

4<sup>th</sup> June 2019

**MIRVAC PROJECTS PTY LTD**  
LEVEL 20, 200 GEORGE STREET,  
SYDNEY NSW 2000

**Attention:** Uma Springford c / Zac Langsford

**Email:** [zaclangsford@mirvac.com](mailto:zaclangsford@mirvac.com)

**CC:** [uma.springford@mirvac.com](mailto:uma.springford@mirvac.com)  
[aidan.ryan@mirvac.com](mailto:aidan.ryan@mirvac.com)

**RE: AUSTRALIAN TECHNOLOGY PARK  
LOCOMOTIVE REDEVELOPMENT**

**MODIFICATION OF THE LOCOMOTIVE WORKSHOP  
BAYS 1-4a (SSD 8517 MOD 1) AND BAYS 5-15 (SSD 8449 MOD 1)**

Dear Zac,

This letter has been prepared by Harris Page & Associates (HPA) at the request of Mirvac Projects Pty Ltd (Mirvac) in response to New South Wales Department of Planning and Environment (DoP) letter dated 29.04.19 requesting additional information to address City of Sydney Council and Sydney Water responses to Ethos Urban application to modify Development Consent SSD 8517 which relates to Bays 1-4a and SSD 8449 which relates to Bays 5-15 Locomotive Workshop, Eveleigh.

Outlined within Ethos Urban application dated 1<sup>st</sup> April 2019, was a high-level overview of existing site conditions, conditions which directly impact the viability to implement stormwater discharge quality measures necessary to achieve the pollutant reduction targets nominated within SSD 8517 - Condition B29 and SSD 8449 – Condition B25.

Although not the authority in this case, City of Sydney was required to provide response to Ethos' application via the DoP, which highlights the council's concerns regarding the reduction in pollutant reduction achievement but fails to adequately address the development's details or conditions, either existing or proposed; conditions which directly affect the assessment of stormwater discharge quality.

Notwithstanding the above, the Locomotive Workshop is located within the Australian Technology Park (ATP) precinct which is currently provided with an isolated series of privately owned stormwater assets (ownership of which is scheduled to be transferred to City of Sydney by 2046) which discharge to Sydney Water infrastructure at Henderson Road within the Sydney Water Munni Street catchment; refer the following link for Sydney Water stormwater catchment map -  
<https://www.sydneywater.com.au/SW/water-the-environment/how-we-manage-sydney-s-water/stormwater-catchment-map/index.htm>

**HARRIS PAGE  
& Associates**  
**Pty. Limited**

ABN 79 008 548 098

HYDRAULIC &  
FIRE SERVICES  
CONSULTANTS

LEVEL 2  
32 CARRINGTON STREET  
SYDNEY  
NSW AUSTRALIA 2000

Ph (02) 9262 1600

Fax (02) 9262 6385

Email  
[info@harrispage.com.au](mailto:info@harrispage.com.au)



As such, Sydney Water are the governing authority in the case of stormwater discharge from the Locomotive Workshop. This is confirmed through Sydney Water Stormwater Quality Targets page on their website. Refer following link for Sydney Water web page – <https://www.sydneywater.com.au/SW/water-the-environment/how-we-manage-sydney-s-water/stormwater-network/stormwater-quality-targets/index.htm>

The following being an extract from above web page stating Sydney Water are responsible for managing stormwater quality targets within their stormwater catchment area:

The screenshot shows the Sydney Water website. The header is blue with the Sydney Water logo and a 'Log in' button. A navigation bar below the header lists: Accounts & billing, Your home, Your business, Plumbing, building & developing, and Water & the environment. The breadcrumb trail reads: Home > Water & the environment > How we manage Sydney's water > Stormwater network > Stormwater quality targets. On the left, a sidebar under 'Water & the environment' lists: How we manage Sydney's water, Safe drinking water, Water network, Water supply & service updates, Wastewater network, Stormwater network (highlighted), Stormwater catchment map, Recycled water network, What we're doing, and What you can do. The main content area is titled 'Stormwater quality targets' with social media icons. It contains the following text: 'If you want to connect to or develop a property that connects to one of our stormwater assets or natural waterways, you must meet our stormwater quality targets. This makes sure we protect the health of our waterways by minimising the environmental impacts of urban stormwater run-off.' Below this is a section titled 'Who manages stormwater quality targets?' with an upward arrow icon. This section contains: 'Stormwater quality improvements aren't new. They were already required for multi-dwelling developments. Until now, these requirements were set and managed by councils. However, each council had a different set of conditions across our area of operations. We want to make the connection process as simple as possible. So you can easily see our standards for the quality of stormwater entering our system, we're making our requirements clearer and adopting a [Stormwater quality targets policy](#). Check out the free [Small Scale Stormwater Quality Model](#) (S<sup>3</sup>QM) tool to see if your proposal meets these standards.'

Although the Locomotive Workshop development falls within Sydney Water's exemption criteria as outlined further down on the same web page, in that the project is '*refurbishing an existing building and maintaining the existing drainage system.*'; Mirvac is aware of their responsibility as the landholder and is committed to contributing to the improvement of Sydney's stormwater quality and meeting local expectations.

Notwithstanding the previously stated exemption qualification and at the direction of Mirvac, Harris Page and Associates in partnership with Ocean Protect (formally Stormwater 360) undertook stormwater filtration modelling (MUSIC) and associated concept design over approximately an eight week period with a view to gain an understanding of how best to achieve a satisfactory level of stormwater discharge quality improvement, the aim being to satisfy the pollutant reduction targets nominated with SSD Condition B29.

Following extensive modelling and conceptual design it became clear a series of stormwater quality improvement devices along with complex in ground stormwater systems would be necessary to achieve the specified reduction targets. Targets which by their nature are onerous when applied to the Locomotive Workshop due in part, to heritage nature of the building.

In addition to the standard system, a series of secondary, 'low flow' by-pass reticulation manifolds would be required to direct the target rainfall intensities to a series of water quality improvement devices. This system would require all 32 downpipes to discharge to one of a series of low flow by-pass manifolds, each of which discharges to a Stormwater Quality Improvement Device (SQID) located externally to the north or south of the Locomotive Workshop. Achieving these low flow arrangements would require additional penetrations through the heritage listed external façade which is an unacceptable heritage impact and is understood to be precluded by the Heritage Council.

As the existing building occupies approximately 91% of the lot, a number of SQID's would be required to accommodate latent site constraints while treating the required discharges to meet the proposed pollutant reduction targets. These SQID's along with associated in ground drainage pose a risk to the heritage elements of the building as they would be required to be located in close proximity to the Locomotive Workshops northern and southern façades, and due to their size would potentially **compromise** the ground conditions and thus could impact in ground heritage structural elements which support the heritage façade. An example of which would be where SQID's are required to treat the northern half of the roof catchment, they would need to be located between the northern façade and rail corridor to the north. To locate SQIDs within this area would require substantial excavation in close proximity of heritage elements, excavation depth of approximately 6m deep to be made within approximately a 4m zone, with excavation required up to the heritage brick footings supporting the northern façade.

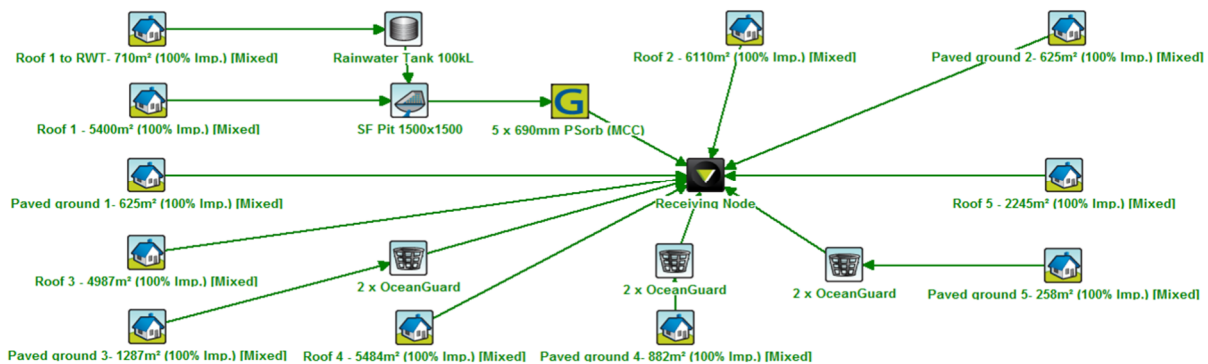
Subsequent stormwater discharge quality analysis and modelling (MUSIC) was undertaken by HPA and Ocean Protect for the Locomotive Workshop site using the Neutral or Beneficial Effect (NorBE) approach which achieves the following pollutant reductions when assessed post versus pre-development baseline pollutant loads:

- Vegetation larger than 5mm  $\geq 25\%$
- Total suspended solids  $\geq 10\%$
- Total phosphorus  $\geq 10\%$
- Total nitrogen  $\geq 10\%$

*Note 1: Due to the existing heritage building being retained & largely unchanged at approximately 91% of the total site area, it is important to assess the site taking into consideration pre-development conditions.*

*Note 2: Neutral or Beneficial Effect (NorBE) is recognised by Water New South Wales as an industry standard stormwater assessment approach.*

The following is the MUSIC model used to demonstrate the achievement in reduction targets outlined above:



The above MUSIC modelling outlining in detail the proposed modification to stormwater pollutant reduction targets, associated stormwater concept as well as details of existing and proposed site conditions were tabled during a meeting requested by Sydney Water with their Growth Planning & Development and Liveable City Solutions departments.

Following assessment of existing and proposed site conditions along with stormwater filtration approach and concept design, Sydney Water confirmed acceptance of the proposed filtration methodology outlined in the Ethos modifications; providing this acceptance in writing is Jeya Jeyadevan – Senior Capability Assessor, Liveable City Solutions department Sydney Water. Refer Attachment B of Mirvac's email response.

Mirvac request the Department of Planning & Environment approve the modification to SSD 8517 - Condition B29 and SSD 8449 – Condition B25 in line with the governing authorities' findings and acceptance.

Yours faithfully,  
**HARRIS PAGE & ASSOCIATES PTY LIMITED**

**KYLE JOHNSON - HYDRAULIC SERVICES CONSULTANT**

8 May 2019

Kyle Johnson  
Hydraulic Services Consultant  
Harris Page & Associates  
kjohnson@harrispage.com.au

**RE: Modification of the Locomotive Workshop Bays 1-4a (SSD 8517 MOD 1) and Bays 5-15 (SSD 8449 MOD 1)**

Dear Mr Johnson,

With reference to the following documents regarding the modification application related to requirements for a stormwater quality assessment, for the above development:

- Section 4.55 (1A) Modification Application, Bays 1-4A – Locomotive Workshops, South Eveleigh (Reference Number: 2190140)
- Section 4.55 (1A) Modification Application, Bays 1-15, Locomotive Workshops, South Eveleigh (Reference Number: 2190140)

Sydney Water has reviewed the document dated 1 April 2019, which is prepared by Ethos Urban in support of the proposed modification to stormwater quality assessment. Considering the nature of the development is an adaptive reuse of the Locomotive Workshops, Sydney Water is satisfied with the proposed modification for a stormwater quality assessment by Ethos Urban as reasonable approach in this instant. Accordingly, Sydney Water has no objection to the proposed modification to the stormwater quality assessment.

This advice is not a formal approval of our servicing requirements. Detailed requirements, including any potential extensions or amplifications, will be provided once the development is referred to Sydney Water for a Section 73 application. More information about the Section 73 application process is available on our web page in the [Land Development Manual](#).

If you require any further information, please contact me on 8849 6118.

Yours sincerely,

A handwritten signature in blue ink, appearing to read "Jeyadevan".

Jeya Jeyadevan  
Senior Capability Assessor, Liveable City Solutions