8-10 New McLean Street, Edgecliff Planning Proposal Flood Impact and Risk Assessment

A flood impact and risk assessment prepared to support the 8-10 New McLean Street, Edgecliff Planning Proposal.

Prepared for:
Mount St 4 Pty Ltd

1 May 2025

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Revision Schedule

Revision No.	Date	Description	Prepared by	Reviewer	Approver
1	30/04/2025	Final	GF	AA	JL

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Executive Summary

This report has been prepared by Stantec Australia Pty Ltd (Stantec) on behalf of Mount St 4 Pty Ltd to support the environmental impact statement (EIS) for the planning proposal at 8-10 New McLean Street, Edgecliff (planning proposal reference PP-2023-1648).

The FIRA is prepared in accordance with relevant guidance including the *Planning Circular PS21-006 – Considering flooding in land use planning* (Department of Planning, Housing and Infrastructure, 2024), the *Considering flooding in land use planning guideline* (Department of Planning, Industry and Environment, 2021) and the *Flood risk management manual* (Department of Planning and Environment, 2023).

The proposal site is only affected by overland flooding and the proposed development will not restrict any major floodway or flood storage area during the 1% AEP. The proposal would not propose sensitive land use within a floodway or flood storage area, and therefore the proposal is not considered high-risk. Consequentially, the assessment of the 1% AEP event and the PMF are selected for analysis to inform the future flood planning area (FPA) and evacuation constraints.

The site is affected by overland flooding identified in the *Paddington Floodplain Risk Management Study and Plan* (Catchment Simulation Solutions, 2019) (the FRMSP). The hydraulic model (TUFLOW) files associated with the adopted FRMSP were obtained and updated with available survey, a representation of the indicative future development footprint, and two potential mitigation measures (a 0.5m high retaining wall or a 5m wide swale).

The assessment finds that, with the incorporation of either of the two flood mitigation measures, the future development will not result in adverse impacts on neighbouring properties during the 1% AEP event. The proposal also complies with flood related requirements from the *Woollahra Development Control Plan 2015* (DCP) (Woollahra Municipal Council, 2015) and relevant local planning directions issued section 9.1(2) of the *Environmental Planning and Assessment Act 1979*.

A preliminary flood emergency response plan was also prepared to support this report. Due to the flash flooding characteristics of the flood behaviour, a shelter in place strategy is recommended for the site. Residents of the future development located on floor levels located below the PMF would evacuate horizontally in the building to a communal refuge area.

Overall, the proposal does not result in an increase to flood impact elsewhere, and flood risk associated with the future land use is acceptable. This FIRA supports the planning proposal and recommends that mitigation measures and future development are refined in further design stages of the development.

Acronyms / Abbreviations

Abbreviation	Meaning
AEP	Annual exceedance probability
AHD	Australian height datum
DCP	Development control plan
FPL	Flood planning level
FRMSP	Flood risk management study and plan
FRP	Flood risk precinct
FS	Flood study
LEP	Local environmental plan
PMF	Probable maximum flood

1 Introduction

1.1 Background

This flood impact and risk assessment (FIRA) has been prepared by Stantec Australia Pty Ltd (Stantec) on behalf of Mount St 4 Pty Ltd to support the environmental impact statement (EIS) for the planning proposal at 8-10 New McLean Street, Edgecliff (planning proposal reference PP-2023-1648).

1.2 Purpose of the report

This FIRA is prepared to assess the proposed development against flood related requirements from the *Woollahra Development Control Plan 2015* (DCP) (Woollahra Municipal Council, 2015) and relevant local planning directions issued section 9.1(2) of the *Environmental Planning and Assessment Act 1979*. Flood mitigation strategies or controls are recommended as required to manage flood impact and risk associated with the future development.

The FIRA is prepared in accordance with relevant guidance including the *Planning Circular PS21-006 – Considering flooding in land use planning* (Department of Planning, Housing and Infrastructure, 2024), the *Considering flooding in land use planning guideline* (Department of Planning, Industry and Environment, 2021) and the *Flood risk management manual* (Department of Planning and Environment, 2023).

1.3 Site description

The site is within the Woollahra Municipal Council Local Government Area (**LGA**) and is bounded by McLean Street in the north, residential housing in the west and east and the Trumper Oval in the south. Land zoning at the site is R3 '*Medium Density Residential*' as per the Woollahra Local Environmental Plan 2014 (**LEP**) (Woollahra Municipal Council, 2014).

The site location is shown as Figure 1-1.

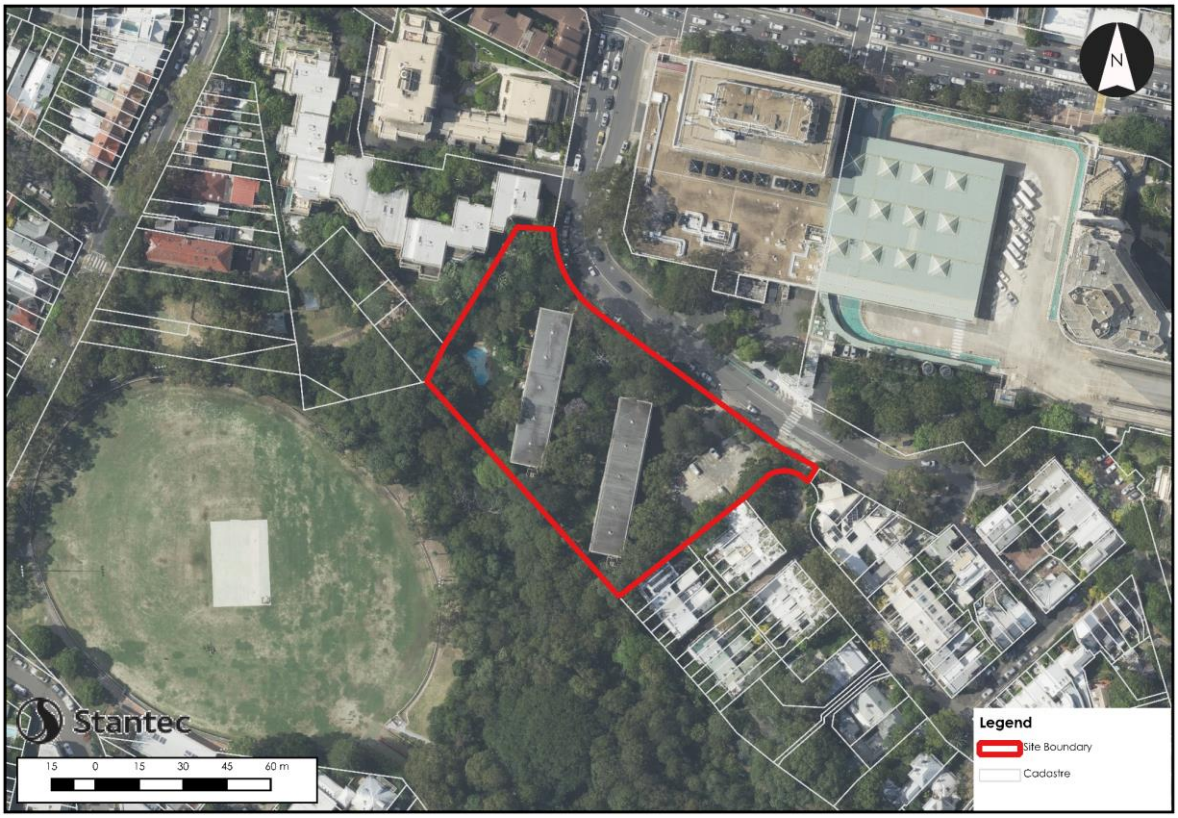


Figure 1-1 Site location

1.4 Site context

The site is located within the Rushcutters Bay catchment and is subject to overland flow from upstream local catchments. These flows drain into Trumper Oval, then discharge into Rushcutters Creek, and ultimately flow into Rushcutters Bay.

The site grading is generally from north-east to south-west, and the upstream catchments are urbanised and flow is mostly collected and conveyed by stormwater network or overland flow paths along road verges. The site is affected by overland flooding that occurs when the stormwater network of McLean Street is at capacity and flows overtop the curb and flow toward Trumper Oval.

1.5 Overview of proposed development

The development at the site would consist of the demolition of the existing buildings and the construction of a residential building which will consist of:

- 26736m^2 of residential floor space with the capacity of accommodating approximately 246 apartments with one, two and three bedroom variants available.
- Basement parking and on-site loading below the buildings fronting New Mclean Street.
- Deep soil and soft landscaping throughout the site.

- Communal open spaces for residents.

The proposed development plans at 8-10 McLean Street are shown as Figure 1-2 and Figure 1-3.

Figure 1-2 Ground Floor Plan for the development (source: fcjstudio)

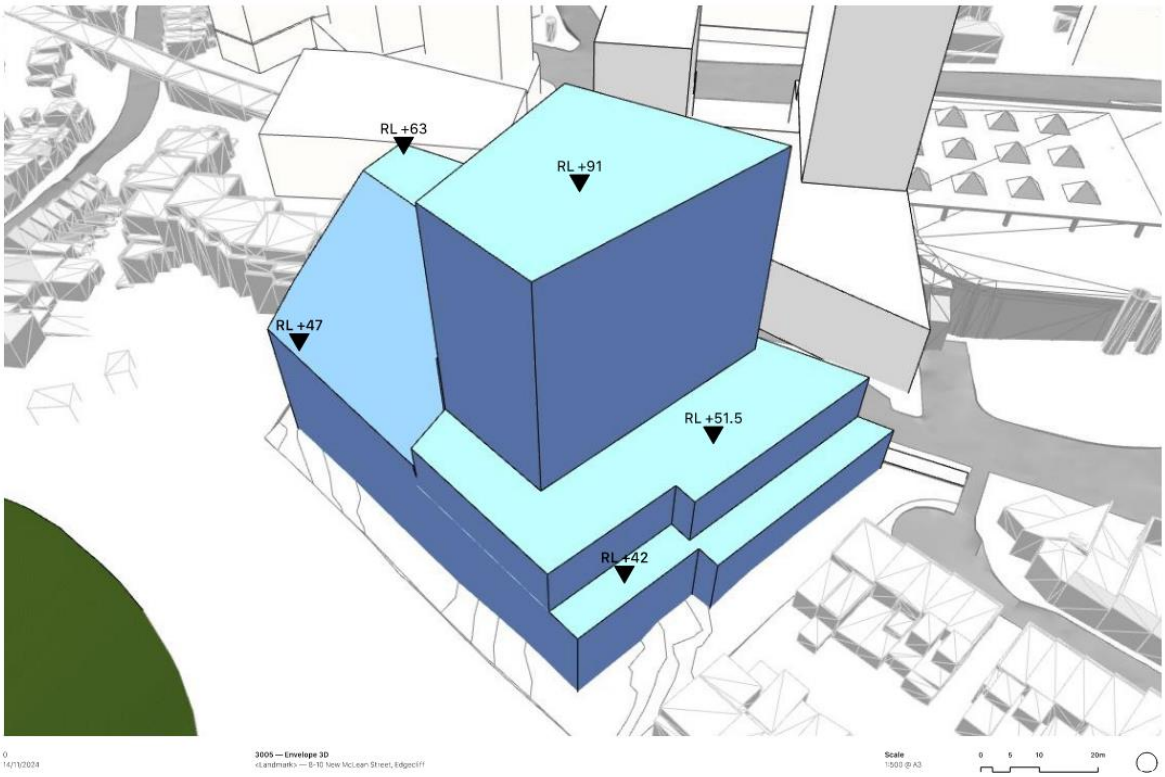


Figure 1-3 3D Envelope for the development (source: fcjstudio)

2 Available information

2.1 Rushcutters Bay Flood Study (wmawater, April 2016)

The *Rushcutters Bay Flood Study* (wmawater, 2016) (RBFS) is the current flood study adopted by Council for the Rushcutters Bay Catchment. The RBFS covers an area between Darlinghurst, Elizabeth Bay, Rushcutters Bay and Paddington as shown in Figure 2-1. This flood study does not encompass the site area, but the DRAINs hydrologic model created as part of the RBFS to simulate rainfall events was used in the *Paddington Flood Study Draft Report* (Catchment Simulation Solutions, 2016).

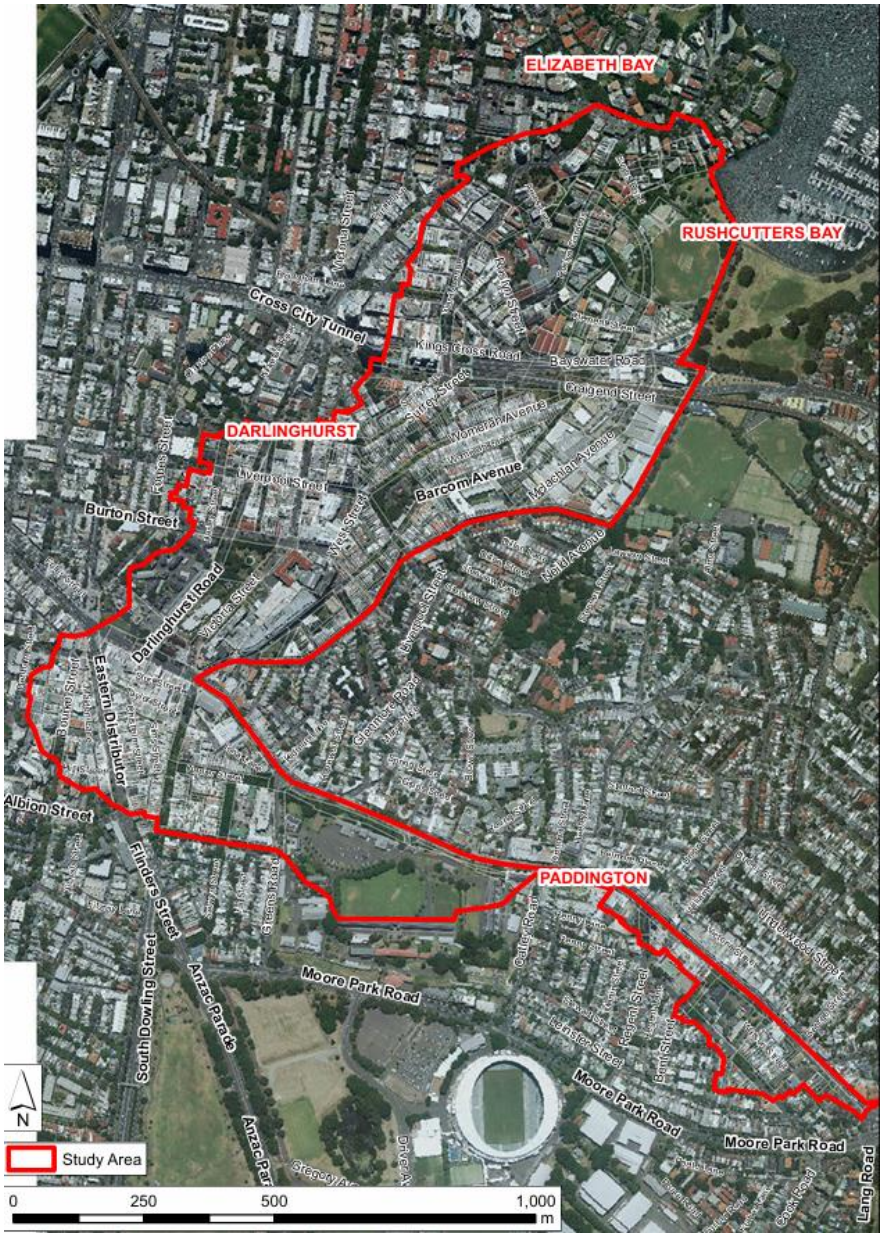


Figure 2-1 Rushcutters Bay Flood Study extent (wmawater, 2016)

2.2 Paddington Flood Study Draft Report (Catchment Simulation Solutions, February 2016)

The *Paddington Flood Study Draft Report* (Catchment Simulation Solutions, 2016) (the FS) is the current flood study adopted by the Council for the site.

The FS includes the hydrologic DRAINS model from the RBFS to simulate rainfall within the site's catchment. A hydraulic 1D/2D TUFLOW model was utilised to analyse flooding in the Paddington area. The TUFLOW model consists of a 1m x 1m grid resolution and covers an area of 2.458km^2 as shown in Figure 2-2 below.

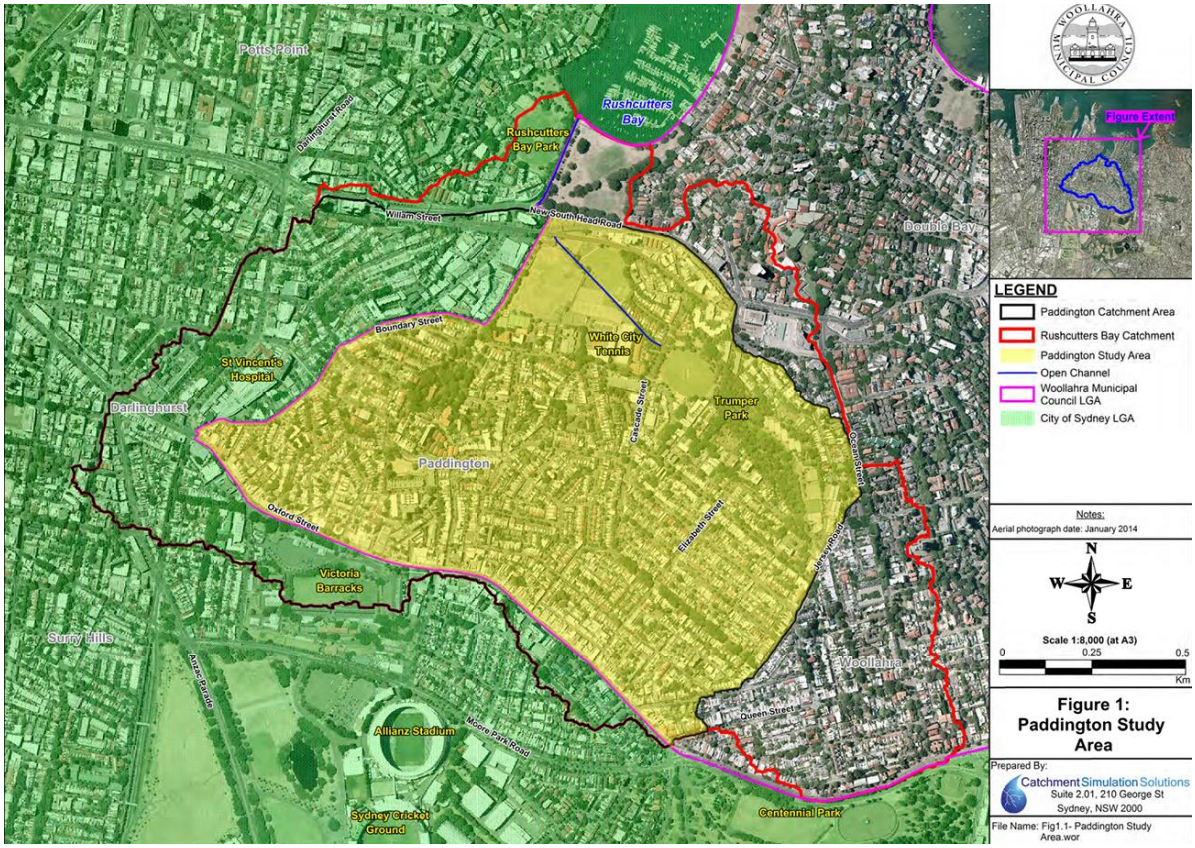


Figure 2-2 The extent of the Paddington Flood Study Draft Report (Catchment Simulation Solutions, 2016)

2.3 Paddington Floodplain Risk Management Study and Plan (Catchment Simulation Solutions, July 2019)

The *Paddington Floodplain Risk Management Study and Plan* (Catchment Simulation Solutions, 2019) (the FRMSP) utilises flood-related data from the FS to quantify the nature and extent of flooding in the Paddington area, and includes flood mitigation strategies that could be implemented to manage flood risk in the area.

3 Flood assessment methodology

3.1 Hydrology Model

The hydrology model used in this assessment remains consistent with the original council model (Catchment Simulation Solutions, 2019).

Design rainfall was determined using standard methodologies outlined in *'Australian Rainfall and Runoff – A Guide to Flood Estimation'* (Institution of Engineers Australia, 1987).

The Probable Maximum Flood (PMF) was estimated by routing the Probable Maximum Precipitation (PMP) through the computer-based hydrologic model. The PMP represents the maximum depth of rainfall that is meteorologically feasible at a given location and, therefore, is considered the highest volume of rainfall that could realistically occur over a specific catchment. For the Paddington area, PMP values were derived for a range of storm durations up to and including the 6-hour event based on procedures set out in the Bureau of Meteorology's *'Generalised Short Duration Method'* (GSDM) (Bureau of Meteorology, 2003). The PMP estimates were varied spatially and temporally based on the GSDM approach.

3.1.1 Range of flood events considered

3.1.1.1 Flood frequency

The *Flood impacts and risk assessment – Flood risk management guide LU01* (Department of Planning and Environment, 2023). LUI includes guidance relating to flood events that could be analysed as part of a FIRA, specifically "typical flood events may include the 10%, 5%, 1%, 0.5% or 0.2% AEP and PMF". Generally, an assessment of the full range of flood events is only required for high-risk proposals such as those that involve sensitive land uses in floodway or flood storage areas (Department of Planning, Housing and Infrastructure, 2024).

The proposal site is only affected by overland flooding and the proposed development will not restrict any major floodway or flood storage area during the 1% AEP. The proposal would not propose sensitive land use within a floodway or flood storage area, and therefore the proposal is not considered high-risk.

Consequentially, the assessment of the 1% AEP event and the PMF are selected for analysis to inform to inform the future flood planning area (FPA) and evacuation constraints.

3.1.1.2 Climate change consideration

The FRMSP states "there are no requirements for consideration of climate change with relation to the impact of rainfall intensity increases on overland flow flooding or mainstream flooding" (Catchment Simulation Solutions, 2019). The proposal site is only impacted by overland flow flooding and therefore climate change has not been considered. However, impacts of climate change can be considered during the future design process in consultation with Council. An appropriate rainfall increase would need to be endorsed by Council or the planning authority.

3.1.2 Critical Duration

The original council TUFLOW model (Catchment Simulation Solutions, 2019) was run across a range of storm durations, from 15 minutes to 180 minutes, to identify the critical duration for the site. Table 3-1 presents the critical duration corresponding to both the 1%AEP and PMF storm events.

Table 3-1 Site's critical durations

Storm Event	Site Critical Duration
1% AEP	15 min, 60 min and 120 min
PMF	15 min, 30 min and 120 min

For the hydraulic analysis, the TUFLOW model was run using the site's critical storm duration. The final output maps represent the envelope of results across all critical durations.

3.2 Hydraulic model

The hydraulic model (TUFLOW) used in this study is based on the provided council model (Catchment Simulation Solutions, 2019). It has been updated to reflect both pre-development and post-development conditions, as outlined in the following sections.

3.2.1 Pre-development

The Council's hydraulic model has been updated based on the following items to more accurately represent existing flood conditions:

3.2.1.1 Ground Surface Update

The pre- and post-development digital elevation model (DEM) was updated using the provided survey triangulated irregular network (TIN). It is important to note that the survey TIN was provided in the GDA2020 projection, whereas the TUFLOW model was developed in GDA94. To ensure consistency within the hydraulic modelling framework, the TIN was converted to GDA94 prior to integration into the model.

The incorporation of survey in the DEM is to more accurately represent the existing landform in the hydraulic model, which previously relies on LiDAR information.

3.2.1.2 Building Footprint Update (Pre-Development Scenario)

The building footprint was updated in the pre-development scenario using the survey data. The original model included only one existing building located on the western side of the site. In the updated version, the second existing building was also added to accurately reflect the pre-development conditions.

3.2.1.3 Building Representation in the Model

In the original model, buildings were represented by raising the ground surface by 300 mm and applying a high Manning’s roughness coefficient. In the updated version, buildings on the site have been

modelled as impervious blockages in the model to better simulate flow obstruction. This modelling approach has also been adopted for the post-development scenario.

3.2.1.4 Grid resolution

A 1m x 1m grid resolution is adopted for the hydraulic model, which is consistent with the FRMSP.

3.2.1.5 Roughness

The Mannings 'n' roughness coefficients for each land use were adopted in accordance with the FRMSP The values adopted are provided in Table 3-2.

Table 3-2 Manning's roughness coefficients used in FRMSP hydraulic model

Material	ID	Mannings roughness
Water	1	0.025
Buildings	2	2
Suburban trees	3	0.04
Roads	4	0.015
Suburban grass	5	0.03
Concrete	6	0.012
Shrubs	7	0.04
Default (unclassified)	8	0.03
Dense trees	9	0.08
Energy dissipation device (at Trumper Oval)	10	0.1

3.2.1.6 One-dimensional model

The one-dimensional (1D) model remains unchanged from the Council FS. The 1D network includes the stormwater pit and pipe network as well as the open channel between Glenmore Road and Rushcutters Bay.

3.2.2 Post-development

The TUFLOW model was updated to reflect the proposed development by modifying the DEM to represent the footprint of the proposed buildings, which were modelled as impervious walls within the hydraulic model.

This is a conservative approach which assumes that the finished floor level of the future development is located above the 1% AEP level / FPA and the PMF. A more detailed representation of the future development, such as proposed land grading, would be incorporated during future design stages.

3.2.2.1 Manning's roughness

The Manning's number within the site area has been updated to reflect the development scenario. This includes applying a value of n = 0.04 (suburban trees) to the area surrounding the proposed building footprint.

3.2.2.2 Flood mitigation options

The proposed development, modelled from the allowable building envelope without mitigation measures has shown some impacts on neighbouring properties, particularly to the west of the site. Two options are considered in the hydraulic model to mitigate the flood impacts, and are documented below.

Option 1 – Adding a Swale:

In this option, a 5 m wide swale is introduced around the north-western corner of the proposed buildings. The swale was incorporated into the baseline post-development scenario in the TUFLOW model to evaluate its effectiveness as a flood mitigation measure.

The swale is represented by lowering the surface elevation of the DEM across a 5m width. The location of the swale and its long section profile are shown in Figure 3-1 and Figure 3-2 respectively.

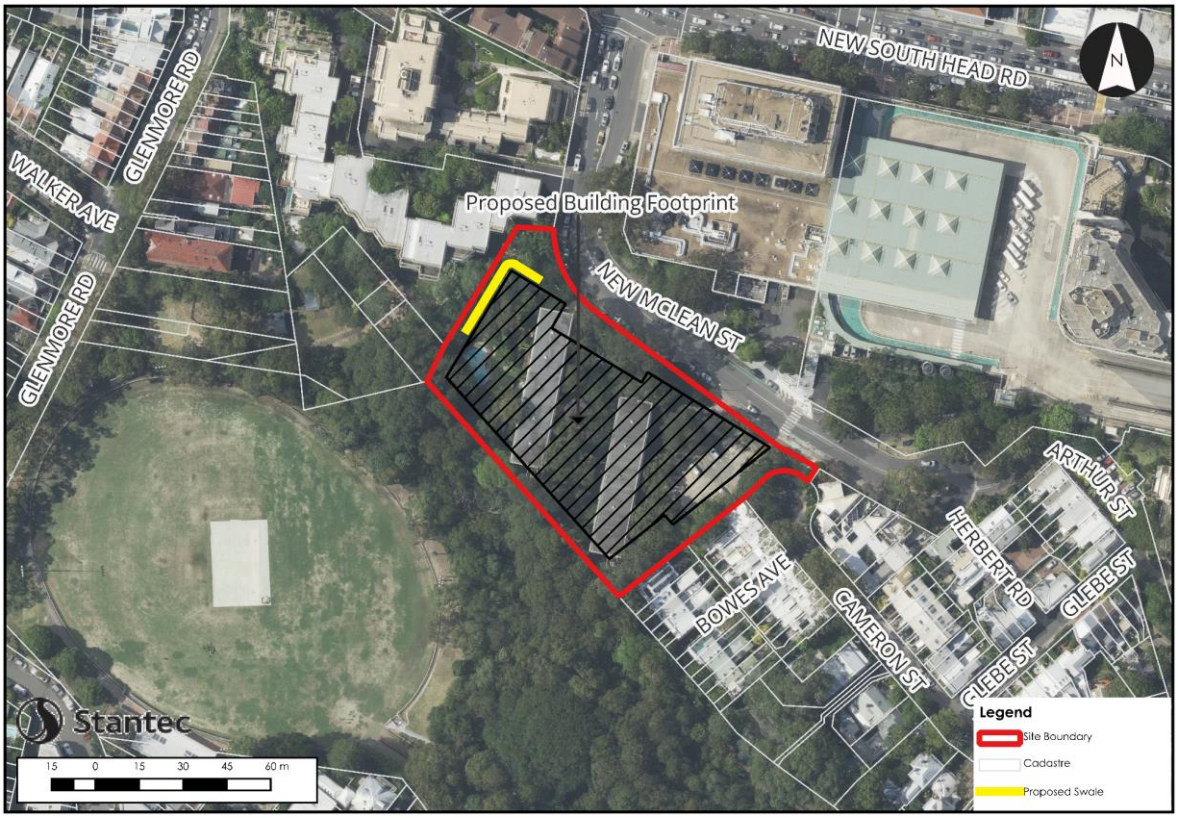


Figure 3-1: Location of the proposed swale in mitigation option 2

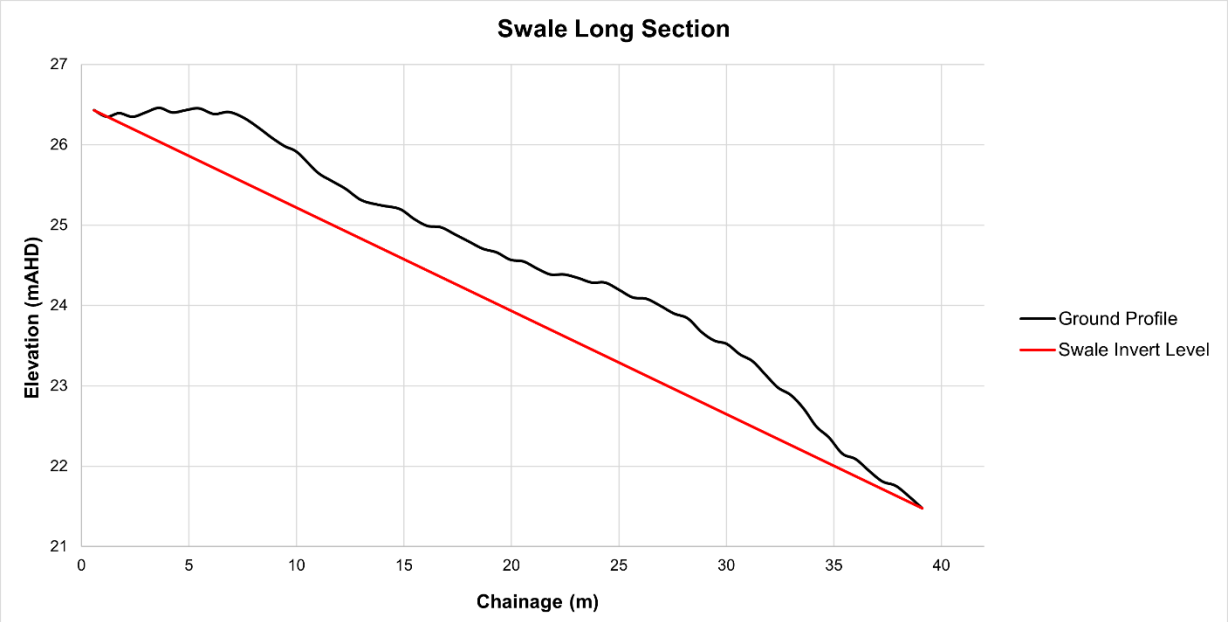


Figure 3-2: Long section profile along the proposed swale (Red line: ground level; Black line: Swale invert level)

Option 2 – Retaining Wall:

This option involves the construction of a 0.5 m retaining wall around the north-western corner of the proposed building. The wall is intended to redirect flood flows toward the south-west of the site, helping to manage and reduce potential flood impacts on adjacent properties.

To assess its effectiveness as a flood mitigation measure, the retaining wall was incorporated into the TUFLOW model. This was achieved by raising the DEM by 0.5 m along the location of the proposed wall.

The retaining wall is located along the western boundary of the development site and is designed to channel overland flows southward toward Trumper Oval. The location of the retaining wall is shown in Figure 3-3.

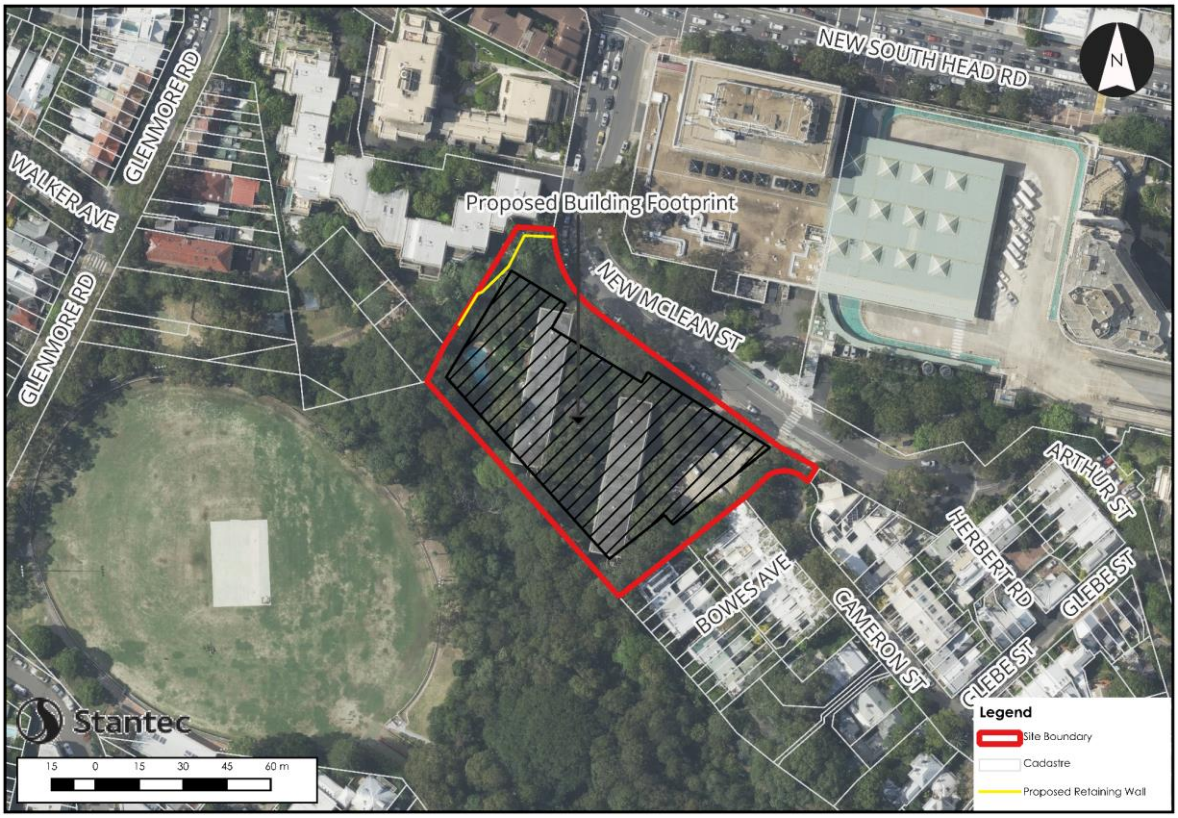


Figure 3-3 Extent of retaining wall

3.3 Results

3.3.1 Map outputs

Both pre-development and post-development scenarios (with two mitigation options) were assessed in the hydraulic model for the 1% AEP and PMF flood events.

The hydraulic model results listed in Table 3-3 are provided as Appendix A.

A 100 mm cutoff depth has been applied during post-processing of the final maps, consistent with the FRMSP approach used for map preparation.

Table 3-3: Hydraulic model results mapped as Appendix A

Scenario	Event	Result type
Pre-development	• 1% AEP • PMF	• Extent and depth • Velocity • Hazard vulnerability classification (H1-H6)
Post-development (Base)	• 1% AEP • PMF	• Extent and depth • Velocity

		• Hazard vulnerability classification (H1-H6) • Flood impact
Post-development (Mitigation Option 1)	• 1% AEP	• Extent and depth • Velocity • Hazard vulnerability classification (H1-H6) • Flood impact
Post-development (Mitigation Option 2)	• 1% AEP	• Extent and depth • Velocity • Hazard vulnerability classification (H1-H6) • Flood impact

3.3.2 Hazard vulnerability classification (H1-H6)

The hazard vulnerability classifications of the flood extent have been identified by adopting the general flood hazard vulnerability curves (refer Figure 3-4).

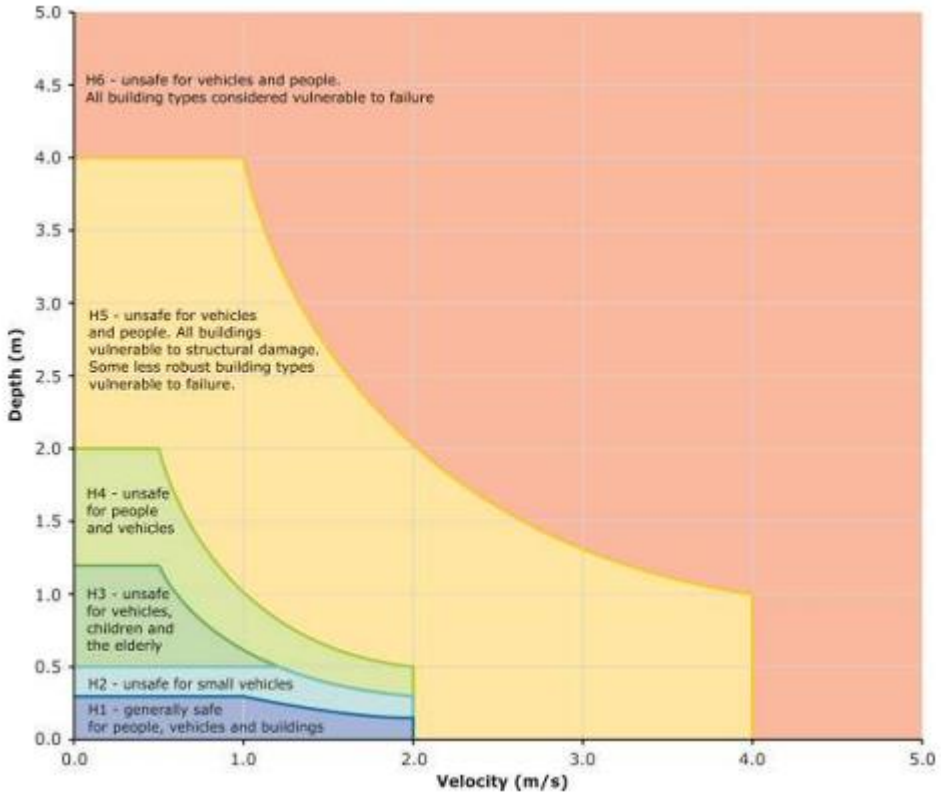


Figure 3-4 Flood hazard vulnerability curves (Australian Institute for Disaster Resillience, 2014)

4 Hydraulic model results

The TUFLOW hydraulic model was utilised to assess the impact of the proposed development on flooding within site and in neighbouring areas.

4.1 Pre-development

The pre-development model shows the current flood behaviour at the site during current catchment conditions (i.e. topography and building footprints).

4.1.1 1%AEP

The maximum flood depth within the site is 1.02m which occurs on the southern side of the existing western building. The maximum flood depth on New McLean Street is 1.30m and the maximum depth of floodwater downstream of the site is 0.36m. Refer to Figure No: GIS-Q-01 of the flood maps in Appendix A.

Floodwater velocity within the site has a maximum value of 4.73m/s. The maximum velocity occurs on the eastern side of the existing western building which is located within the overland flow path that conveys flood water from New McLean Street towards Trumper Oval. The maximum velocity of floodwater on New McLean Street adjacent to the site is 5.04m/s. The maximum velocity downstream of the site towards Trumper Oval is 3.02m/s. Refer to Figure No: GIS-Q-02 of the flood maps in Appendix A.

The maximum flood level within the site occurs on the north-eastern site boundary with a level of 33.55mAHD. On New McLean Street, the maximum flood level is 33.50mAHD. Downstream of the site, flood level's reach 25.67mAHD.

The flood hazard within the site is primarily category H1, however the flood hazard reaches category H6 in a small area to the east of the existing western building. On New McLean Street, the flood hazard is predominantly category H3 and H5. The flood hazard downstream of the development is mostly category H1. Refer to Figure No: GIS-Q-03 of the flood maps in Appendix A. Figure 4-1 has been provided as a reference.

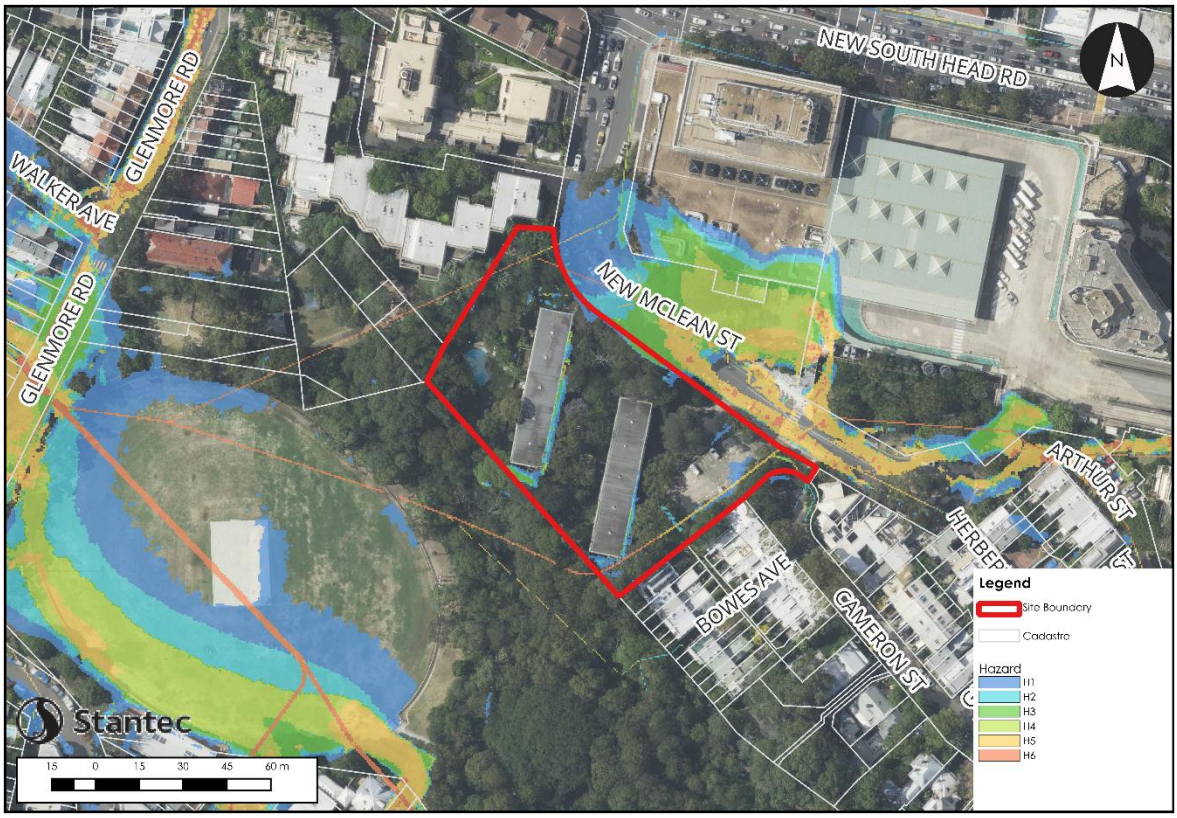


Figure 4-1 Flood hazard for the existing site during the 1%AEP event

4.1.2 PMF

Flood depths reach a maximum of 1.22m on the northern site boundary, 1.45m on New McLean Street and 0.58m downstream of the site. Refer to Figure No: GIS-Q-04 of the flood maps in Appendix A.

Floodwater velocity within the site reaches 7.86m/s. On new McLean Street, velocity reaches 7.52m/s and downstream of the site, the maximum velocity is 5.36m/s. Refer to Figure No: GIS-Q-05 of the flood maps in Appendix A.

Flood levels reach 33.67mAHD within the site, 33.74mAHD on New McLean Street and 27.50mAHD downstream of the site.

Flood hazard within the site ranges from category H1 to category H6. Higher flood hazard categories exist in the flow path that conveys floodwater from New McLean Street through the site towards Trumper Oval. Refer to Figure No: GIS-Q-06 of the flood maps in Appendix A. Figure 4-2 has been provided as a reference.

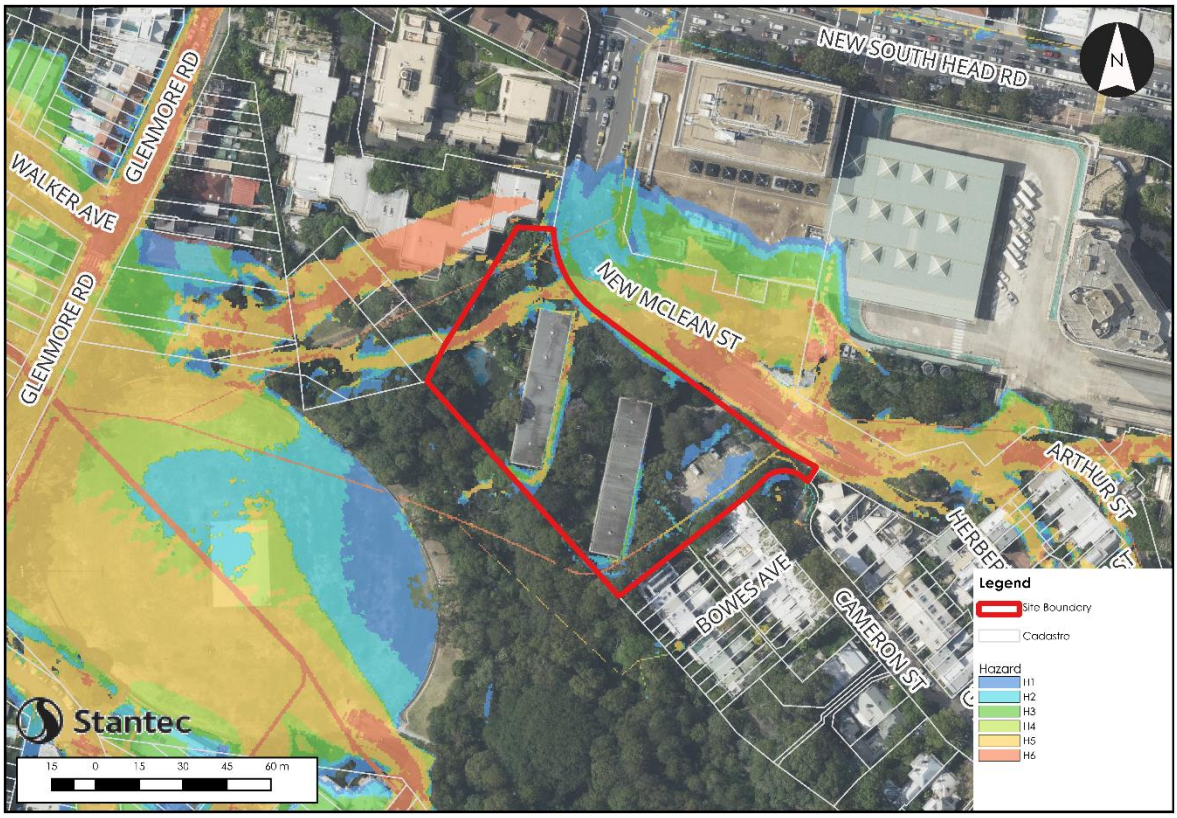


Figure 4-2 Flood hazard for the existing site during the PMF

4.2 Post-development – base scenario without mitigation measures

The post-development model was assessed by raising the DEM to represent the proposed building. The model was run for the 1%AEP and PMF events, the results are provided below.

4.2.1 1%AEP

The maximum depth of flood water within the site has increased to 3.61m which occurs where the overland flow path meets the proposed development. This significant depth results from a surface depression located in front of the proposed development and is observable in the following post-development scenarios. See section 4.5.1.1 for further information regarding this result. This low point will be addressed in future design stages through land grading and/or stormwater infrastructure associated with the future development.

The maximum flood level on the road has increased to 1.31m compared to the existing scenario during the 1% AEP event. Downstream of the development, the flood depth has decreased to 0.22m. Refer to Figure No: GIS-Q-07 of the flood maps in Appendix A.

The floodwater velocity for the site has a lower maximum value of 3.61m/s which occurs at the northern extent of the proposed building. The maximum velocity on New McLean Street has decreased to

4.83m/s compared to the existing scenario. The maximum velocity downstream of the development has decreased to 2.00m/s. Refer to Figure No: GIS-Q-08 of the flood maps in Appendix A.

The maximum flood level within the site has increased to 33.66mAHD which occurs at the north eastern edge of the development. On New McLean Street, the maximum flood level has remained the same as for the existing scenario (33.50mAHD). Downstream of the development, the maximum flood level has increased to 27.50mAHD.

Within the site, flood hazard is predominantly classified as Category H1, except along the northern side of the proposed development, where it reaches Category H5. This high hazard zone is primarily due to ponding in front of the proposed building. Through the implementation of the stormwater management plan and integration with the local stormwater network, this ponding is expected to be resolved in the final design.

On New McLean Street, the flood hazard is mostly similar to that of the existing case with category's H3 and H5 being the most common flood hazard levels. Downstream of the development towards Trumper Oval, flood hazards are category H1. Refer to Figure No: GIS-Q-09 of the flood maps in Appendix A. Figure 4-3 has been provided as a reference.

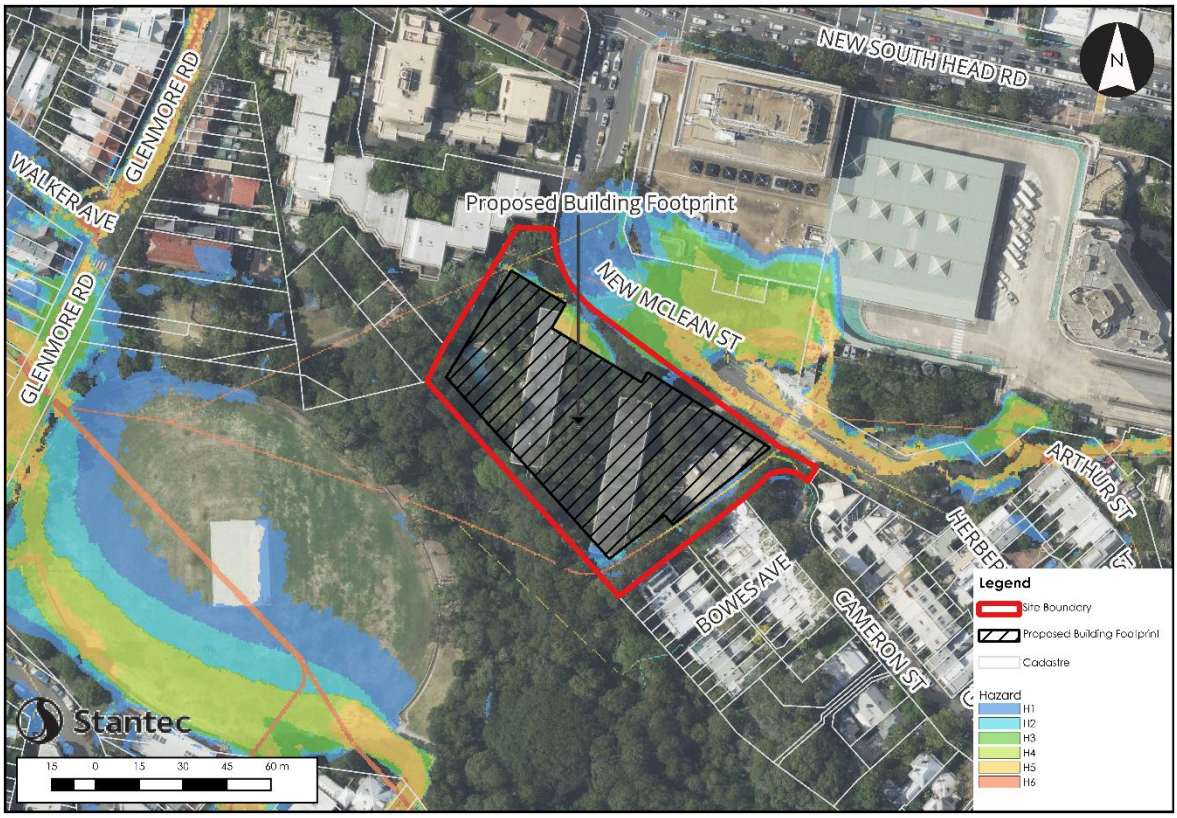


Figure 4-3 Flood hazard for the base proposed site during the 1%AEP event

4.2.2 PMF

During the PMF, flood depths reach a maximum of 3.97m within the site. See section 4.5.1.1 for further information regarding this result. Flood depths reach 1.48m on New McLean Street and 0.48m downstream of the site. Refer to Figure No: GIS-Q-010 of the flood maps in Appendix A.

The maximum velocity of flood water is 6.71m/s within the site, 7.86m/s on New McLean Street and 2.87m/s downstream of the site. Refer to Figure No: GIS-Q-011 of the flood maps in Appendix A.

Flood levels reach 33.67mAHD in the site, 33.74mAHD on New McLean Street and 27.50mAHD downstream of the site.

Flood hazard has reduced within the site compared to the existing scenario. The area of high flood hazard (up to category H6) that ran through the northwestern corner of the site has been redirected into the main flow conveyance path that lies to the west of the site's extent. In this region, there is an increase in area with a flood hazard category of H6. The flood hazard to the south of the site has been nullified due to the development blocking floodwater from entering through the site. Refer to Figure No: GIS-Q-012 of the flood maps in Appendix A. Figure 4-4 has been provided as a reference.

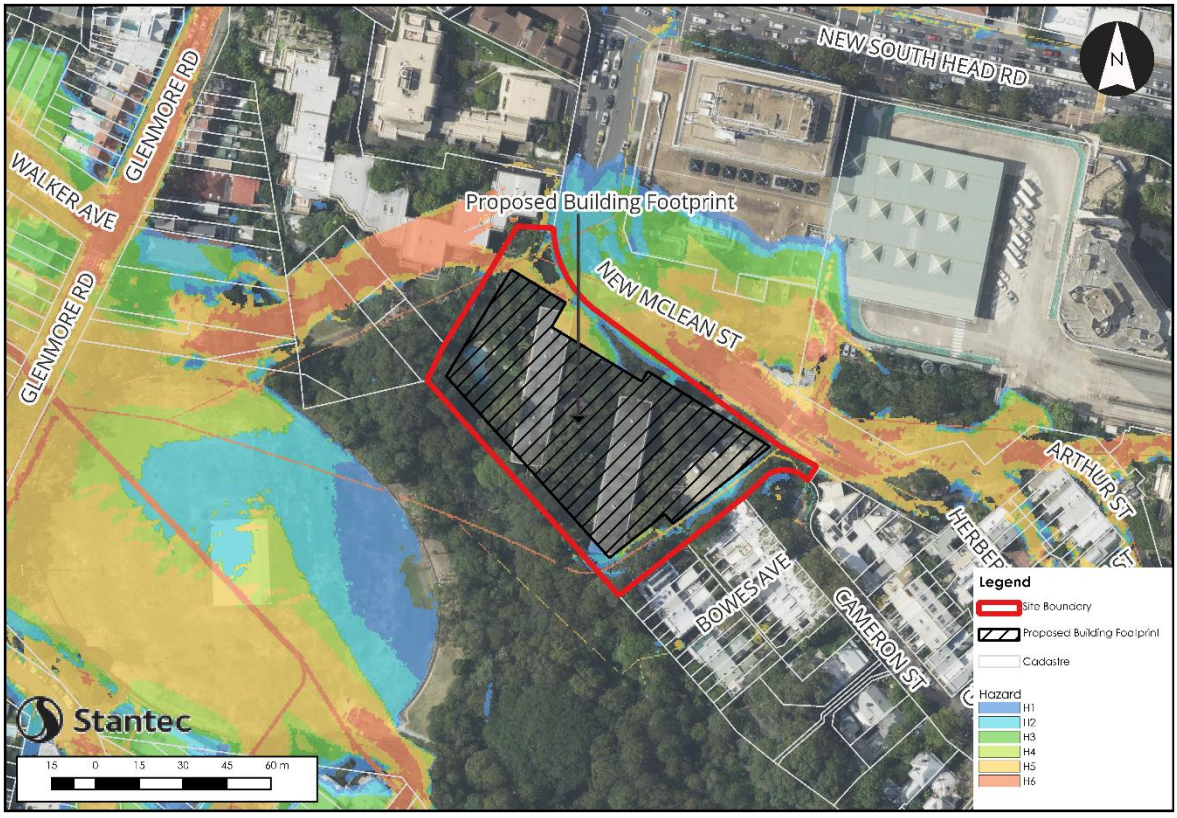


Figure 4-4 Flood hazard for the base proposed site during the PMF

4.3 Post-development – mitigation measure 1

Mitigation measure one is a 5m swale along the northwestern side of the development. The swale was positioned to direct water from the site towards Trumper Oval to mitigate potential flood impacts on neighbouring properties.

The TUFLOW model was run for the 1% AEP and PMF events, the results are provided below.

4.3.1 1%AEP

In this scenario, floodwater depth within the site reaches 3.61m. See section 4.5.1.1 for further information regarding this result. On New McLean Street, depths reach 1.32m and downstream of the development, floodwater reaches a maximum depth of 0.22m. Refer to Figure No: GIS-Q-014 of the flood maps in Appendix A.

The maximum velocity within the site is 3.61m/s. On New McLean Street, the maximum velocity is 4.83m/s and downstream of the site, flow velocities reach 2.00m/s (the same as the base proposed scenario). Refer to Figure No: GIS-Q-015 of the flood maps in Appendix A.

The maximum flood level within the site is 33.66mAHD. On New McLean Street, the maximum flood water level is 33.50mAHD and downstream of the site, flood levels reach 27.5mAHD.

With the swale as a mitigation measure, the region of high flood hazard (up to category H5) beyond the north west boundary of the site has been reduced in extent and is primarily closer to the site with sparse regions of flood hazard up to category H5 (when compared to the base proposed scenario). The remainder of the flood hazard results are similar to the results for the base proposed scenario for the areas within and surrounding the site. Refer to Figure No: GIS-Q-016 of the flood maps in Appendix A. Figure 4-5 has been provided as a reference.

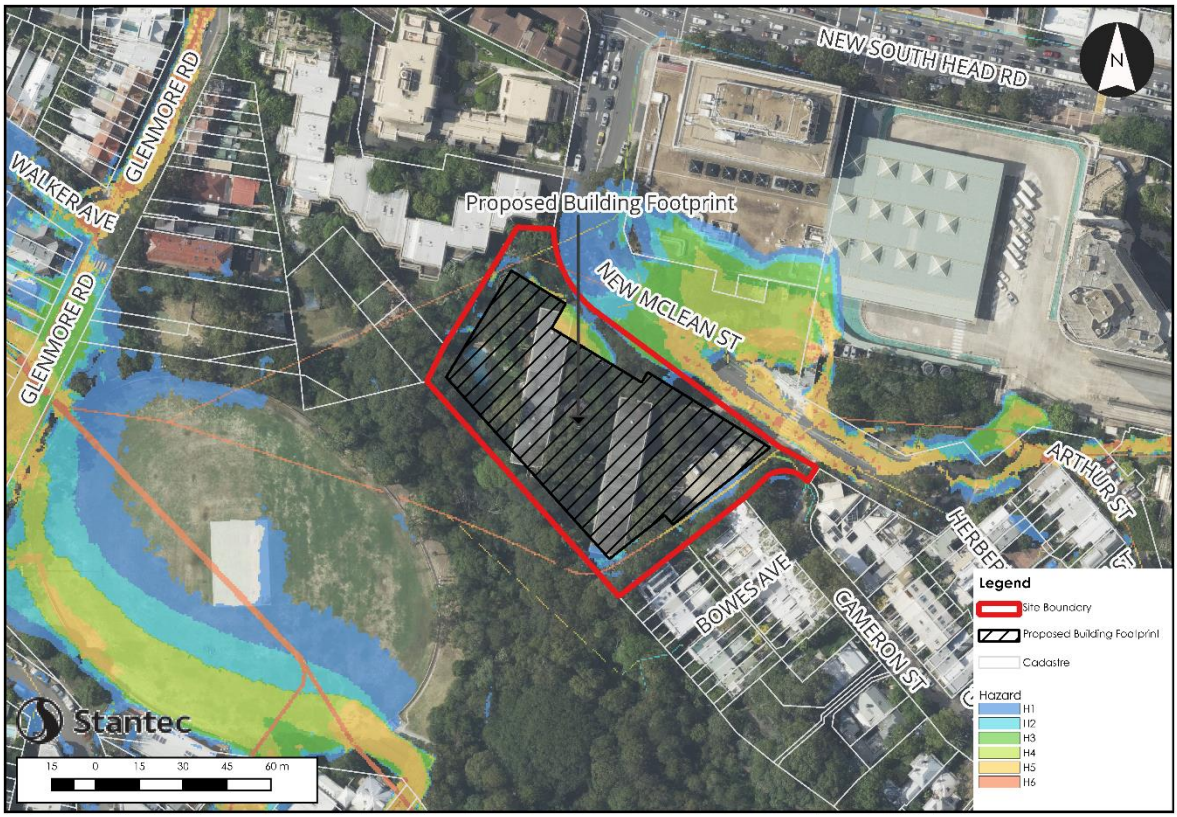


Figure 4-5 Flood hazard for the proposed site with the swale during the 1%AEP event

4.4 Post-development – mitigation measure 2

Mitigation measure two is a 0.5m high retaining wall along the western side of the development. The retaining wall was positioned to tie in with the proposed footpath and to redirect flows away from adjacent properties and towards Trumper Oval. The TUFLOW model was run for the 1% AEP and PMF events, the results are provided below.

4.4.1 1%AEP

The maximum depth of floodwater within the site is 3.61m. See section 4.5.1.1 for further information regarding this result. On New McLean Street, the maximum depth is 1.31m and downstream of the development, the maximum flood depth is 0.22m. Refer to Figure No: GIS-Q-018 of the flood maps in Appendix A.

Within the site, the maximum velocity is 3.89m/s. On New McLean Street, the maximum velocity is 4.70m/s and downstream of the development, the maximum velocity is 2.00m/s. Refer to Figure No: GIS-Q-019 of the flood maps in Appendix A.

Flood levels are the same as for the base proposed scenario. The highest flood level within the site is 33.66mAHD. On New McLean Street, the maximum flood level is 33.50mAHD. Downstream of the development, the highest flood level is 27.5mAHD.

The flood hazard for the proposed development with the retaining wall is mostly similar to the base proposed scenario. The region of high flood hazard to the west of the site is closer to the development and has a smaller footprint, and flood hazard is mostly category H3 to H5, although small areas of category H6 flood hazard are observable. Refer to Figure No: GIS-Q-020 of the flood maps in Appendix A. Figure 4-6 has been provided as a reference.

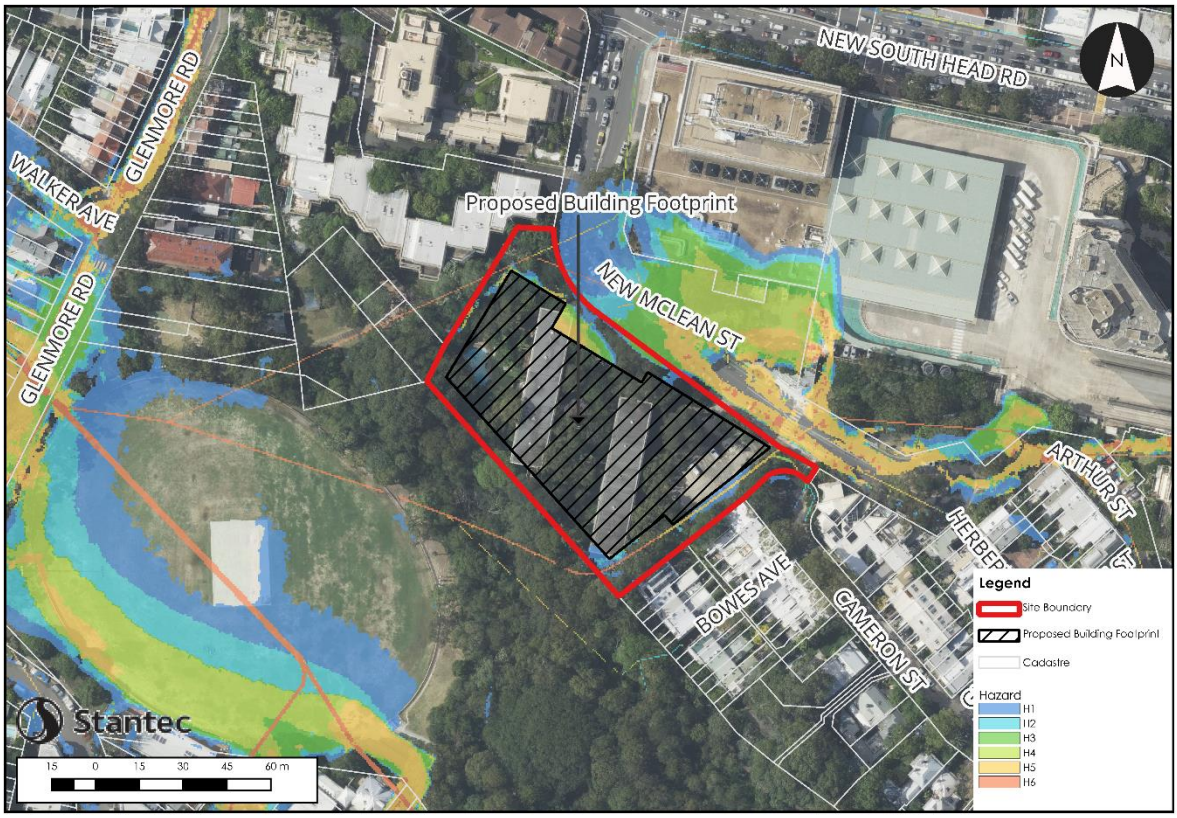


Figure 4-6 Flood hazard for the proposed site with the retaining wall during the 1%AEP event

4.5 Flood impacts

4.5.1 Post-development – base scenario (no mitigation measures)

4.5.1.1 1%AEP

In the base proposed scenario, within the site, flood levels increase by over 500mm at the front of the proposed development. This is due to the modelling approach which utilised existing site survey for the area surrounding the proposed building. In the future design, the area to the front of the building will be graded to tie in the building with the landscape – this will remove the depression from the model and reduce flood depth in this area. Any localised ponding at the front of the building will be removed from the site via the stormwater management system.

Flood levels decrease by up to 200mm within the site in the area to the southeast of the existing building in the east of the site. Offsite flood levels increase by 100 to 200mm in a lot the west of the proposed development. Flood levels decrease by 50 to 100mm in some areas surrounding the site,

primarily on the northern side of Trumper Oval. Refer to Figure No: GIS-Q-013 of the flood maps in Appendix A. Figure 4-7 has been provided as a reference.

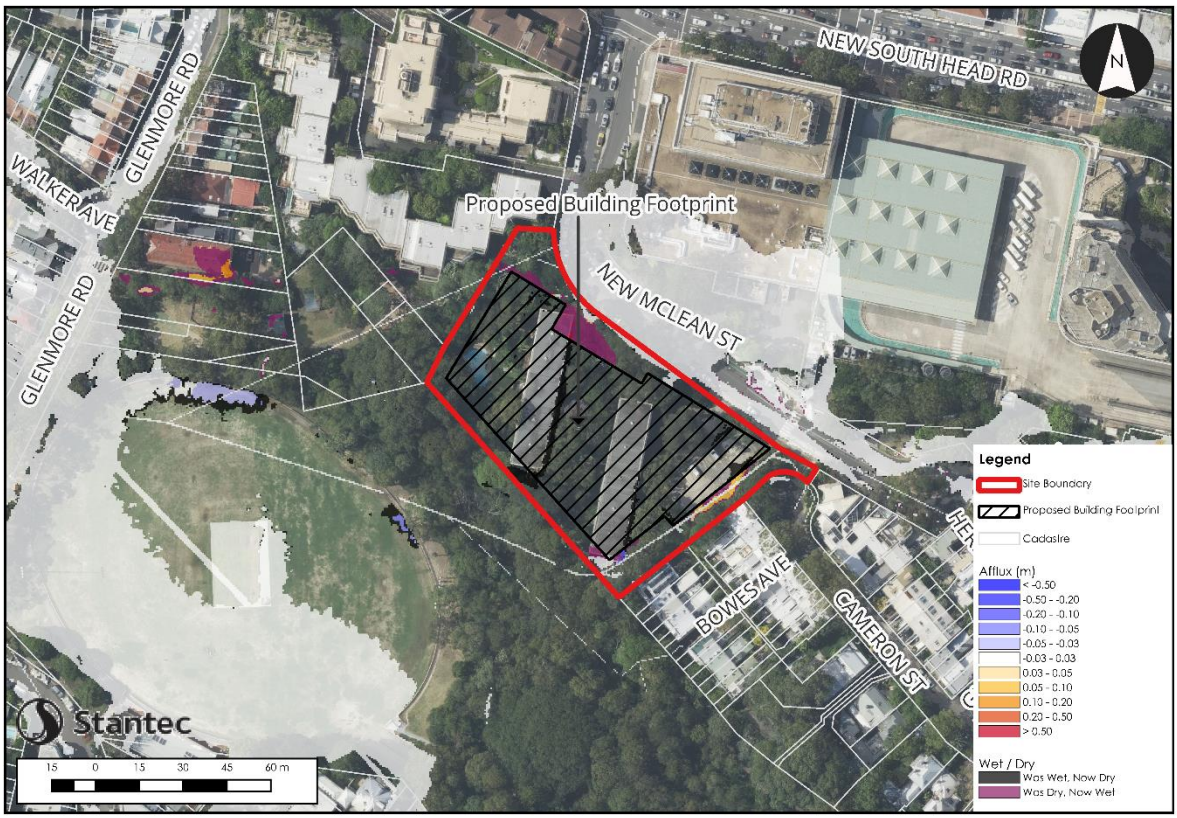


Figure 4-7 Change in water level for the base proposed site during the 1%AEP event

4.5.2 Post-development – mitigation measure 1

4.5.2.1 1%AEP

Inside the site boundary, the addition of the 5m swale results in flood levels increasing by >500mm to the front of the proposed development (see 4.5.1.1) and decreasing by 100 to 200mm in a small area to the south east of the existing east building.. Beyond the site, flood levels increase by 30 to 50mm towards Trumper Oval however most flood levels are the same as for the existing scenario. Flood levels decrease by up to 70mm in a small area on the north eastern side of Trumper Oval. The flooding in the lot to the west of the site has been reduced when compared to the base proposed scenario with no mitigation measure in place. Refer to Figure No: GIS-Q-017 of the flood maps in Appendix A. Figure 4-8 has been provided as a reference.

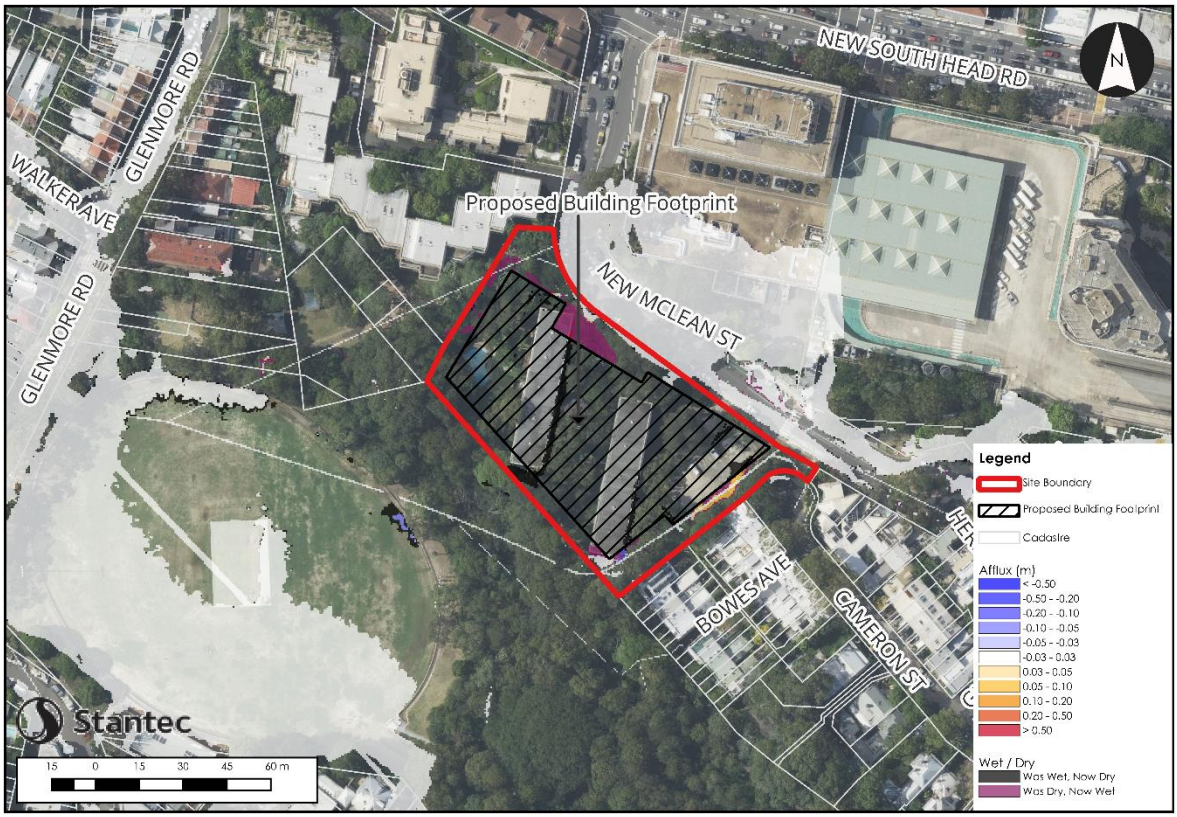


Figure 4-8 Change in water level for the proposed site with the swale during the 1%AEP event

4.5.3 Post-development – mitigation measure 2

4.5.3.1 1%AEP

Flood impacts associated with mitigation measure 2 (0.5m retaining wall) are very similar to those associated with mitigation measure 1. Again, the flooding to the west of the site has been reduced. Refer to Figure No: GIS-Q-021 of the flood maps in Appendix A. Figure 4-9 has been provided as a reference.

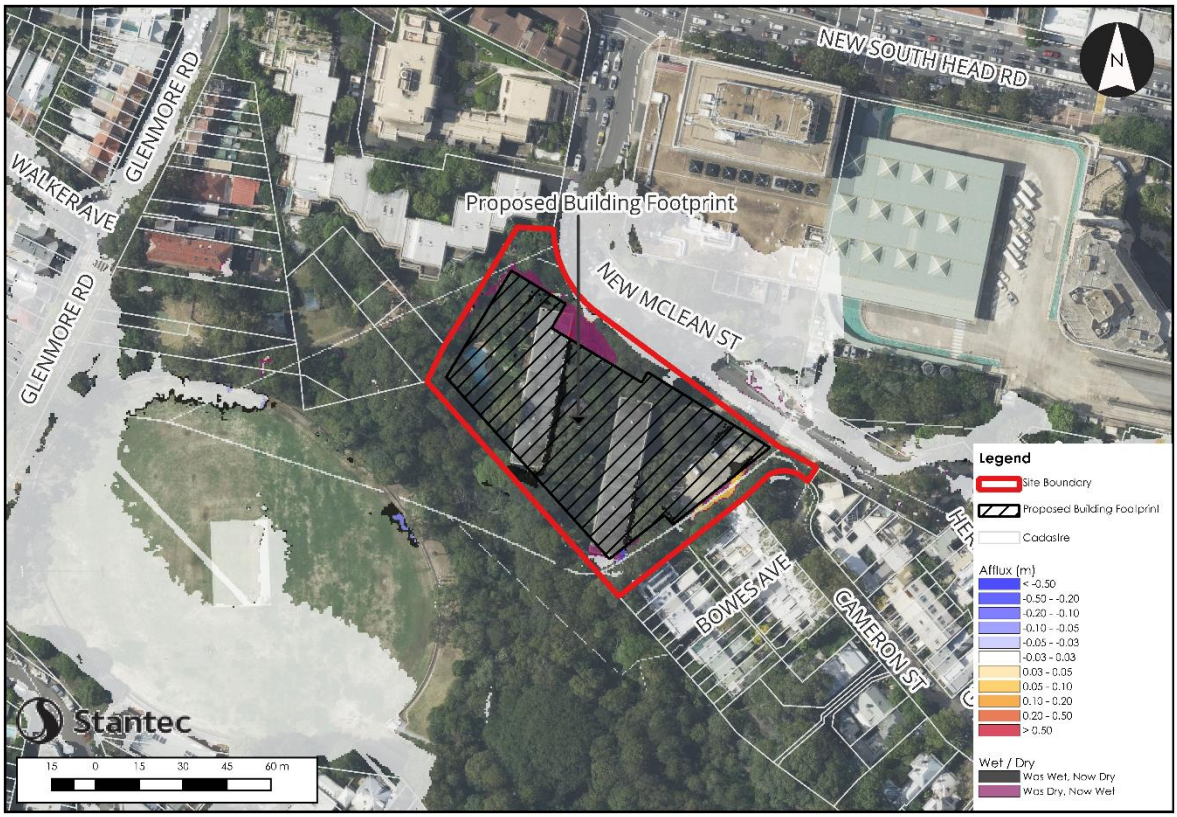


Figure 4-9 Change in water level for the proposed site with the retaining wall during the 1%AEP event

Both mitigation measures demonstrate that the future development associated with the proposal would not result in significant flood impact to adjacent properties.

5 Flood related requirements

5.1 Local planning directions

The current directions of the minister issued under section 9.1 of the Environmental Planning and Assessment Act 1979 (section 9.1 directions) apply to the areas of the planning proposal.

Focus area 4: Resilience and Hazards of Section 9.1 of the *Environmental Planning and Assessment Act, 1979* provides directions related to flooding. The directions and the consistency of the planning proposal with the directions has been identified in Table 5-1.

Table 5-1 Section 9.1 directions

Direction section reference	Direction	Consistency
4.1 (2)	A planning proposal must not rezone land within the flood planning area from Recreation, Rural, Special Purpose or Conservation Zones to a Residential, Employment, Mixed Use, W4 Working Waterfront or Special Purpose Zones.	The proposal is consistent with this direction.
4.1 (3)	A planning proposal must not contain provisions that apply to the flood planning area which:	See 4.1 (3) (a-g) below
4.1 (3)(a)	permit development in floodway areas	There is a flow path in the pre-developed case that meets the velocity-depth criteria for a floodway that conveys floodwater into the site from New McLean Street during the 1%AEP event. However, the flow path is disconnected and is not considered a true floodway. The proposal is therefore consistent with this direction.
4.1 (3)(b)	permit development that will result in significant flood impacts to other properties	Hydraulic modelling results suggest that impacts beyond the site are limited. The two proposed mitigation measures reduce any potential offsite impacts associated with flooding to a negligible level making the development consistent with this direction.
4.1 (3)(c)	permit development for the purposes of residential accommodation in high hazard areas	There are areas of high hazard observed in the pre-development case however post-development modelling shows that residential accommodation would be flood free without adverse impacts off site. The proposal is consistent with this direction.
4.1 (3)(d)	permit a significant increase in the development and/or dwelling density of that land	Dwelling density on site will increase due to the development, however as the development reduces the flood hazard within the site, this is not deemed to be an issue. The proposal is consistent with this direction.

Direction section reference	Direction	Consistency
4.1 (3)(g)	are likely to result in a significantly increased requirement for government spending on emergency management services, flood mitigation and emergency response measures, which can include but are not limited to the provision of road infrastructure, flood mitigation infrastructure and utilities	A shelter in place strategy is considered appropriate in accordance with the *Draft Shelter-in-place Guideline* (Department of Planning and Environment, 2023). It is considered unlikely that the proposal would result in significant increased government spending beyond the flood risk management recommendations already in place for the area. The proposal is therefore consistent with this direction.

The direction section 4.1 (4) is not applicable to the development, as Special Flood Considerations are not currently adopted for the land as per part 5 section 5.22 of the LEP

5.2 Flood controls from the Woollahra DCP

Chapter E2 – Stormwater and Flood Risk Management of the DCP prescribes site planning controls related to flood risk.

Table 5-2 Flood planning levels for developments within the Woollahra LGA

Development	Flood (and estuary) planning level	Compliance
Habitable floor areas	100 Year ARI flood level plus 0.5m freeboard	Future design works for the site must comply with these flood planning levels.
Non-habitable floor areas	100 Year ARI flood level plus 0.3m freeboard	
Habitable floor areas for foreshore developments subject to coastal inundation	The highest RL, calculated from the following: 100 Year ARI flood level plus 0.5m freeboard; or still water level plus 100 Year ARI wave run-up plus 0.3m freeboard	
Ground level, open car parking spaces	20 Year ARI flood level plus 0.3m freeboard	
Enclosed car parking spaces, three or fewer vehicles	20 Year ARI flood level plus 0.3m freeboard	
Enclosed car parking spaces, more than three vehicles	100 Year ARI flood level plus 0.3m freeboard	

The existing and proposed site is located within a high FRP. The flood related controls that apply to developments within the high FRP are provided in Table 5-3.

Table 5-3 Flood related controls for the development from the DCP

Flood related control	Compliance
C22: Properties within a high flood risk precinct are unsuitable for all development (except alterations and additions (only) developments) unless a Flood Risk Management Report has been prepared, by a suitably qualified practitioner, outlining appropriate risk management measures.	This flood impact risk assessment was conducted to ensure compliance with this requirement. The assessment shows that with mitigation measures in place, the proposed development reduces offsite flood risk compared to the existing scenario.
C23: Buildings or structures constructed in high flood risk precincts are designed to withstand the PMF event.	Structures will need to be designed to withstand the PMF event in future design works as the development is located within the extent of the PMF.
C24: No new fencing of any type is permitted in high flood risk precincts unless it can be demonstrated, by a suitably qualified practitioner, that there will be no adverse impact on flooding to the subject land or surrounding properties.	If fencing is to be included in the proposed development, it must be assessed to determine if it causes flood related impacts to the land within the development extent or to land surrounding the development.

It is considered likely that these controls would be achievable for the future development, however they are to be confirmed at the development application stage of the development.

6 Preliminary Flood Emergency Response Plan Comments

The site is subject to short-duration flash flooding originating from upstream local catchments during the Probable Maximum Flood (PMF) event. The primary access route—New McLean Street—experiences high-hazard flooding conditions. Based on Figure A11.3 "Emergency Response Classifications for the PMF" (Catchment Simulation Solutions, 2019), New McLean Street is overtopped approximately 0.17 hours after the onset of flooding, with overtopping lasting for 0.5 hours.

Given the duration of access cut-off and the nature of the flash flooding, a shelter-in-place (SIP) strategy is considered a viable and preferable emergency response option over evacuation.

While a detailed Flood Emergency Response Plan (FERP) may not be necessary for this site, the following preliminary recommendations are provided to help mitigate flood-related risks

1. The proposed development is affected during PMF event. However, as it is a multi-storey building with numerous amenities and common areas located above the PMF level, there is sufficient space for occupants, including those on the ground level, to safely shelter in place. Therefore, SIP is considered an appropriate emergency response strategy for the site.

2. The high flood risk area is located within a depression along the front boundary of the site in the PMF event. Access to this area should be restricted during wet weather conditions.

3. Residents should not attempt to evacuate the site during flood events due to the potential presence of high-hazard floodwaters on New McLean Street. Any evacuation should be undertaken well in advance of heavy rainfall. The designated evacuation route is via New McLean Street, continuing east along New South Head Road.

4. Residents are strongly encouraged to stay informed by monitoring weather forecasts and subscribing to alert services such as the State Emergency Service (SES), Bureau of Meteorology (BOM), Early Warning Network, and other relevant warning system.

7 Conclusion

The pre and post development scenario for the development at 8-10 New McLean Street, Edgecliff were assessed using an updated version of the Council TUFLOW model. The results show that the development reduces flood related impacts on site. Two flood mitigation measures, being a 5m swale and a 0.5m retaining wall, were modelled in the northwestern corner of the site to determine their effectiveness of reducing any potential offsite flood related impacts associated with the development.

The results from the flood model show the mitigation measures lowered flood hazard offsite to acceptable levels, ensured flood depth increases offsite were limited to 20mm and lowered velocities offsite to pre-development conditions, demonstrating that with mitigation measures in place, any potential flood related impacts to neighbouring areas are negligible.

The proposed development is consistent with flood related requirements from Focus area 4: Resilience and Hazards of Section 9.1 of the *Environmental Planning and Assessment Act, 1979* and from the Woollahra DCP. It is anticipated that future development can comply with the site specific flood related requirements without adverse impact on adjacent properties.

A preliminary flood emergency response plan was prepared to support this report. Due to the flash flooding characteristics of the flood behaviour, a shelter in place strategy is recommended for the site. Residents of the future development located on floor levels located below the PMF would evacuate horizontally in the building to a communal refuge area. Further details of the shelter in place strategy would be finalised during future design stages of the development.

Appendices

Appendix A Flood Maps

.

8-10 New McLean Street, Edgecliff

Existing Flood Depth 1% AEP

Project: 8-10 New McLean Street, Edgecliff - FIA

Client: Mount St 4 Pty Ltd
Project Code: 301351173
Drawn By: AA, Checked By: JL
Date: (2025-04-29)
Figure No: GIS-Q-01

Stantec

Legend

Site Boundary
Cadastre

Flood Depth (m)
0.1 - 0.2
0.2 - 0.5
0.5 - 1.0
1.0 - 1.5
1.5 - 2.0
> 2.0

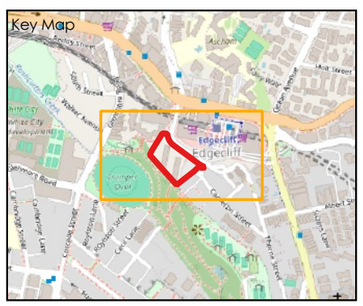
Notes:
1. Map displayed in EPSG:28356

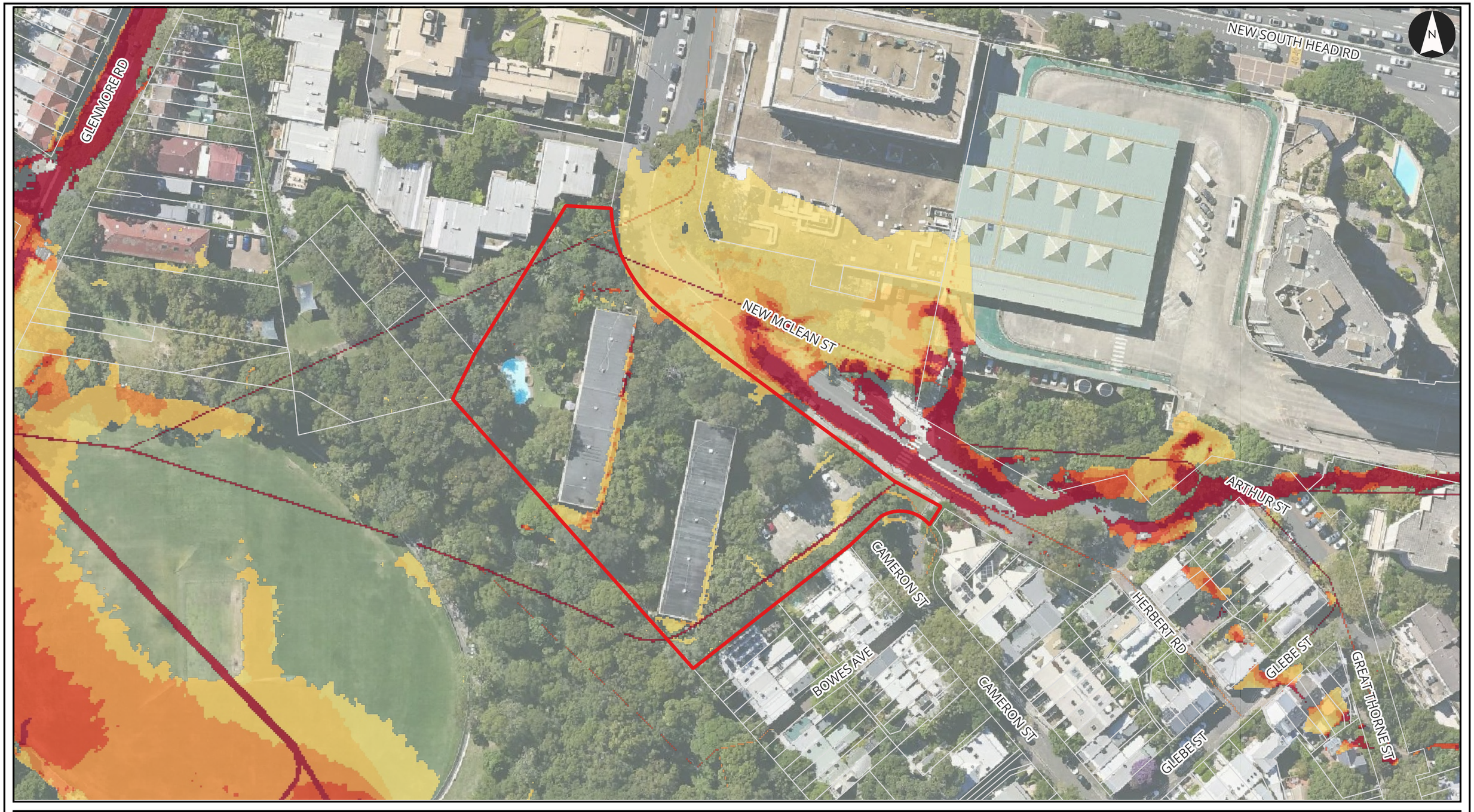
References:
1. Aerial photo: Metromap
2. Cadastre: NSW Spatial Collaboration Portal

DRAFT - Not For Construction

10 0 10 20 30 40 m

Scale at A3: 1:1000





8-10 New McLean Street, Edgecliff

Existing Flood Velocity 1% AEP

Project: 8-10 New McLean Street, Edgecliff - FIA

Client: Mount St 4 Pty Ltd
Project Code: 301351173
Drawn By: AA, Checked By: JL
Date: (2025-04-29)
Figure No: GIS-Q-02

Stantec

Legend

Site Boundary
Cadastre

Velocity (m/s)
0.0 - 0.5
0.5 - 1.0
1.0 - 1.5
1.5 - 2.0
> 2.0

Notes:
1. Map displayed in EPSG:28356

References:
1. Aerial photo: Metromap
2. Cadastre: NSW Spatial Collaboration Portal

DRAFT - Not For Construction

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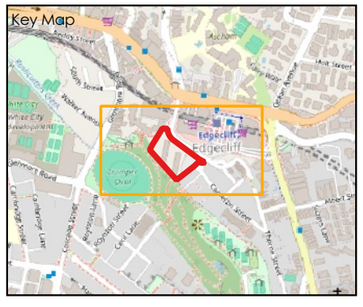
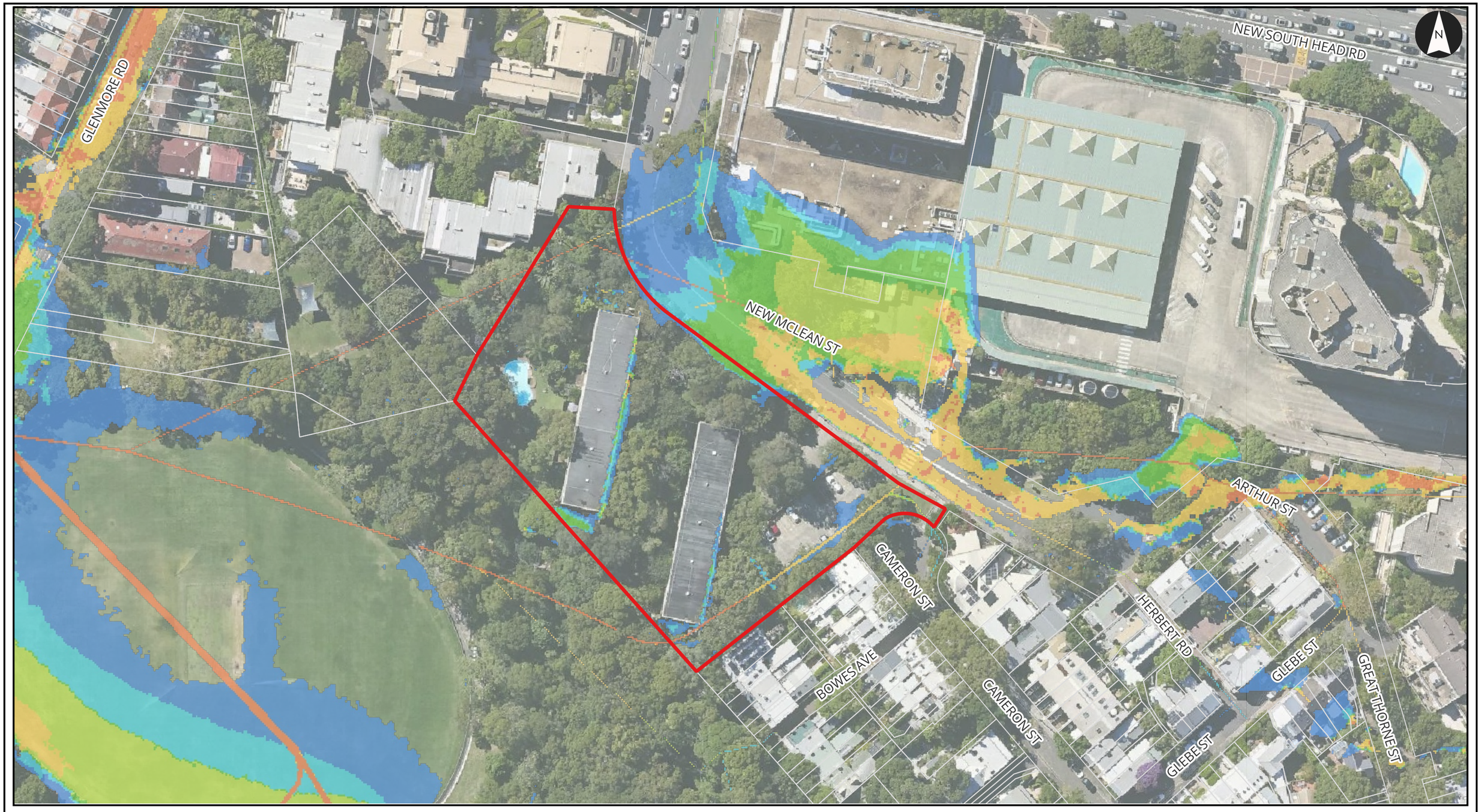
Scale at A3: 1:1000





8-10 New McLean Street, Edgecliff

Existing Flood Hazard 1% AEP

Project: 8-10 New McLean Street, Edgecliff - FIA

Client: Mount St 4 Pty Ltd
Project Code: 301351173
Drawn By: AA, Checked By: JL
Date: (2025-04-29)
Figure No: GIS-Q-03

Stantec

Legend

Site Boundary
Cadastre

Hazard
H1
H2
H3
H4
H5
H6

Notes:
1. Map displayed in EPSG:28356

References:
1. Aerial photo: Metromap
2. Cadastre: NSW Spatial Collaboration Portal

DRAFT - Not For Construction

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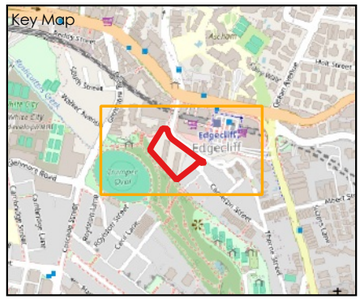
Scale at A3: 1:1000



8-10 New McLean Street, Edgecliff

Existing Flood Depth PMF

Project: 8-10 New McLean Street, Edgecliff - FIA

Client: Mount St 4 Pty Ltd
Project Code: 301351173
Drawn By: AA, Checked By: JL
Date: (2025-04-29)
Figure No: GIS-Q-04

Stantec

Legend

Site Boundary
Cadastre

Flood Depth (m)
0.1 - 0.2
0.2 - 0.5
0.5 - 1.0
1.0 - 1.5
1.5 - 2.0
> 2.0

Notes:
1. Map displayed in EPSG:28356

References:
1. Aerial photo: Metromap
2. Cadastre: NSW Spatial Collaboration Portal

DRAFT - Not For Construction

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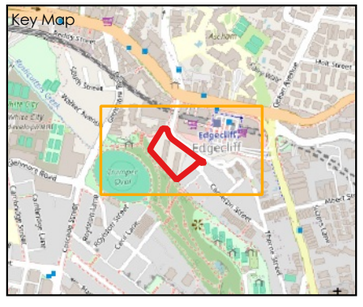
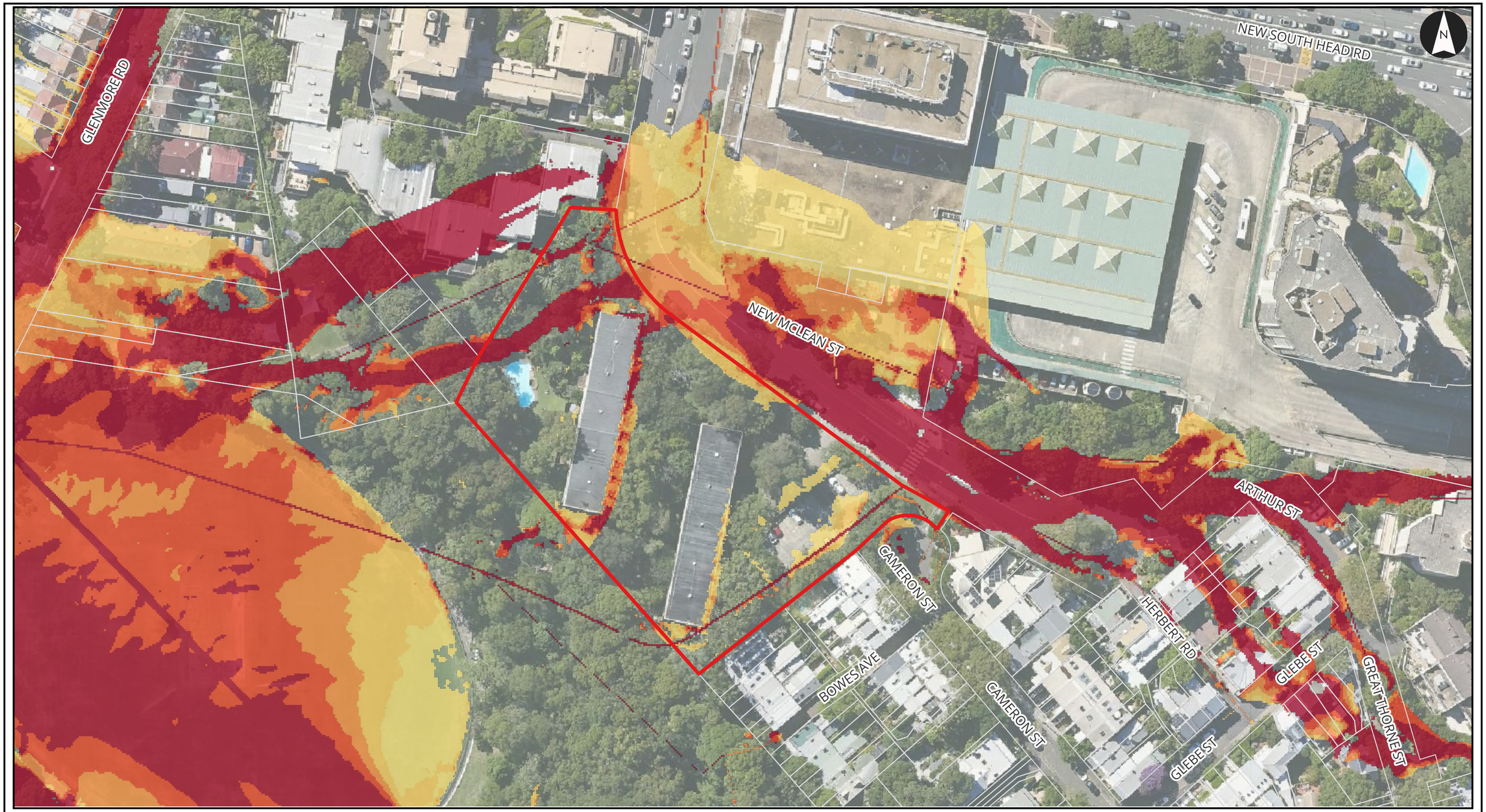
Scale at A3: 1:1000





8-10 New McLean Street, Edgecliff

Existing Flood Velocity PMF

Project: 8-10 New McLean Street, Edgecliff - FIA

Client: Mount St 4 Pty Ltd
Project Code: 301351173
Drawn By: AA, Checked By: JL
Date: (2025-04-29)
Figure No: GIS-Q-05

Stantec

Legend

Site Boundary
Cadastre

Velocity (m/s)
0.0 - 0.5
0.5 - 1.0
1.0 - 1.5
1.5 - 2.0
> 2.0

Notes:
1. Map displayed in EPSG:28356

References:
1. Aerial photo: Metromap
2. Cadastre: NSW Spatial Collaboration Portal

DRAFT - Not For Construction

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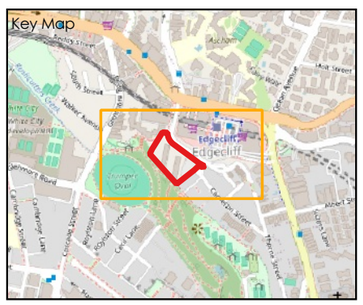
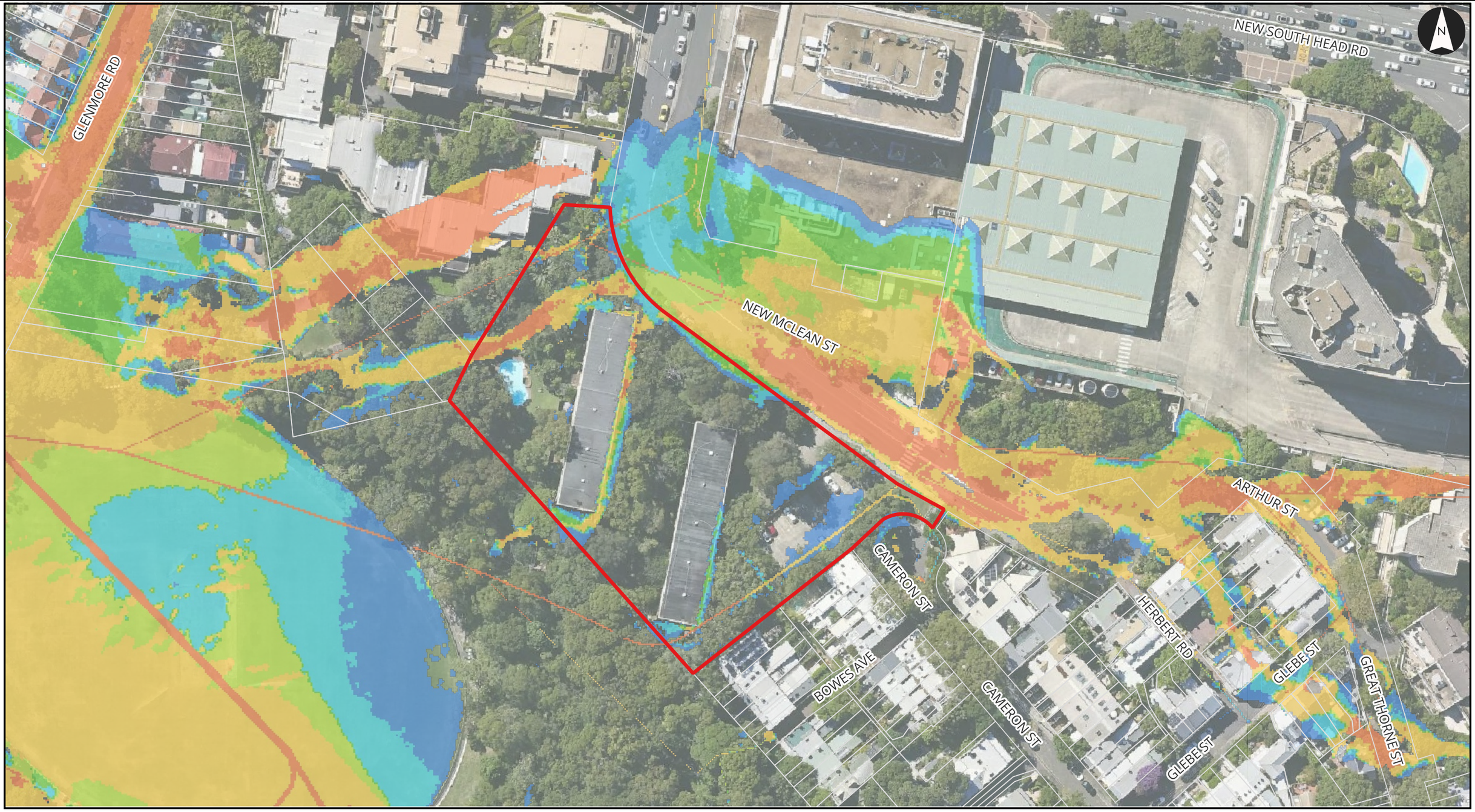
Scale at A3: 1:1000





8-10 New McLean Street, Edgecliff

Existing Flood Hazard PMF

Project: 8-10 New McLean Street, Edgecliff - FIA

Client: Mount St 4 Pty Ltd
Project Code: 301351173
Drawn By: AA, Checked By: JL
Date: (2025-04-29)
Figure No: GIS-Q-06

Stantec

Legend

Site Boundary
Cadastre

Hazard
H1
H2
H3
H4
H5
H6

Notes:
1. Map displayed in EPSG:28356

References:
1. Aerial photo: Metromap
2. Cadastre: NSW Spatial Collaboration Portal

DRAFT - Not For Construction

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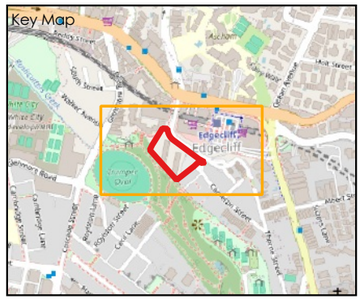
Scale at A3: 1:1000



8-10 New McLean Street, Edgecliff

Base Proposed Scenario Flood Depth 1% AEP

Project: 8-10 New McLean Street, Edgecliff - FIA

Client: Mount St 4 Pty Ltd
Project Code: 301351173
Drawn By: AA, Checked By: JL
Date: (2025-04-29)
Figure No: GIS-Q-07

Stantec

Legend

- Site Boundary
- Proposed Building Footprint
- Cadastre

Flood Depth (m)
- 0.1 - 0.2
- 0.2 - 0.5
- 0.5 - 1.0
- 1.0 - 1.5
- 1.5 - 2.0
- > 2.0

Notes:
1. Map displayed in EPSG:28356

References:
1. Aerial photo: Metromap
2. Cadastre: NSW Spatial Collaboration Portal

DRAFT - Not For Construction

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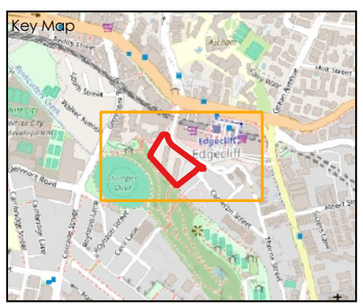
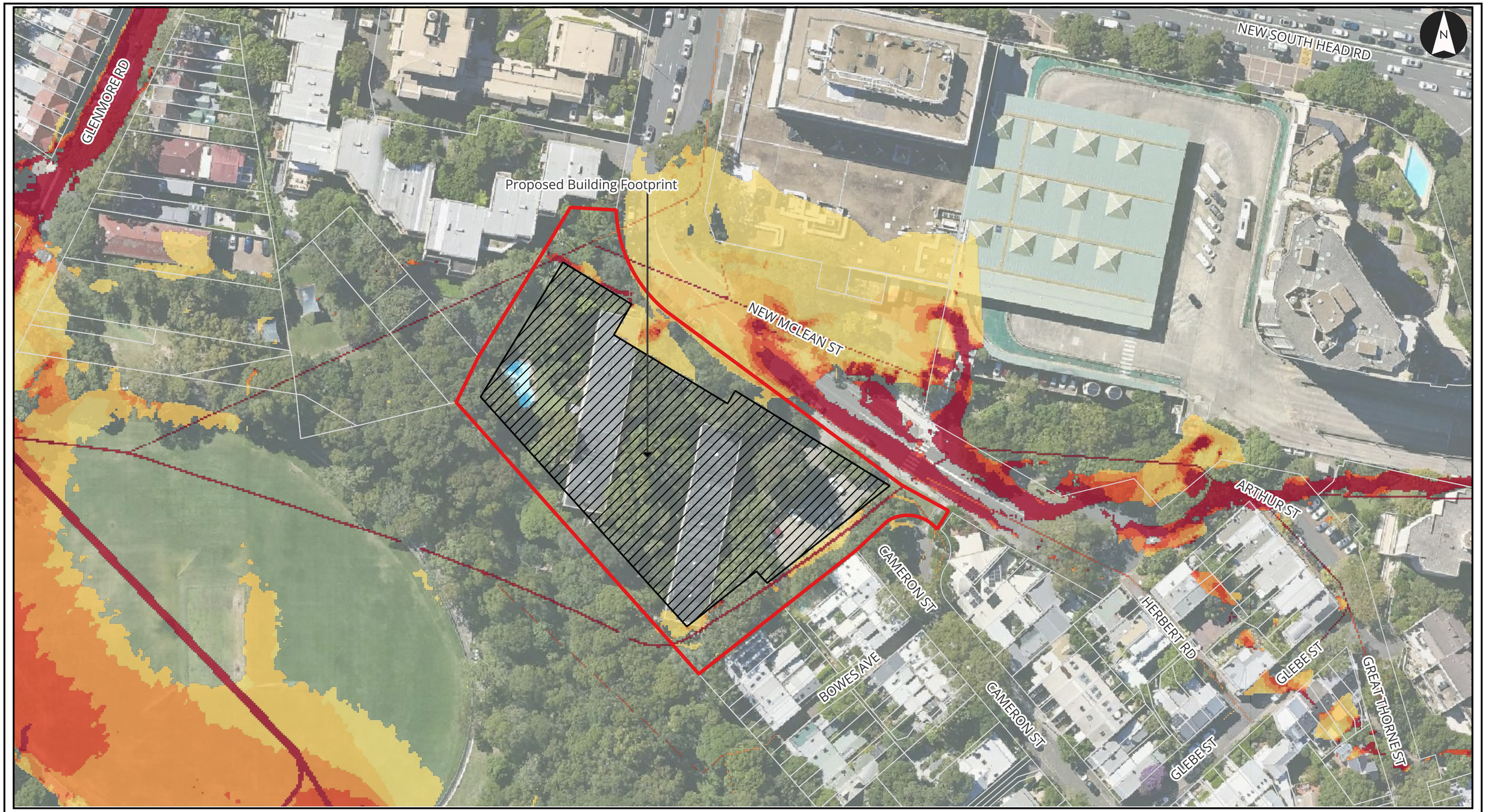
Scale at A3: 1:1000





8-10 New McLean Street, Edgecliff

Base Proposed Scenario Flood Velocity 1% AEP

Project: 8-10 New McLean Street, Edgecliff - FIA

Client: Mount St 4 Pty Ltd
Project Code: 301351173
Drawn By: AA, Checked By: JL
Date: (2025-04-29)
Figure No: GIS-Q-08

Stantec

Legend

- Site Boundary
- Proposed Building Footprint
- Cadastre

Velocity (m/s)
- 0.0 - 0.5
- 0.5 - 1.0
- 1.0 - 1.5
- 1.5 - 2.0
- > 2.0

Notes:
1. Map displayed in EPSG:28356

References:
1. Aerial photo: Metromap
2. Cadastre: NSW Spatial Collaboration Portal

DRAFT - Not For Construction

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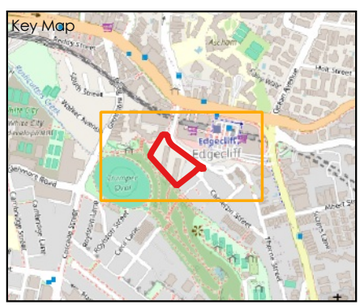
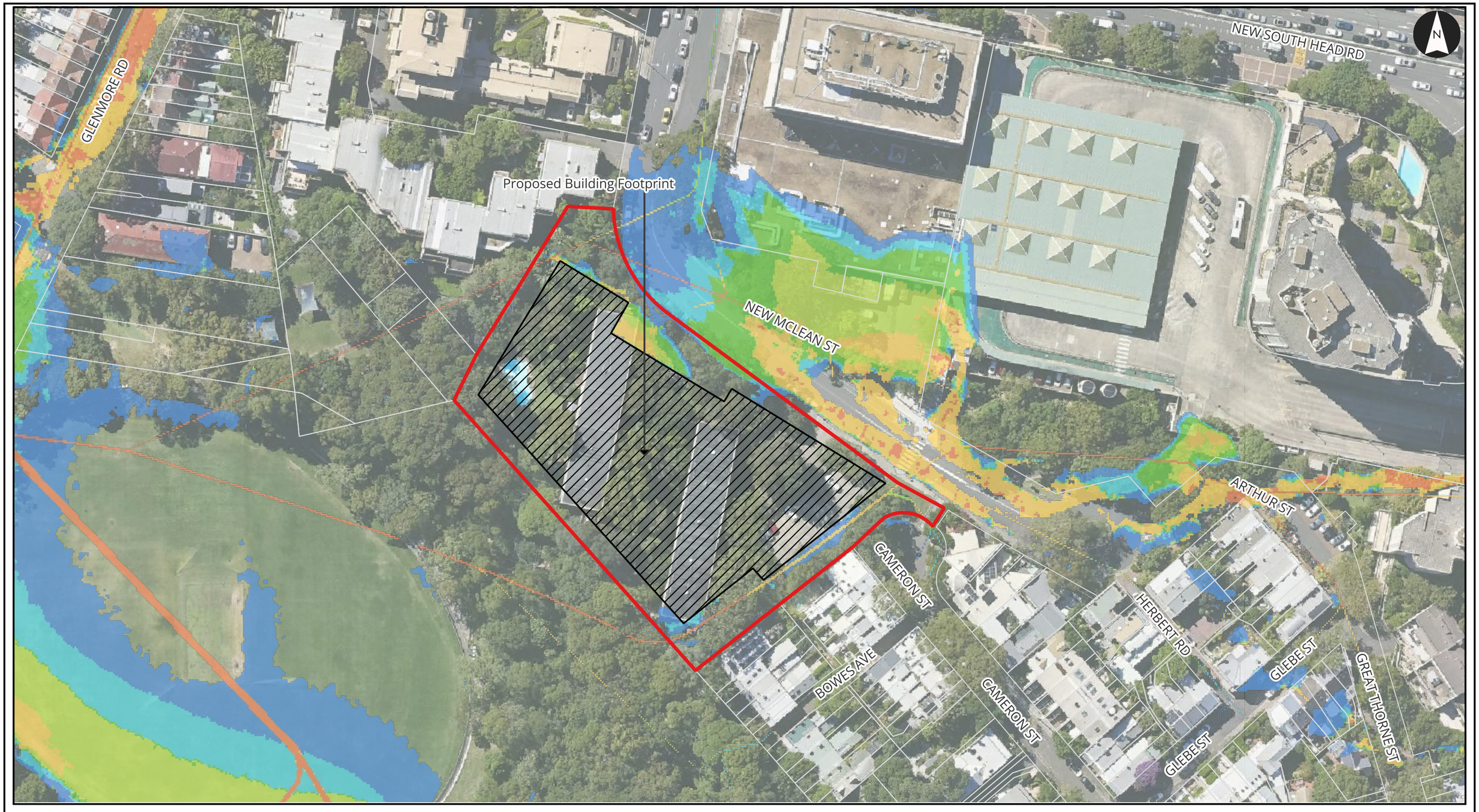
Scale at A3: 1:1000





8-10 New McLean Street, Edgecliff

Base Proposed Scenario Flood Hazard 1% AEP

Project: 8-10 New McLean Street, Edgecliff - FIA

Client: Mount St 4 Pty Ltd
Project Code: 301351173
Drawn By: AA, Checked By: JL
Date: (2025-04-29)
Figure No: GIS-Q-09

Legend

- Site Boundary
- Proposed Building Footprint
- Cadastre

Hazard
- H1
- H2
- H3
- H4
- H5
- H6

Notes:
1. Map displayed in EPSG:28356

References:
1. Aerial photo: Metromap
2. Cadastre: NSW Spatial Collaboration Portal

DRAFT - Not For Construction

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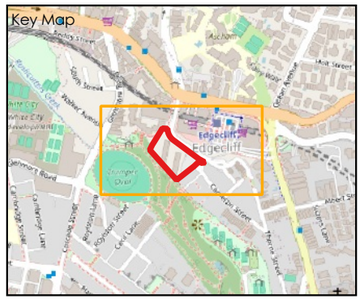
Scale at A3: 1:1000



8-10 New McLean Street, Edgecliff

Base Proposed Scenario Flood Depth PMF

Project: 8-10 New McLean Street, Edgecliff - FIA

Client: Mount St 4 Pty Ltd
Project Code: 301351173
Drawn By: AA, Checked By: JL
Date: (2025-04-29)
Figure No: GIS-Q-010

Stantec

Legend

- Site Boundary
- Proposed Building Footprint
- Cadastre

Flood Depth (m)
- 0.0 - 0.1
- 0.1 - 0.2
- 0.2 - 0.5
- 0.5 - 1.0
- 1.0 - 2.0
- 2.0 - 3.0
- 3.0 - 4.0
- 4.0 - 5.0
- > 5.0

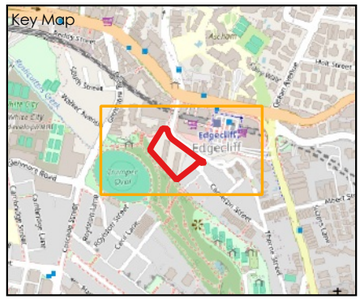
Notes:
1. Map displayed in EPSG:28356

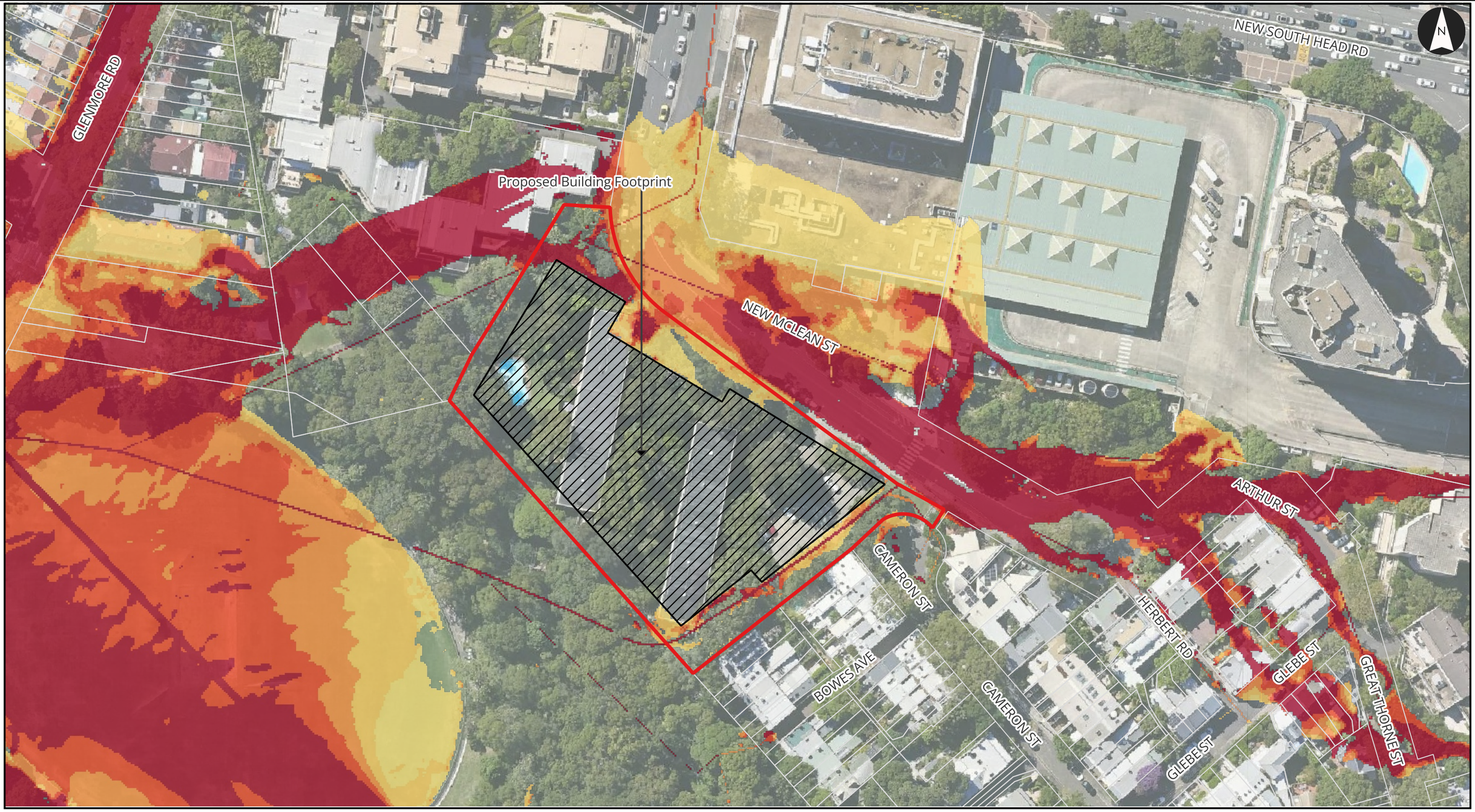
References:
1. Aerial photo: Metromap
2. Cadastre: NSW Spatial Collaboration Portal

DRAFT - Not For Construction

10 0 10 20 30 40 m

Scale at A3: 1:1000





8-10 New McLean Street, Edgecliff

Base Proposed Scenario Flood Velocity PMF

Project: 8-10 New McLean Street, Edgecliff - FIA

Client: Mount St 4 Pty Ltd
Project Code: 301351173
Drawn By: AA, Checked By: JL
Date: (2025-04-29)
Figure No: GIS-Q-011

Stantec

Legend

- Site Boundary
- Proposed Building Footprint
- Cadastre

Velocity (m/s)
- 0.0 - 0.5
- 0.5 - 1.0
- 1.0 - 1.5
- 1.5 - 2.0
- > 2.0

Notes:
1. Map displayed in EPSG:28356

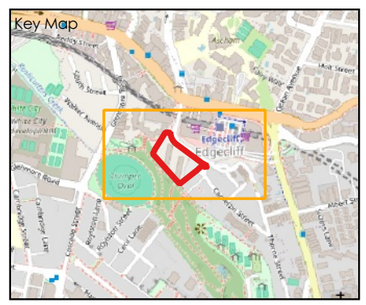
References:
1. Aerial photo: Metromap
2. Cadastre: NSW Spatial Collaboration Portal

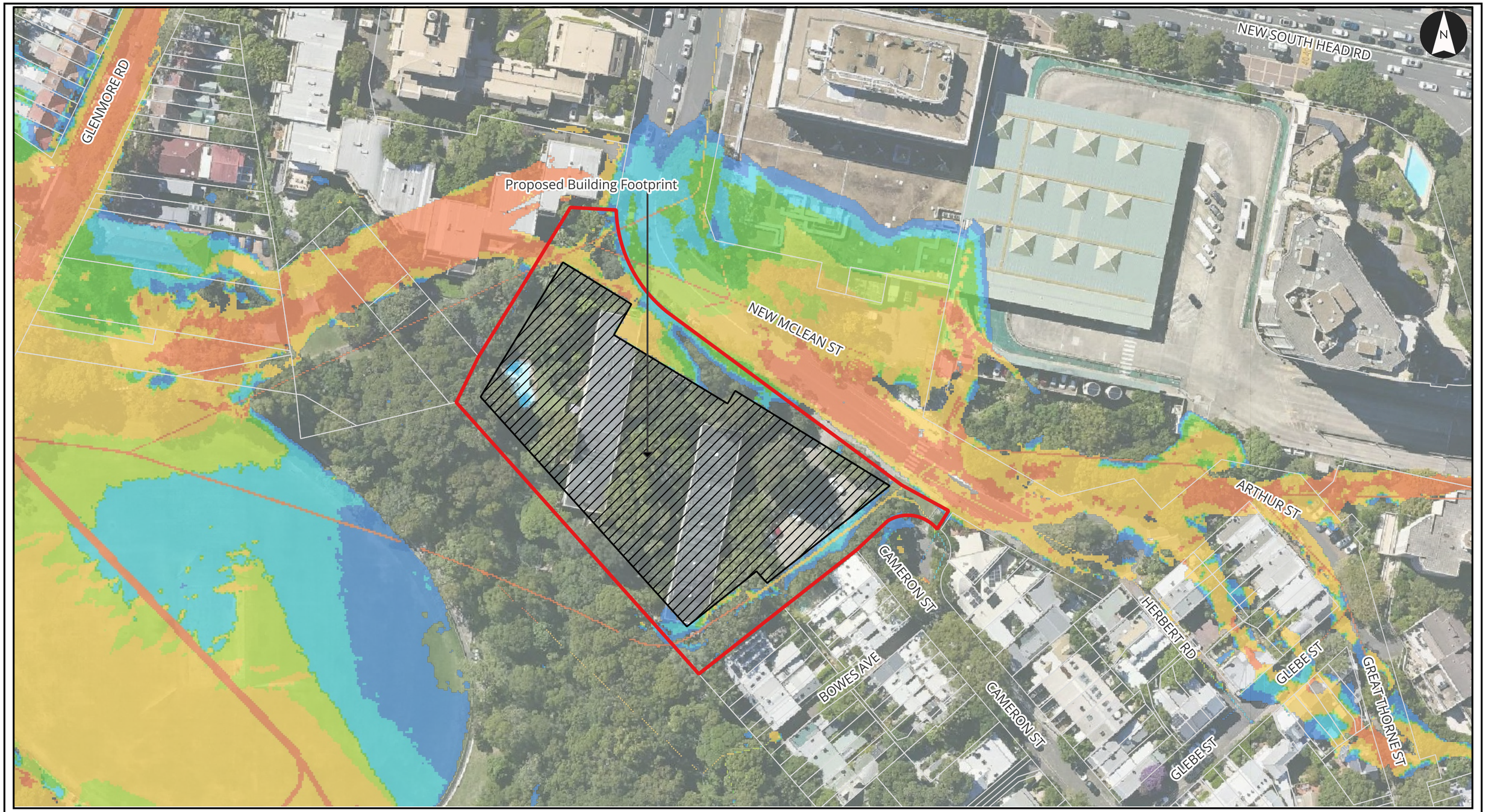
DRAFT - Not For Construction

10 0 10 20 30 40 m

Scale at A3: 1:1000

Key Map





8-10 New McLean Street, Edgecliff

Base Proposed Scenario Flood Hazard PMF

Project: 8-10 New McLean Street, Edgecliff - FIA

Client: Mount St 4 Pty Ltd
Project Code: 301351173
Drawn By: AA, Checked By: JL
Date: (2025-04-29)
Figure No: GIS-Q-012

Stantec

Legend

- Site Boundary
- Proposed Building Footprint
- Cadastre

Hazard
- H1
- H2
- H3
- H4
- H5
- H6

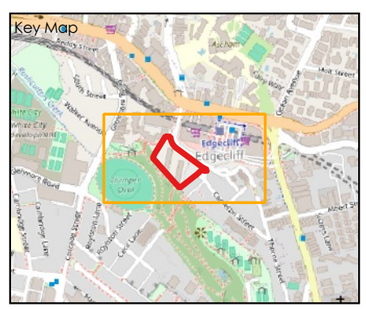
Notes:
1. Map displayed in EPSG:28356

References:
1. Aerial photo: Metromap
2. Cadastre: NSW Spatial Collaboration Portal

DRAFT - Not For Construction

10 0 10 20 30 40 m

Scale at A3: 1:1000



8-10 New McLean Street, Edgecliff

Base Proposed Scenario less Existing Flood Impact 1% AEP

Project: 8-10 New McLean Street, Edgecliff - FIA

Client: Mount St 4 Pty Ltd
Project Code: 301351173
Drawn By: AA, Checked By: JL
Date: (2025-04-29)
Figure No: GIS-Q-013

Stantec

Legend

- Site Boundary
- Proposed Building Footprint
- Cadastre

Afflux (m)
- < -0.50
- -0.50 - -0.20
- -0.20 - -0.10
- -0.10 - -0.05
- -0.05 - -0.03
- -0.03 - 0.03
- 0.03 - 0.05
- 0.05 - 0.10
- 0.10 - 0.20
- 0.20 - 0.50
- > 0.50

Wet / Dry
- Was Wet, Now Dry
- Was Dry, Now Wet

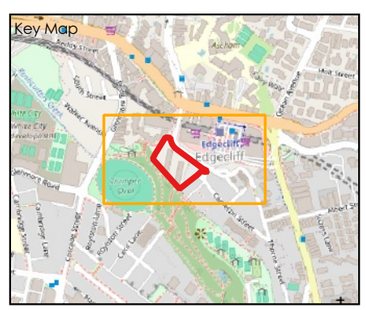
Notes:
1. Map displayed in EPSG:28356

References:
1. Aerial photo: Metromap
2. Cadastre: NSW Spatial Collaboration Portal

DRAFT - Not For Construction

10 0 10 20 30 40 m

Scale at A3: 1:1000



8-10 New McLean Street, Edgecliff

Proposed Scenario with Swale Flood Depth 1% AEP

Project: 8-10 New McLean Street, Edgecliff - FIA

Client: Mount St 4 Pty Ltd
Project Code: 301351173
Drawn By: AA, Checked By: JL
Date: (2025-04-29)
Figure No: GIS-Q-014

Stantec

Legend

- Site Boundary
- Proposed Building Footprint
- Cadastre

Flood Depth (m)
- 0.1 - 0.2
- 0.2 - 0.5
- 0.5 - 1.0
- 1.0 - 1.5
- 1.5 - 2.0
- > 2.0

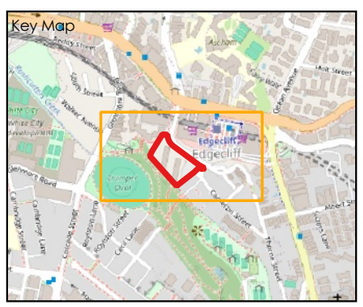
Notes:
1. Map displayed in EPSG:28356

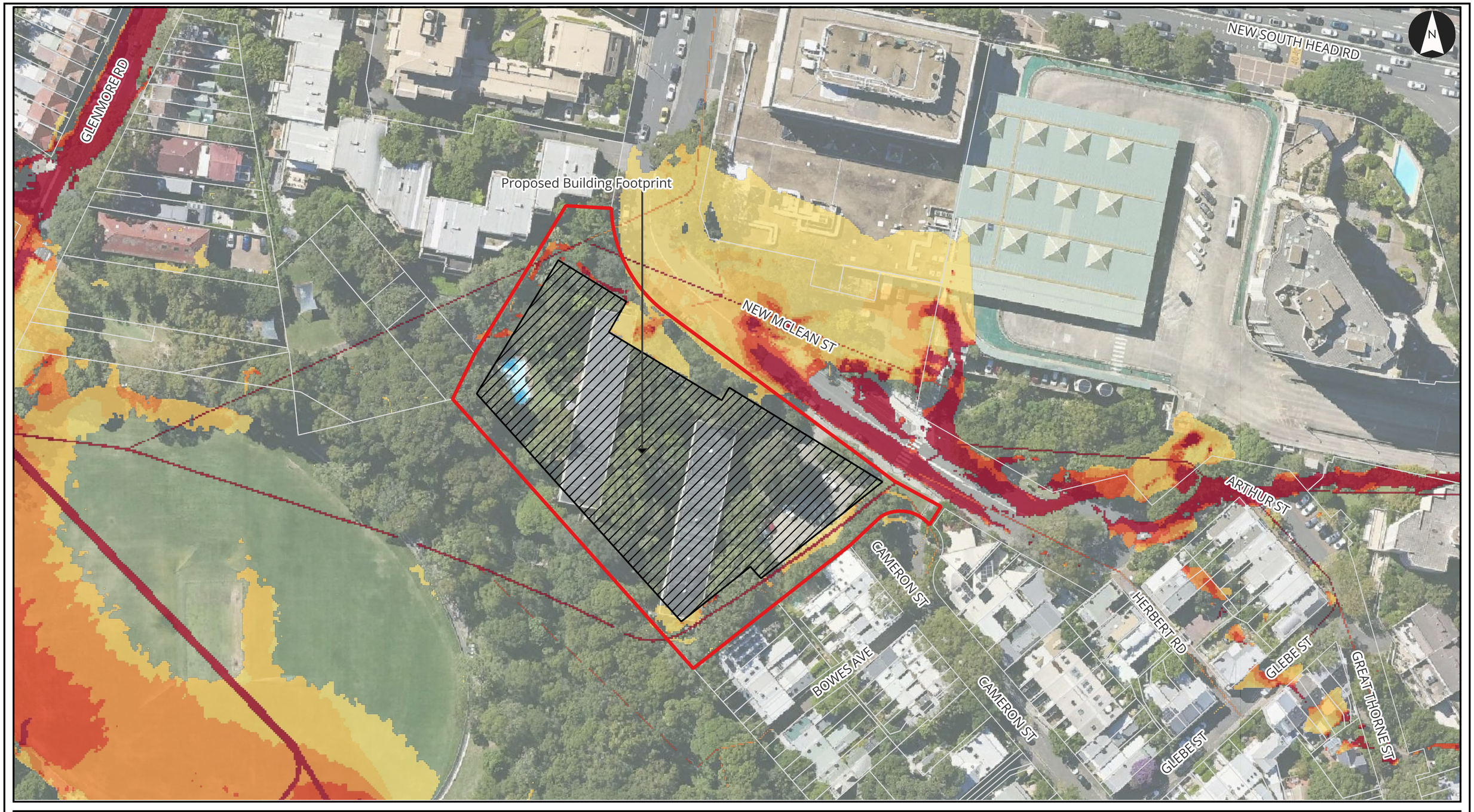
References:
1. Aerial photo: Metromap
2. Cadastre: NSW Spatial Collaboration Portal

DRAFT - Not For Construction

10 0 10 20 30 40 m

Scale at A3: 1:1000





8-10 New McLean Street, Edgecliff

Proposed Scenario with Swale Flood Velocity 1% AEP

Project: 8-10 New McLean Street, Edgecliff - FIA

Client: Mount St 4 Pty Ltd
Project Code: 301351173
Drawn By: AA, Checked By: JL
Date: (2025-04-29)
Figure No: GIS-Q-015

Stantec

Legend

- Site Boundary
- Proposed Building Footprint
- Cadastre

Velocity (m/s)
- 0.0 - 0.5
- 0.5 - 1.0
- 1.0 - 1.5
- 1.5 - 2.0
- > 2.0

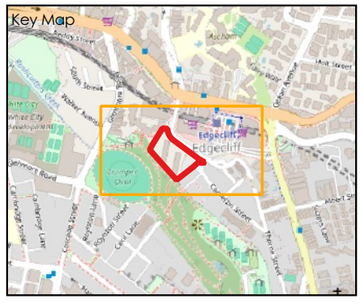
Notes:
1. Map displayed in EPSG:28356

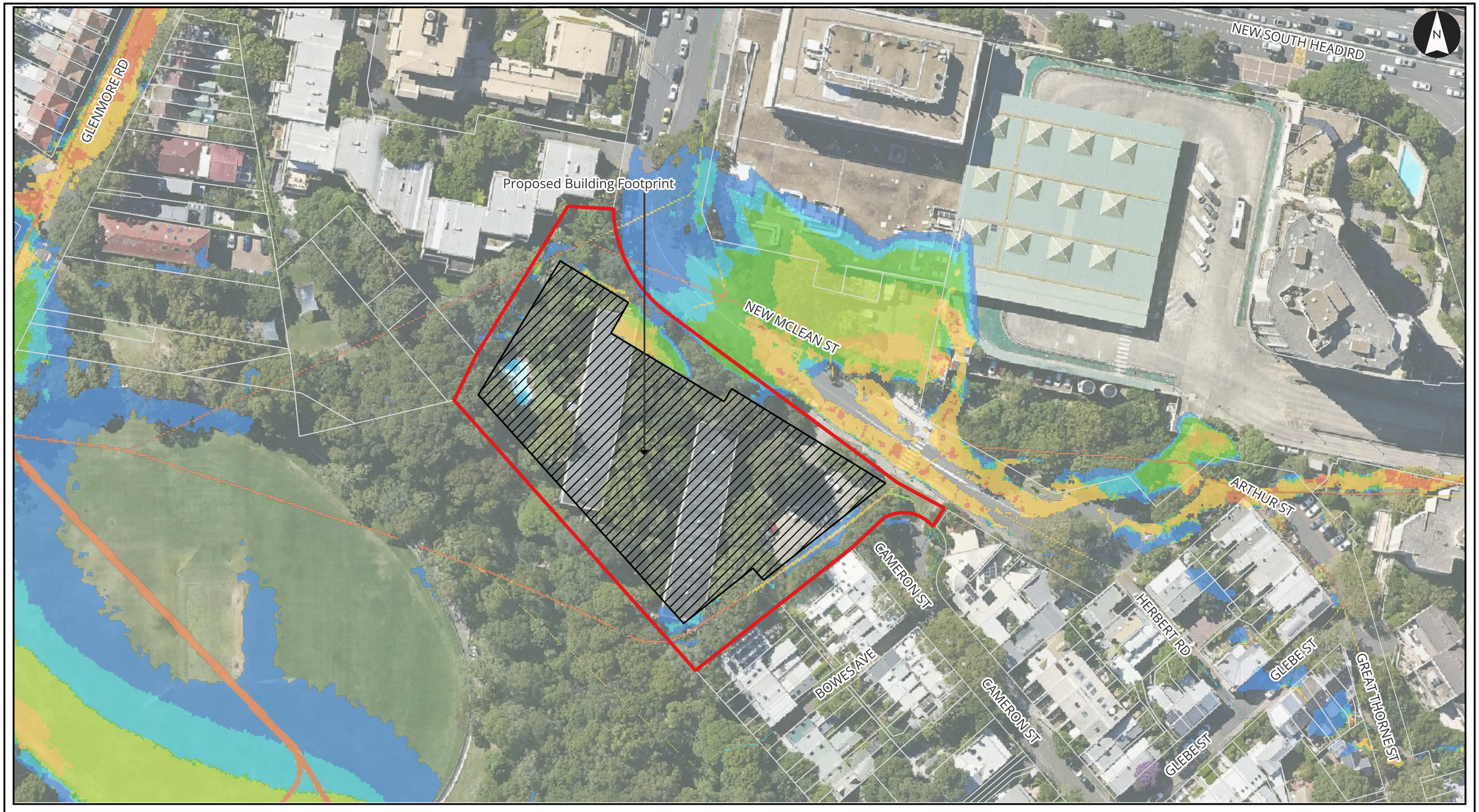
References:
1. Aerial photo: Metromap
2. Cadastre: NSW Spatial Collaboration Portal

DRAFT - Not For Construction

10 0 10 20 30 40 m

Scale at A3: 1:1000





8-10 New McLean Street, Edgecliff

Proposed Scenario with Swale Flood Hazard 1% AEP

Project: 8-10 New McLean Street, Edgecliff - FIA

Client: Mount St 4 Pty Ltd
Project Code: 301351173
Drawn By: AA, Checked By: JL
Date: (2025-04-29)
Figure No: GIS-Q-016

Stantec

Legend

- Site Boundary
- Proposed Building Footprint
- Cadastre

Hazard
- H1
- H2
- H3
- H4
- H5
- H6

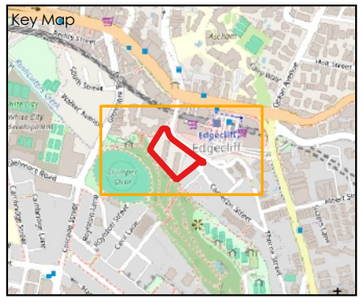
Notes:
1. Map displayed in EPSG:28356

References:
1. Aerial photo: Metromap
2. Cadastre: NSW Spatial Collaboration Portal

DRAFT - Not For Construction

10 0 10 20 30 40 m

Scale at A3: 1:1000



8-10 New McLean Street, Edgecliff

Proposed Scenario with Swale less Existing Flood Impact 1% AEP

Project: 8-10 New McLean Street, Edgecliff - FIA

Client: Mount St 4 Pty Ltd
Project Code: 301351173
Drawn By: AA, Checked By: JL
Date: (2025-04-29)
Figure No: GIS-Q-017

Stantec

Legend

- Site Boundary
- Proposed Building Footprint
- Cadastre

Afflux (m)

- < -0.50
- -0.50 - -0.20
- -0.20 - -0.10
- -0.10 - -0.05
- -0.05 - -0.03
- -0.03 - 0.03
- 0.03 - 0.05
- 0.05 - 0.10
- 0.10 - 0.20
- 0.20 - 0.50
- > 0.50

Wet / Dry

- Was Wet, Now Dry
- Was Dry, Now Wet

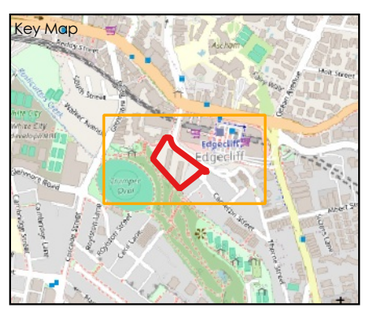
Notes:
1. Map displayed in EPSG:28356

References:
1. Aerial photo: Metromap
2. Cadastre: NSW Spatial Collaboration Portal

DRAFT - Not For Construction

10 0 10 20 30 40 m

Scale at A3: 1:1000



8-10 New McLean Street, Edgecliff

Proposed Scenario with Retaining Wall Flood Depth 1% AEP

Project: 8-10 New McLean Street, Edgecliff - FIA

Client: Mount St 4 Pty Ltd
Project Code: 301351173
Drawn By: AA, Checked By: JL
Date: (2025-04-29)
Figure No: GIS-Q-018

Stantec

Legend

- Site Boundary
- Proposed Building Footprint
- Cadastre

Flood Depth (m)
- 0.1 - 0.2
- 0.2 - 0.5
- 0.5 - 1.0
- 1.0 - 1.5
- 1.5 - 2.0
- > 2.0

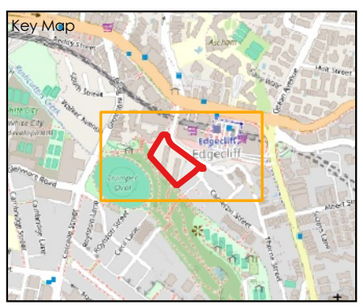
Notes:
1. Map displayed in EPSG:28356

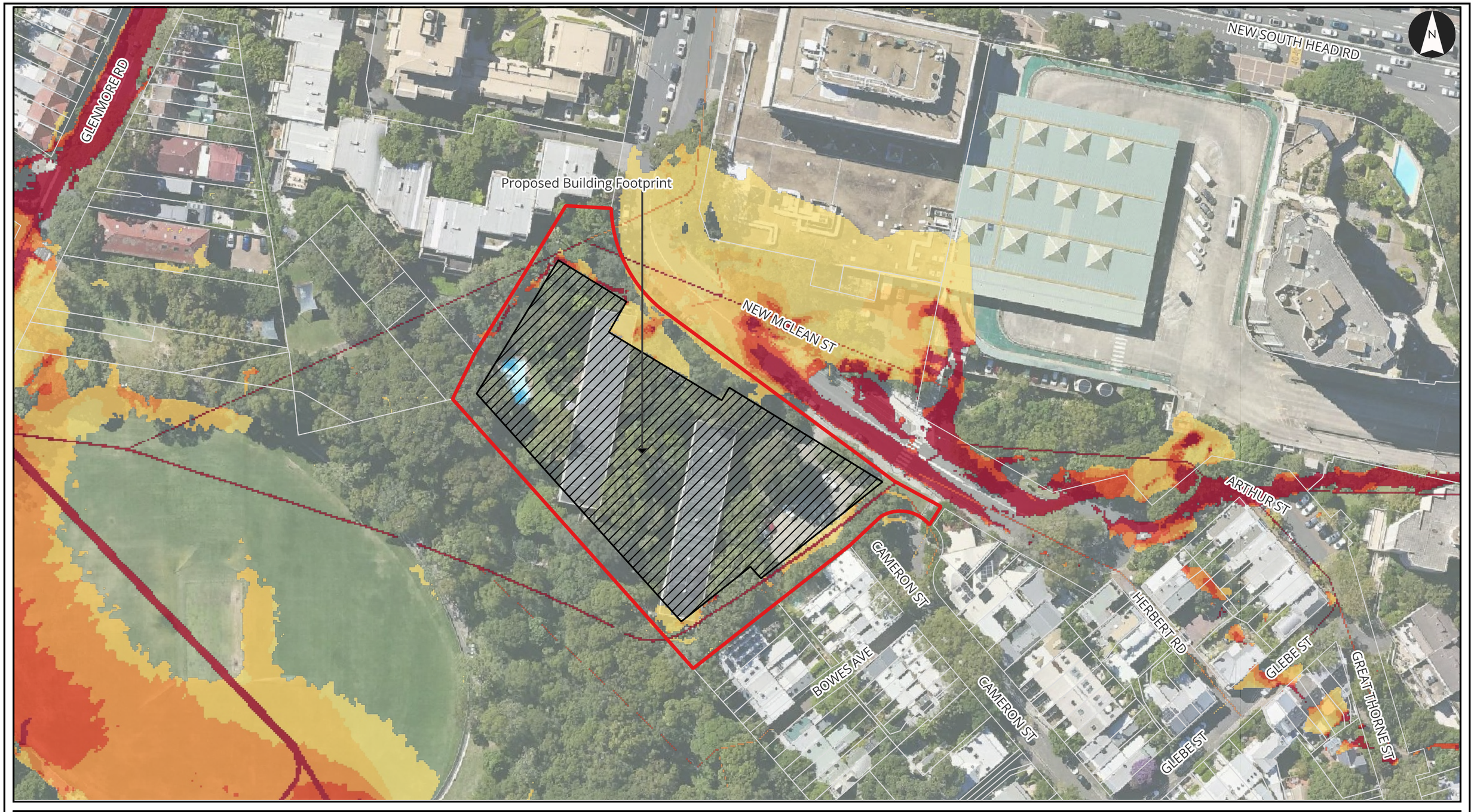
References:
1. Aerial photo: Metromap
2. Cadastre: NSW Spatial Collaboration Portal

DRAFT - Not For Construction

10 0 10 20 30 40 m

Scale at A3: 1:1000





8-10 New McLean Street, Edgecliff

Proposed Scenario with Retaining Wall Flood Velocity 1% AEP

Project: 8-10 New McLean Street, Edgecliff - FIA

Client: Mount St 4 Pty Ltd
Project Code: 301351173
Drawn By: AA, Checked By: JL
Date: (2025-04-29)
Figure No: GIS-Q-019

Legend

- Site Boundary
- Proposed Building Footprint
- Cadastre

Velocity (m/s)
- 0.0 - 0.5
- 0.5 - 1.0
- 1.0 - 1.5
- 1.5 - 2.0
- > 2.0

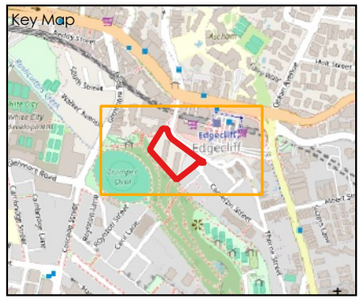
Notes:
1. Map displayed in EPSG:28356

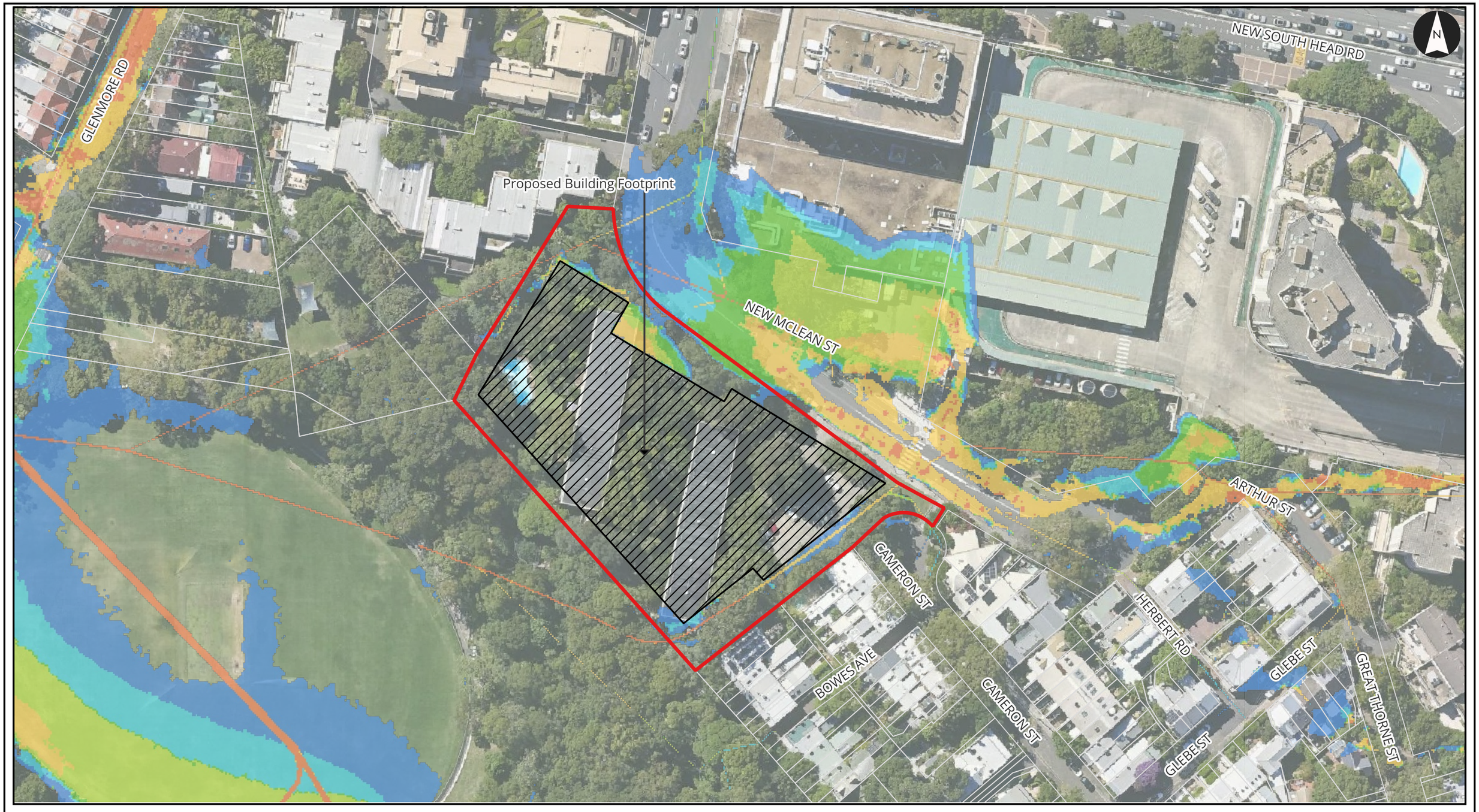
References:
1. Aerial photo: Metromap
2. Cadastre: NSW Spatial Collaboration Portal

DRAFT - Not For Construction

10 0 10 20 30 40 m

Scale at A3: 1:1000





8-10 New McLean Street, Edgecliff

Proposed Scenario with Retaining Wall Flood Hazard 1% AEP

Project: 8-10 New McLean Street, Edgecliff - FIA

Client: Mount St 4 Pty Ltd
Project Code: 301351173
Drawn By: AA, Checked By: JL
Date: (2025-04-29)
Figure No: GIS-Q-020

Legend

- Site Boundary
- Proposed Building Footprint
- Cadastre

Hazard
- H1
- H2
- H3
- H4
- H5
- H6

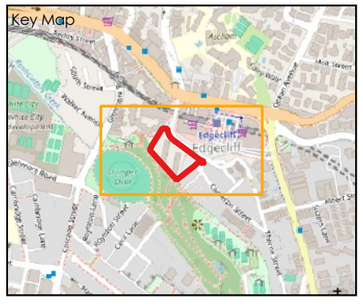
Notes:
1. Map displayed in EPSG:28356

References:
1. Aerial photo: Metromap
2. Cadastre: NSW Spatial Collaboration Portal

DRAFT - Not For Construction

10 0 10 20 30 40 m

Scale at A3: 1:1000



8-10 New McLean Street, Edgecliff

Proposed Scenario with Retaining Wall less Existing Flood Impact 1% AEP

Project: 8-10 New McLean Street, Edgecliff - FIA

Client: Mount St 4 Pty Ltd
Project Code: 301351173
Drawn By: AA, Checked By: JL
Date: (2025-04-29)
Figure No: GIS-Q-021

Stantec

Legend

- Site Boundary
- Proposed Building Footprint
- Cadastre

Afflux (m)

- < -0.50
- -0.50 - -0.20
- -0.20 - -0.10
- -0.10 - -0.05
- -0.05 - -0.03
- -0.03 - 0.03
- 0.03 - 0.05
- 0.05 - 0.10
- 0.10 - 0.20
- 0.20 - 0.50
- > 0.50

Wet / Dry

- Was Wet, Now Dry
- Was Dry, Now Wet

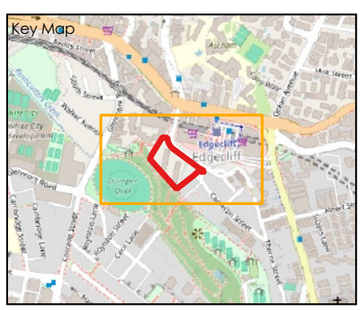
Notes:
1. Map displayed in EPSG:28356

References:
1. Aerial photo: Metromap
2. Cadastre: NSW Spatial Collaboration Portal

DRAFT - Not For Construction

10 0 10 20 30 40 m

Scale at A3: 1:1000



Stantec is a global leader in sustainable engineering, architecture, and environmental consulting. The diverse perspectives of our partners and interested parties drive us to think beyond what's previously been done on critical issues like climate change, digital transformation, and future-proofing our cities and infrastructure. We innovate at the intersection of community, creativity, and client relationships to advance communities everywhere, so that together we can redefine what's possible.

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