

Appendix N Addendum to Flooding Report

June 2023

sydneymetro.info



Sydney Metro West

Sydney Olympic Park Over and Adjacent Station
Development

Addendum to Appendix Y - Flooding Assessment

Contents

1	Executive summary	iii
1	Introduction	1
2	Agency submissions	2
3	Flooding risk assessment	3
4	Conclusion and recommendations	6
5	Appendix A Flood mapping.....	7

Document Number: SMWSTEDS-SMD-OLP-SN400-WA-RPT-044003

REVISION	DATE	SUITABILITY CODE	TEAMBINDER DOCUMENT NUMBER	TB REVISION
C	15/06/2023	S4	SMWSTEDS-SMD-OLP-SN400-WA-RPT-044003	C

Approval Record

FUNCTION	POSITION	NAME	DATE
Author	Principal Water Resources Engineer	Suzanne Burow	15/06/2023
Technical Checker	Technical Director - Civil Engineering	Boon Soo	15/06/2023
Technical Reviewer	Technical Director - Civil Engineering	Lisa Karwoski	15/06/2023
Coordinator	Senior Project Manager	Luke Carver	15/06/2023
Approver	EDATP Metro West Program Lead	Adrian Garnero	15/06/2023

Amendment Record

DATE	REVISION	AMENDMENT DESCRIPTION	AUTHOR
05/05/2023	A	Original	Suzanne Burow
01/06/2023	B	Amended	Suzanne Burow
15/06/2023	C	Amended	Suzanne Burow

Mott MacDonald Australia Pty Ltd

Limitation: This document is issued for the party which commissioned it and for specific purposes connected with the above captioned project only. It should not be relied upon by any other party or used for any other purpose.

We accept no responsibility for the consequences of the document being relied upon by any other party, or being used for any other purpose, or containing any error or omission which is due to an error or omission in data supplied to us by other parties.

Executive summary

This addendum to the flooding assessment report supports a Concept State Significant Development Application (Concept SSDA) submitted to the Department of Planning and Environment (DPE) pursuant to part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

Sydney Metro is seeking to secure concept approval for an over station development and adjacent station development on an area defined as Site 47 within the Central Precinct of Sydney Olympic Park. A flooding assessment was previously undertaken and presented in the Sydney Olympic Park Metro Station - Over & Adjacent Station Development Environmental Impact Statement (SSD-35283699) which was exhibited from 16 November 2022 until 13 December 2022. During this period agency submissions were received along with submissions from the public.

DPE issued a letter to Sydney Metro on 16 December 2022 requesting a response to the issues raised during the public exhibition of the application. DPE also issued a further Request for Further Information (RFI) on 6 February 2023 and the Submissions Report provides a response to these matters.

In summary, the issues raised by agencies related to horizontal evacuation arrangements during flooding, consistency of the stormwater arrangements with the BDAR waiver in relation to the Northern Water Feature and consultation with the NSW SES. Agency advice on flood matters have been considered in this report. The addendum to Concept SSDA EIS Appendix X – Preliminary Integrated Water Management Report discusses how agency advice regarding biodiversity and the Northern Water Feature have been addressed.

Flood modelling associated with the Sydney Olympic Park Over and Adjacent Station Development Environmental Impact Statement (EIS) Appendix Y - Flooding Assessment is consistent with relevant SOPA guidelines and therefore no additional modelling has been undertaken for this report.

The report contains additional commentary which responds to the specific agency comments regarding evacuation arrangements associated with the current design. It is recommended that the Detailed SSDA application address additional mitigation measures, to those outlined in the Sydney Olympic Park Over and Adjacent Station Development EIS Appendix Y - Flooding Assessment (Sydney Metro, 2022) including:

- Where the proposal includes shelter-in-place arrangements to address flooding risk that they are consistent with the requirements of the Draft Shelter-in-place Guideline, unless the NSW Government has formally adopted Shelter-in-place Guidelines
- That developer(s) of the over and adjacent station development proposal undertake consultation with the NSW SES when developing their respective emergency plans for flood events to ensure consistency with broader emergency arrangements.

1 Introduction

This addendum to the Flooding Assessment report supports a Concept State Significant Development Application (Concept SSDA) submitted to the Department of Planning and Environment (DPE) pursuant to part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

Sydney Metro is seeking to secure concept approval for an over station development (OSD) and adjacent station development (ASD) on an area defined as Site 47 within the Central Precinct of Sydney Olympic Park. A flooding assessment was previously undertaken and presented in the Sydney Olympic Park Metro Station - Over & Adjacent Station Development Environmental Impact Statement (EIS) (SSD-35283699) which was exhibited from 16 November 2022 until 13 December 2022. During this period agency submissions were received along with submissions from the public.

DPE issued a letter to Sydney Metro on 16 December 2022 requesting a response to the issues raised during the public exhibition of the application. DPE also issued a further Request for Further Information (RFI) on 6 February 2023 and the Submissions Report provides a response to these matters.

This report addresses flooding related issues which were raised in one agency submission from the Environment and Heritage (EHG) group of the DPE. It should be read in conjunction with the Sydney Olympic Park Over and Adjacent Station Development EIS Appendix Y - Flooding Assessment which details the methodology and the applicable industry guidelines.

2 Agency submissions

The following Table 2-1 outlines the agency submission comments from the Biodiversity and Conservation division (Greater Sydney Branch) within the Environment and Heritage (EHG) group of the DPE and how they have been addressed.

In its letter dated 6 February 2023 DPE requested additional information to “*Review the advice of DPE’s Environment and Heritage Group and revise the proposal to support flood modelling and evacuation*”. An earlier letter dated 16 December 2022 contained general information in relation to agency submissions and required actions.

Table 2-1 Agency comments

Key issue	Agency advice	Report reference
Biodiversity	On 22 February 2022, EHG issued its determination to the DPE Planning Group that the proposed development is not likely to have a significant impact on biodiversity values and that the application does not need to be accompanied by a BDAR. In issuing this BDAR Waiver Request EHG advised that it supports the Sydney Olympic Park Authority’s recommendation that stormwater runoff (at all stages) be diverted from the Northern Water Feature so that Green and Golden Bell Frog Habitat is not impacted. This Concept Application and future SSD’s should advise how this recommendation will be complied with.	Refer to Addendum to Concept SSDA EIS Appendix X – Preliminary Integrated Water Management Report for further information.
Flooding	The modelling shows flooding in a PMF event in Figtree Drive at the east of the site, at the intersection with Precinct Street A. The modelling indicates depths of 0.1-0.2m and 0.2-0.3m, which would limit access to and evacuation from Precinct Street A. EHG recommends that the main driveway entry be in Figtree Drive, to the west of this flooding to enable access in all flood events.	Refer Table 3-1
Flooding	EHG further recommends consultation with the SES regarding emergency management. If Precinct Street A is used as the main vehicular access, Buildings 2 and 3 will not have flood free access in all flood events, contrary to the reporting.	Refer Table 3-1

3 Flooding risk assessment

The drainage network and overland flow paths of the precinct have been designed in accordance with the Sydney Olympic Park Authority (SOPA) requirements including:

- Infrastructure Technical Design and Construction Manual 2017
- Stormwater Management and Water Sensitive Urban Design 2016.

Most of the site naturally drains towards Herb Elliott Avenue which ultimately flows to the Northern Water Feature and SOPA has relied upon these inflows for the water reclamation and management scheme. This arrangement is consistent with the flooding assessment undertaken previously which incorporates representation of the associated local drainage network. Refer to the Sydney Olympic Park Over and Adjacent Station Development EIS Appendix Y - Flooding Assessment for further detail on the flooding assessment.

Stage 1 detailed design of the Stage 3 Critical State Significant Infrastructure (CSSI) approval (SSI-22765520) and provisioning works is ongoing but has been completed for the Sydney Olympic Park metro station. This work included further refinement of the flood assessment. Selected flood mapping has been included in Appendix A Flood mapping) to this Addendum. No additional flooding assessment has been undertaken for this report as there has been no update to features such as buildings or roads in the precinct following the Stage 3 CSSI assessment.

Table 3-1 below contains responses to relevant agency comments.

Table 3-1 Response to agency comments

Agency advice	Response
<p>The modelling shows flooding in a PMF event in Figtree Drive at the east of the site, at the intersection with Precinct Street A. The modelling indicates depths of 0.1-0.2m and 0.2-0.3m, which would limit access to and evacuation from Precinct Street A. EHG recommends that the main driveway entry be in Figtree Drive, to the west of this flooding to enable access in all flood events.</p>	<p>In the PMF event, Figtree Drive at the intersection with Precinct Street A experiences hazard category H1 with flood depths of up to 0.31m. Given the maximum flood depths are at the limiting still water threshold for this hazard category, it is noted that hazard category H2 is not considered safe for small vehicles.</p> <p>Consequently, horizontal evacuation from the precinct to Figtree Drive via Precinct Street A may not be safe in all circumstances. On that basis and in the context of the current design, it is noted that other options exist for evacuation including:</p> <ul style="list-style-type: none"> • evacuation by foot through the Promenade and onto Figtree Drive (H1 category areas) • evacuation by foot through the Sydney Olympic Park metro station public areas onto Precinct Street B to access Figtree Drive (H1 category areas) • sheltering in place within an over station or adjacent station development. <p>As outlined below in this table this matter would be considered further by the Detailed SSDA.</p> <p>Whilst not a matter for this application, it is</p>

Agency advice	Response
	<p>noted that the conditions of approval for the Stage 3 CSSI application require the development of operational emergency management plans for flooding. Consequently, it is expected that those arrangements would consider relevant matters such as the preferred evacuation arrangements for this metro station. This potentially presents further option(s) which may be considered by the Detailed SSDA.</p>
<p>EHG further recommends consultation with the SES regarding emergency management. If Precinct Street A is used as the main vehicular access, Buildings 2 and 3 will not have flood free access in all flood events, contrary to the reporting.</p>	<p>Although under the current design, horizontal evacuation by vehicle from the precinct may not be safe in all circumstances, there are alternative evacuation options. Resolution of the preferred evacuation arrangements would be best addressed during future stages of design, which would include the Detailed SSDA, as there are several approaches to addressing this risk. They are:</p> <ul style="list-style-type: none"> • Amending the design to reduce flood risk to occupants and address remaining flood risk in the operational flood emergency response plan • Incorporating shelter-in-place arrangements into the operational flood emergency response • Coordinating with the Sydney Olympic Park metro station operational emergency management plan for flooding. <p>The NSW Government undertook consultation on draft shelter-in-place guidelines in January 2023. It is recommended that if the proposal includes shelter-in-place arrangements to address flooding risk that they are consistent with the requirements of the Draft Shelter-in-place Guideline unless the NSW Government has formally adopted Shelter-in-place Guidelines. Under the Work Health and Safety Regulation 2017, a person conducting a business or undertaking has a duty to prepare, maintain and implement an emergency plan. This would apply to the over and adjacent station development unless they were specifically excluded. The regulation specifies the matters to be covered in the emergency plan including emergency and evacuation procedures.</p> <p>The Emergency Management Supporting Plan for Sydney Olympic Park (policy no POL11/11) applies to owners and operators of premises within Sydney Olympic Park. It requires that control and co-ordination of emergency response are initially conducted at the lowest effective level. Therefore</p>

Agency advice	Response
	<p>developer(s) of the over and adjacent station development proposal would need emergency plans for flooding in the case that residual flood risk exists at the completion of design.</p> <p>However, should an emergency be beyond the scope of the building management then the policy requires that assistance is sought from the relevant combat agency. As the NSW SES are the combat agency for flooding it is recommended that developer(s) of the over and adjacent station development proposal consult with the NSW SES when developing their respective emergency plans for flood events to ensure consistency with broader emergency arrangements.</p>
<p>Review the advice of DPE's Environment and Heritage Group and revise the proposal to support flood modelling and evacuation</p>	<p>The advice has been considered. Additional commentary in the table above responds to the specific agency comments regarding evacuation arrangements associated with the current design. Two additional mitigation measures have been proposed to ensure that future design stages consider relevant NSW Shelter-in-place Guidelines and require consultation with the NSW SES regarding emergency management. It is expected that these matters would be fully addressed in the future Detailed SSDA.</p> <p>The addendum to Concept SSDA EIS Appendix X – Preliminary Integrated Water Management Report discusses how agency advice regarding biodiversity and the Northern Water Feature have been addressed. However, it is noted that flood modelling is consistent with relevant SOPA guidelines.</p>

4 Conclusion and recommendations

This Addendum to the Flooding Assessment report has been written to support a Concept SSDA and to respond agency submissions.

Agency advice on flood matters have been considered in this report. Flood modelling associated with the Sydney Olympic Park Over and Adjacent Station Development EIS Appendix Y - Flooding Assessment is consistent with relevant SOPA guidelines and therefore no additional modelling has been undertaken for this report.

The addendum to Concept SSDA EIS Appendix X – Preliminary Integrated Water Management Report discusses how agency advice regarding biodiversity and the Northern Water Feature have been addressed.

Table 3-1 contains additional commentary which responds to the specific agency comments regarding evacuation arrangements associated with the current design. Two additional mitigation measures have been proposed to ensure that future design stages consider relevant NSW Shelter-in-place Guidelines and require consultation with the NSW SES regarding emergency management.

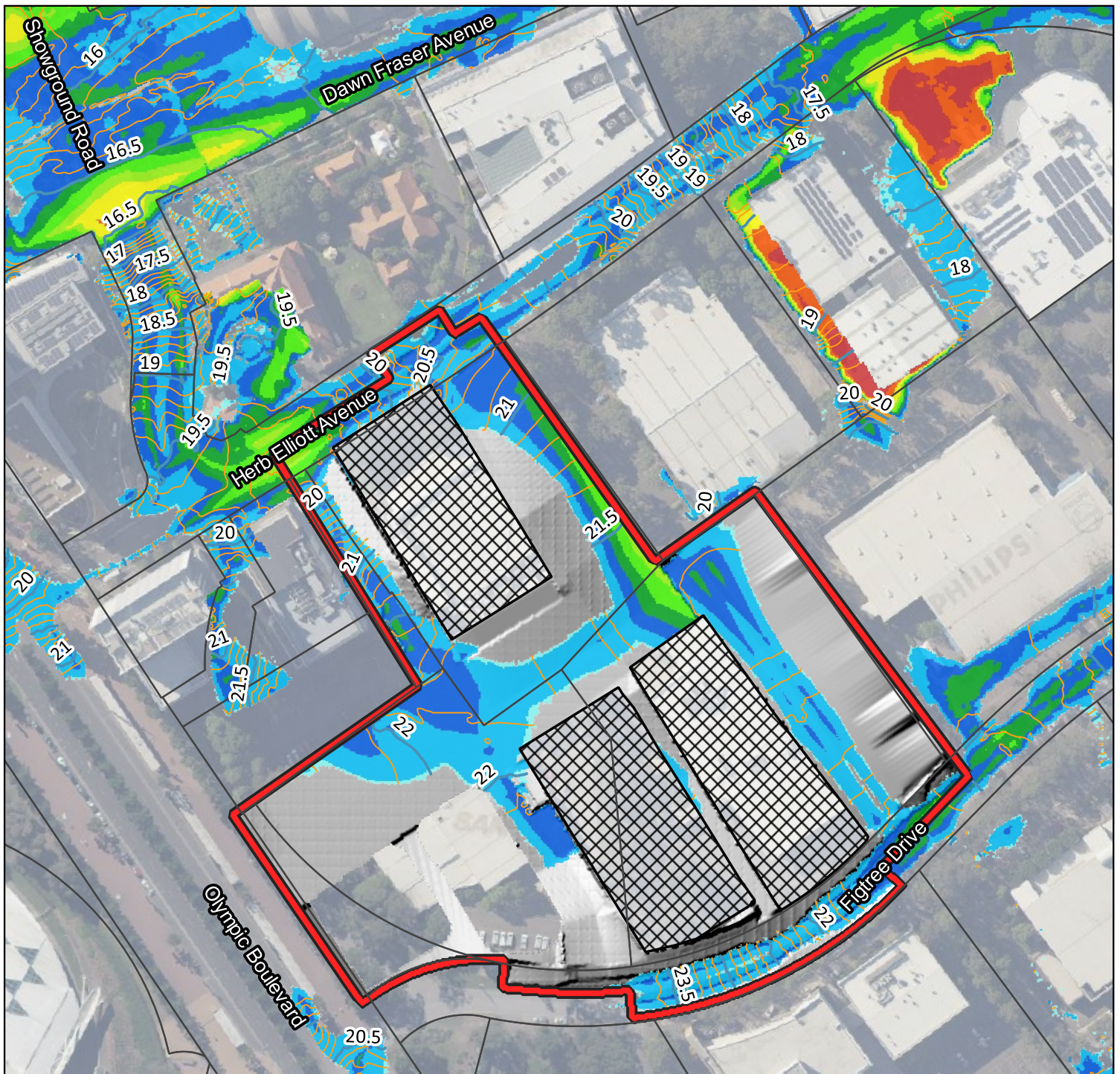
Future stages of design of the proposal should ensure that flood risks to occupants were comprehensively assessed and adequately addressed which would be outlined in a future Detailed SSDA. The detailed design should be consistent with the Sydney Olympic Park Over and Adjacent Station Development Flooding Assessment including:

- Applicable flood criteria associated with the Stage 3 CSSI conditions of approval
- Stated mitigation measures.
















The detailed design should be consistent with additional mitigation measures outlined in this report including:

- Where the proposal includes shelter-in-place arrangements to address flooding risk that they are consistent with the requirements of the Draft Shelter-in-place Guideline unless the NSW Government has formally adopted Shelter-in-place Guidelines
- That developer(s) of the over and adjacent station development proposal undertake consultation with the NSW SES when developing their respective emergency plans for flood events to ensure consistency with broader emergency arrangements.

5 Appendix A Flood mapping



Legend

- | | | |
|---|--|--|
|  Site Buildings | Flood Depth (m) |  0.4 - 0.5 |
|  Design Extent |  <0.01 |  0.5 - 0.75 |
|  WSL Major Contour (0.5m) |  0.01 - 0.1 |  0.75 - 1 |
|  WSL Minor Contour (0.1m) |  0.1 - 0.2 |  1 - 1.5 |
| |  0.2 - 0.3 |  1.5 - 2 |
| |  0.3 - 0.4 |  >2 |

TITLE
 Stage 1 Detailed Design
 PMF Developed Flood Depth

PROJECT
 EDS - SWM - Sydney Olympic Park

0 50 100 m



Date
17/08/2022

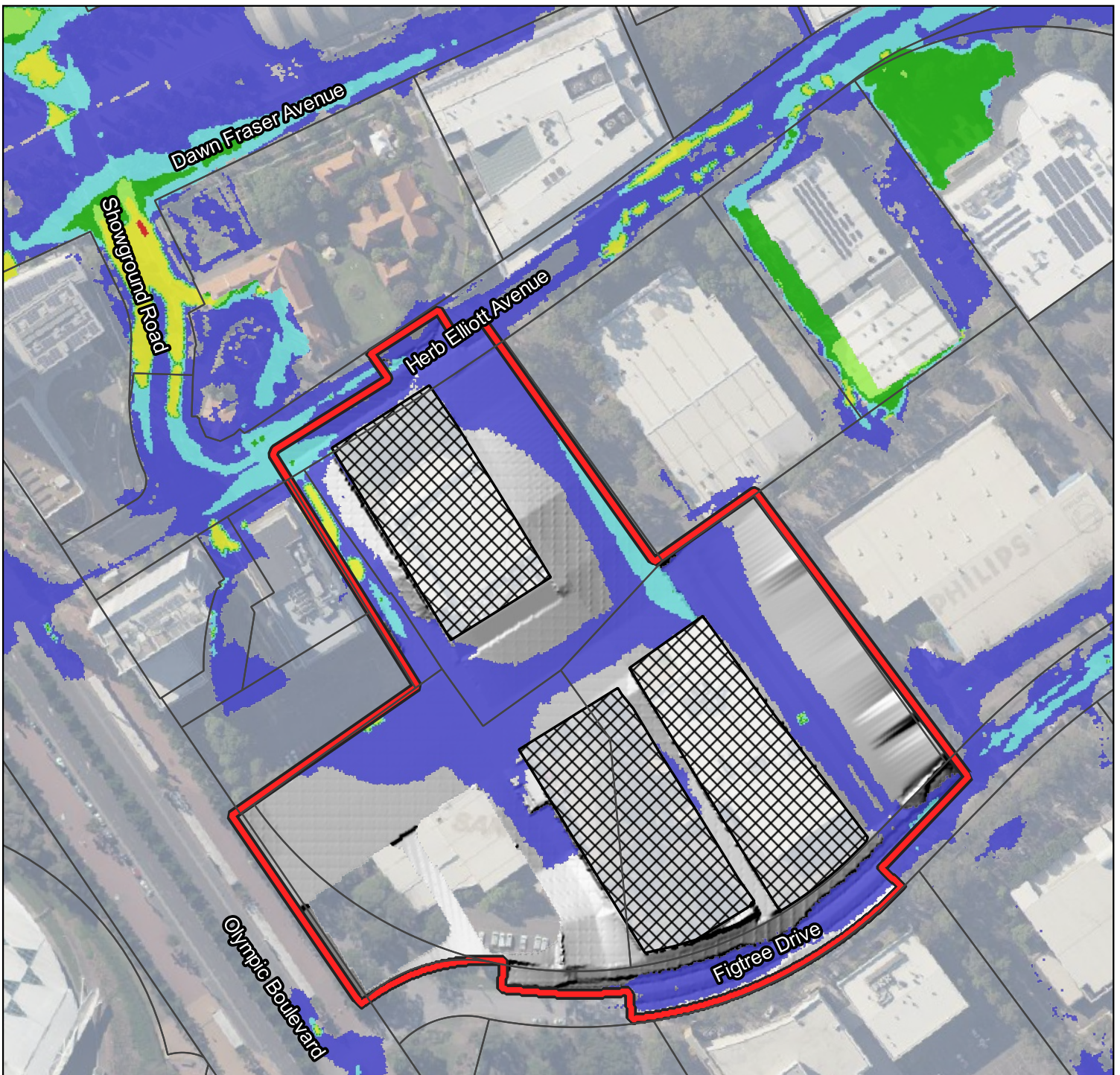
Drawn
SC

Check
SC









Approved
BS

Scale
1 : 2000

Rev
1



Legend

- | | | | | | |
|--|----------------|---|---|---|----|
|  | Site Buildings | Flood Hazard |  | H4 | |
|  | Design Extent |  | H1 |  | H5 |
| | |  | H2 |  | H6 |
| | |  | H3 | | |

TITLE
 Stage 1 Detailed Design
 PMF Developed Flood Hazard

PROJECT
 EDS - SWM - Sydney Olympic Park

0 50 100 m



Date
17/08/2022

Drawn
SC

Check
SC

Approved
BS

Scale
1 : 2000

Rev
1

© Sydney Metro

Users are welcome to copy, reproduce and distribute the information contained in this report for non-commercial purposes only, provided acknowledgement is given to Sydney Metro as the source.