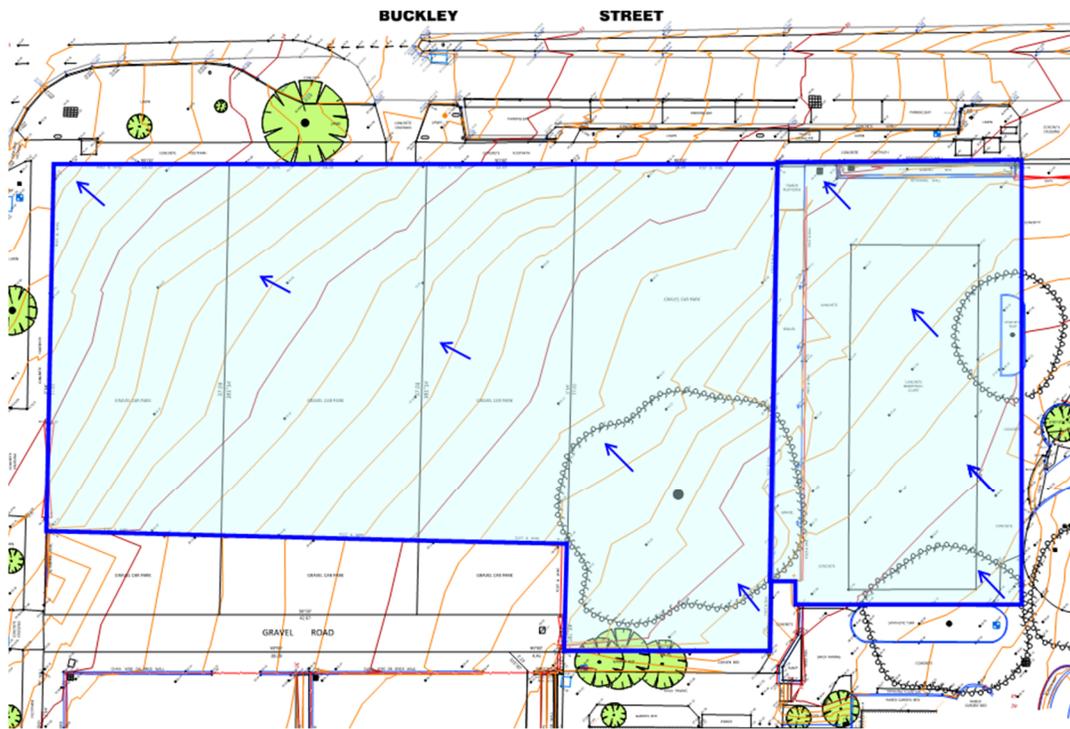


Figure 3.2: Hydrological Sub-Catchments

4. Post-Development Stormwater Management Conditions

The proposed development works intends to maintain the current two (2) point of discharges (LPD) into the Buckley St stormwater drainage system. Refer to Figure 4.1 for the site's hydrological sub-catchments.

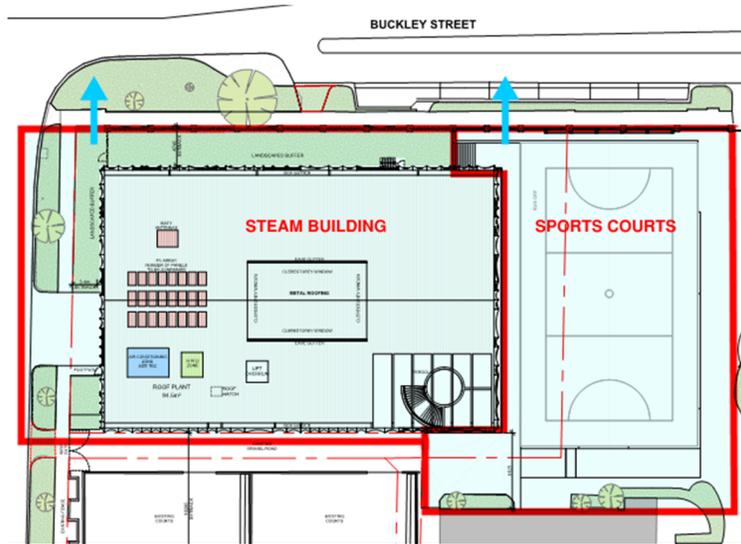


Figure 4.1 Hydrological sub-catchments of the selected development site

STEAM Building

Stormwater runoff from the works within the selected 145-153 Buckley St will be directed into the following:

- 30,000L Rainwater Tanks for toilet flushing and irrigation;
- Excess stormwater runoff will be directed into an on-site detention system prior to discharge into the Buckley Street drainage system.

The stormwater on-site detention system will be designed in accordance with the City of Moonee Valley Stormwater Drainage Requirements (d2003). Post-detention stormwater runoff will discharge into the existing stormwater drain on the corner of Buckley Street and Lorraine Street.

Redeveloped Sports Courts

At the Sports courts, stormwater runoff will be captured and treated into a 5 sqm of rain gardens prior to discharge into the council drainage system. As there will only be partial re-development works within the property at 2 Leslie Road (upgrade works to the existing sports court), it is expected that the post-development stormwater runoff from the upgraded sports court would only need to match the pre-existing conditions through the 225mm θ drain. On-site detention is required to address the post-development runoff flowrates.

A preliminary summary of the stormwater management flow and detention storages are described below. All figures represented here are preliminary only and will be refined following further detailed design of the development and landscape surrounds.

Lots	145-153 Buckley St, Essendon 1,983sqm		2 Leslie Road Essendon (Part of) 742sqm	
	PSD 20% AEP	SSR 10% AEP	PSD 20% AEP	SSR 10% AEP
Pre-Development	26.5L/s	-	18.8L/s	-
Post Development	23.3L/s	16,400L	18.8L/s	2,250L

Table 4.1: Stormwater Discharge and Storage Summary

It is acknowledged that a detailed stormwater drainage analysis will be carried out to demonstrate the satisfaction of the site stormwater drainage requirements to City of Moonee Valley principles. For small developments of this nature, a Rational Method of Hydrology is proposed alongside the use of the parameters from ARR Data Hub and the 2016 data from the Bureau of Meteorology.

Water Sensitive Urban Design and Water Quality

For all stormwater quality performance and measures, reference is made to the separate Water Sensitive Urban Design Report prepared by the project services consultants (Stantec).

Given the reasonable depths of the existing stormwater drainage system under Buckley Street, it is expected that the onsite stormwater detention systems will be capable of gravity-draining into the LPD.

5. Conclusion and Summary

The proposed development works are able to effectively manage the stormwater management conditions through the use of approved measures and practices.

- Connection to the 2 existing stormwater legal point of discharges can be maintained as part of the post development conditions.
- Onsite detention measures will be implemented as part of the post-development engineering design to satisfy the local authority drainage management requirements.
- Discharge into the LPDs via the onsite detention system can be maintained without the use of pumped systems.
- Stormwater runoff from the selected development sites will be treated to satisfy best practice targets prior to discharge into the council drainage system (Legal Point of Discharge).