Our Job Number: 240601
17 July 2025

Attn: MMIG Developments Pty Ltd
c/- cm studio: Ben Wade b.wade@cm-studio.com.au

STORMWATER CONCEPT DESIGN STATEMENT

RE: STORMWATER MANAGEMENT PLANS FOR A PROPOSED NEW RESIDENTIAL DWELLING AT 139-141 RIVERVIEW ROAD, AVALON BEACH NSW

Please find attached the stormwater management concept plans in support of the pre-lodgement meeting for 139-141 Riverview Road, Avalon Beach.

At the request of cm studio & MMIG Developments Pty Ltd, RTS Civil Consulting Engineers Pty Ltd (RTS Civil) was engaged to prepare a stormwater management plan for the proposed new residential dwelling at 139-141 Riverview Road, Avalon Beach. The stormwater management plans are referenced below:

- SW001B - COVERPAGE, NOTES & CALCULATIONS SHEET 1 OF 2
- SW002B - COVERPAGE, NOTES & CALCULATIONS SHEET 2 OF 2
- SW100B - GROUND STORMWATER MANAGEMENT PLAN
- SW101B - FIRST FLOOR STORMWATER MANAGEMENT PLAN
- SW102B - SECOND FLOOR STORMWATER MANAGEMENT PLAN
- SW103B - ROOF STORMWATER MANAGEMENT PLAN
- SW104B - ENTRY PORTICO STORMWATER MANAGEMENT PLANS
- SW200B - STORMWATER DRAINAGE DETAILS SHEET 1 OF 3
- SW201B - STORMWATER DRAINAGE DETAILS SHEET 2 OF 3
- SW202B - STORMWATER DRAINAGE DETAILS SHEET 3 OF 3

The designed stormwater management plans (referenced above) are in general accordance with the intent of the Building Code of Australia, Australian Standards AS3500.3 – Stormwater Drainage, the National Construction Code, Australian Rainfall & Runoff, Northern Beaches Council Council's Water Management Policy (2021), and Council's Pre-lodgement Meeting Notes dated 7 June 2023.

Below is a summary of the stormwater requirements and recommendations:

1. The subject site is described as Lot 1 & 2 DP 833902, 139-141 Riverview Road, Avalon Beach. Site levels range from approximately RL 34.0m AHD adjacent Riverview Road to RL 2.0m AHD grading to the Pittwater.
2. The total combined site area is approximately 1,783m^2 - Lot 1 being 1,043m^2 and Lot 2 being 740m^2. The total existing site contains two double storey residence with attached double garage, steep driveway, and pedestrian walkway to a boat house located on the Pittwater. The site is located to the western side of Riverview Road.
3. RTS Civil carried out a site investigation of the existing stormwater system.
    a. The majority of roof runoff currently drains to a prefabricated rainwater tank

located below the existing dwelling. The tank overflows to the site drainage system.

b. There are three existing outlet pipes directed to the Pittwater (Refer Figure 1 for locations):

   i. Outlet 1: 1 x 150 mm DIA. uPVC pipe

   ii. Outlet 2: 1 x 100 mm DIA. uPVC pipe

   iii. Outlet 3: 1 x 100 mm DIA. ceramic pipe.

c. It is proposed to utilise Outlet 1 as the main discharge point for the development. The existing 150 mm stormwater outlet is proposed to be cleaned out or replaced if required. An energy dissipator is to be located at the end of the outlet within property boundary.

4. The site currently discharges into the Pittwater. As a result, onsite stormwater detention (OSD) is not recommended.

5. Water Sensitive Urban Design (WSUD) however is required to ensure the stormwater quality targets are achieved according to Section 2.2.1 of Council's WSUD & MUSIC Modelling Guidelines.

   a. The computer program MUSIC was used to model the water quality requirements. Figure 2 of this report displays the MUSIC model calculations which indicate the proposed development meets the stormwater pollutant reduction targets required by Council.

   b. The rainwater tank and Stormwater Quality Improvement Devices (SQID) will achieve the Council targets on the treatment train.

   c. The SQID's proposed to treat the development size, in addition to the rainwater harvesting tank, are 1 x SPEL Stormsacks produced by SPEL or an equivalent approved device located within 1 x grated pit as well as 2 x off SPEL Filters (EMC-45 filters by Atlan) within a 900 x 1200 pit with 900 x 900 access grate or equivalent approved devices.

   d. The landscaped roof proposed will also further reduce runoff volume and delay peak flow, complementing the rainwater harvesting system and contribute to meeting Council's water quality targets.

6. Although there is no Council rainwater harvesting requirement, the development is by BASIX to provide a rainwater harvesting system.

   a. The rainwater tank shall provide for the development to service outdoor irrigation and toilet flushing in accordance with the requirements of the BASIX certificate, Sydney Water and AS3500.3.

   b. The tanks are to be fully watertight in accordance with HB 230-2008 Rainwater Tank Design and Installation Handbook of Australia.

   c. The rainwater harvesting system is to overflow into the SQID.

   d. A 10,000L rainwater harvesting volume has been recommended for internal and external reuse.

We trust that this letter and corresponding documentation meets the requirements set by Northern Beaches Council. Please contact the author if further clarification is required (or if the DRAINS or MUSIC files are required) on 0448 448 960 or via email at rhys@rtscivil.com.au.

Yours sincerely

RTS CIVIL CONSULTING ENGINEERS PTY LTD

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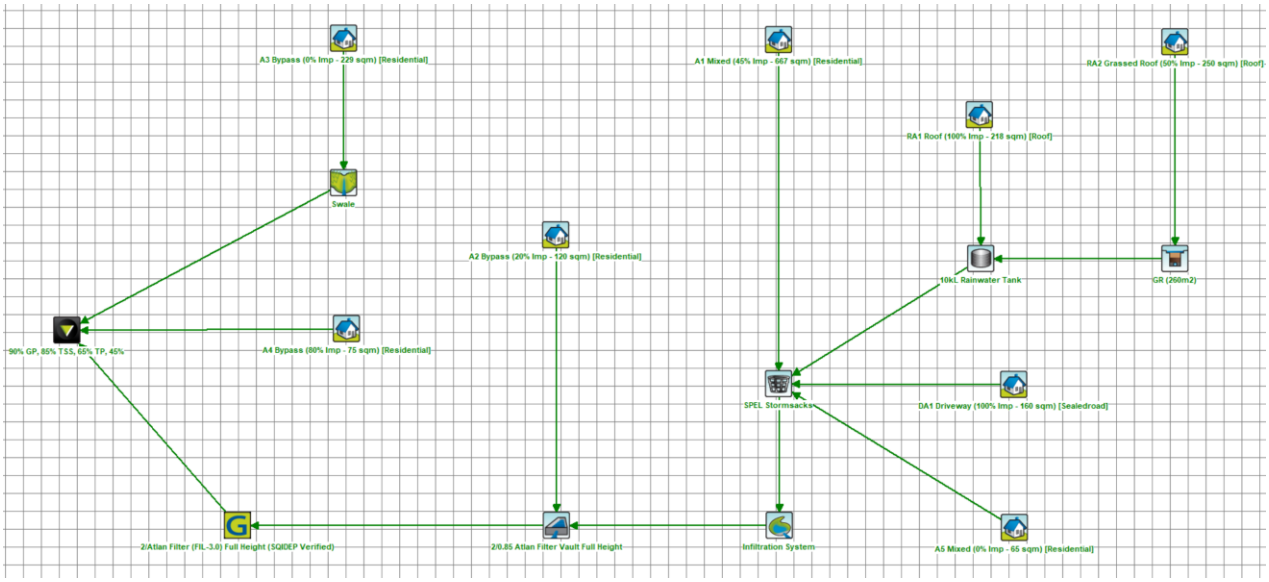
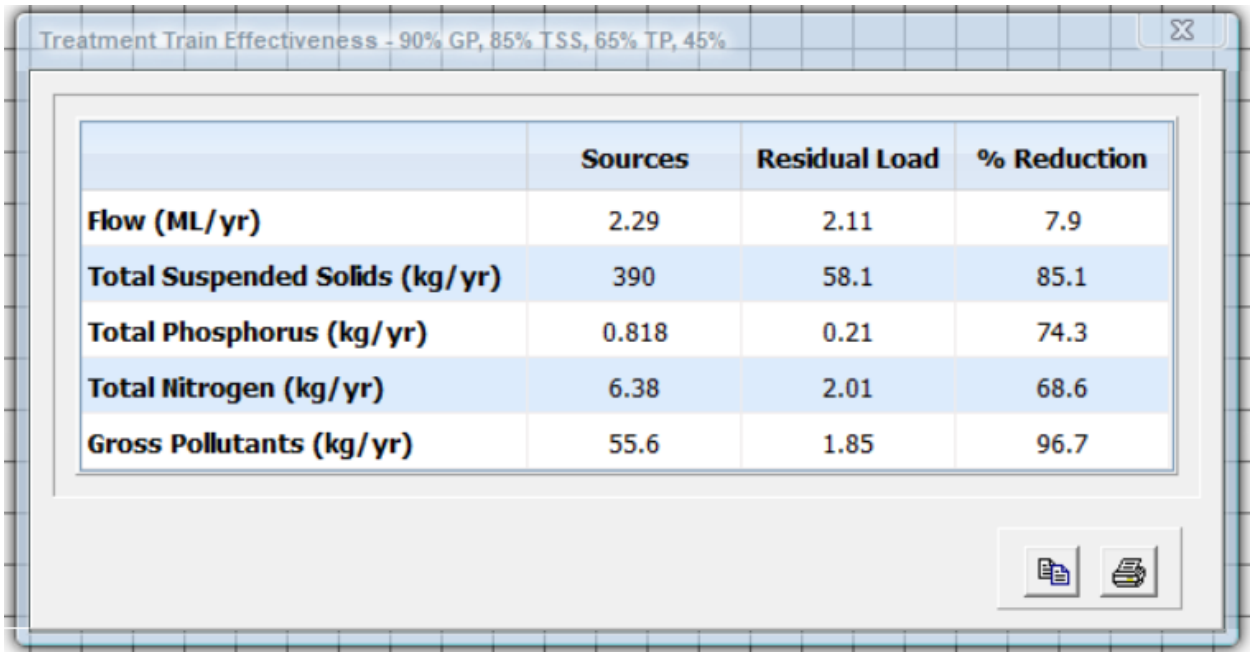
Figure 1 – Existing Stormwater Outlet Pipes





	Sources	Residual Load	% Reduction
Flow (ML/yr)	2.29	2.11	7.9
Total Suspended Solids (kg/yr)	390	58.1	85.1
Total Phosphorus (kg/yr)	0.818	0.21	74.3
Total Nitrogen (kg/yr)	6.38	2.01	68.6
Gross Pollutants (kg/yr)	55.6	1.85	96.7

Figure 2- Calculation Summary of the Development MUSIC Model