FIRE ENGINEERING STATEMENT

FOR

CANOPY ALTERATIONS – WARRINGAH MALL
DEVELOPMENT APPLICATION

Report 2020 / 1686 – R2.0
09 May 2023

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DISTRIBUTION

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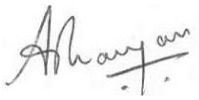
REPORT HISTORY

Version	Status	Date	Purpose
Revision 0.0	Draft	27/04/2023	For internal review
Revision 1.0	Draft	28/04/2023	For Client and Project Manager review
Revision 1.0	Draft	09/05/2023	For Client and Project Manager review

REPORT AUTHORISATION FOR THE CURRENT REVISION

Report by:	Reviewed by:	Authorised by:
Atul Bhargava Fire Safety Engineer	Nick Felstead Fire Safety Engineer	Rob Taylor Fire Safety Engineer
		
Date: 09/05/2023	Date: 09/05/2023	Date: 09/05/2023

1. EXECUTIVE SUMMARY

This report documents the findings of a high-level fire safety engineering review carried out for the proposed works associated with a modified DA incorporating the replacement of an existing shade sail type canopy with a high-level canopy serving the new bridge link on Level 2 and the existing mall on Ground Level at the Warringah Mall shopping centre. Fire Engineering Professionals Pty Ltd (FEP) undertook this review at the request of Scentre Group, who are the Development Managers.

The Warringah Mall shopping centre building is understood to have building characteristics as detailed in **Table 1-1**.

Table 1-1: BCA Descriptive Building Characteristics – Warringah Mall shopping centre

Characteristic	Description
Building Use	Shopping Mall, Car Park, Cinema
Classification	**Class 6** – Retail) **Class 7a** – Carpark **Class 9b** – Cinemas
Type of Extension Required	Type A
Effective height	Less than 25m.

Fire Engineering Professionals Pty Ltd have been requested to review the proposed works with a view to providing Northern Beaches Council with a statement on whether the proposed works, as identified in the DA drawings (see Appendix A), are likely to be able to meet the intent of the natural smoke ventilation management for the affected portions of the Warringah Mall building. The report is also proposed to serve as a confirmation to the Northern Beaches Council of the intention of Fire Engineering Professionals Pty Ltd to provide a “Fire Engineering Assessment” to address the proposed modifications in order that the building to remain consistent with the existing smoke management strategy for the building.

It must be noted that this is a general fire engineering overview of the development and not a detailed fire engineering assessment, which will be developed in consultation with relevant stakeholders.

TABLE OF CONTENTS

2. INTRODUCTION

This report documents the findings of a high-level fire safety engineering review carried out for the proposed works associated with a modified DA incorporating the replacement of an existing shade sail type canopy with a high-level canopy serving the new bridge link on Level 2 and the existing mall on Ground Level at the Warringah Mall shopping centre. Fire Engineering Professionals Pty Ltd (FEP) undertook this review at the request of Scentre Group, who are the Development Managers.

Fire Engineering Professionals Pty Ltd have been requested to review the proposed works with a view to providing Northern Beaches Council with a statement on whether the modifications to the existing provisions for smoke ventilation are likely to be able to remain consistent with the base building existing smoke management strategy which relies on natural smoke ventilation. The report is also serves as a confirmation to the Northern Beaches Council for the intention of Fire Engineering Professionals Pty Ltd to provide a detailed fire engineering assessment of the proposed modifications. This assessment will be supported by Computational Fluid Dynamics (CFD) modelling of worst credible fire scenarios affecting the smoke ventilation in the affected areas of the shopping centre.

FEP have been supplied with project drawings (see Appendix A) showing the design of the proposed modifications to the high-level canopy and its relationship to the new bridge which connects the carpark to the retail portions of the building which form part of the Development Application for Stage 2D works at Warringah Mall.

It should be noted that This fire engineering review is based on the drawings showing the architectural design of the proposed works prepared by Scentre Group and a BCA Assessment is not yet provided to Fire Engineering Professionals Pty Ltd.

3. PURPOSE

The purpose of this review is to provide a statement to Northern Beaches Council on the ability of the proposed modifications incorporating the replacement of an existing shade sail type canopy with a high-level canopy serving the new bridge link on Level 2 and the existing mall on Ground Level at the Warringah Mall shopping centre, which are subject of a modified DA, to be assessed by way of a fire engineering assessment supported by CFD modelling of smoke ventilation.

4. FIRE SAFETY OBJECTIVES

The core fire safety objectives of this review are:

- To review the proposed modifications incorporating a replacement of the existing canopy and to assess the impact of these modifications on the existing natural smoke ventilation serving the affected areas of the Warringah Mall shopping centre building; and
- To clarify the fire safety objectives of the preliminary assessment. The preliminary assessment will take into consideration the ability of the proposed building design and the fire safety measures in meeting the following fire safety objectives in the affected areas:
    a. Prevention of fire and smoke spread within the building; and
    b. Facilitating safe evacuation of building occupants in the event of an accidental fire in the areas of the building which are affected by the proposed works; and

c. Facilitating Fire Brigade access to the building and intervention in the event of fire in the areas of the building which are affected by the proposed works.

Objectives such as protection of property; protection of furnishings; protection of reputation and ensuring business continuity; safety other than fire safety; have not been identified as design objectives of this assessment. However, by satisfying the core fire safety objectives some of the above objectives may also be satisfied.

5. ASSUMPTIONS AND LIMITATIONS OF THIS REVIEW

The following assumptions and limitations apply to this review:

- This document presents a fire engineering DA statement only and is not based on detailed site inspections or a review of detailed fire system design drawings or condition reports; and
- This statement is limited to a review of the proposed works without a list of BCA DTS non-compliances being provided to FEP. The scope of works is subject to any non-compliances with BCA DTS provisions being identified; and
- FEP takes no responsibility in respect to costing of the works and the accuracy of any budgets developed by Scentre Group; and
- This statement is based on information provided to FEP without any specific smoke and evacuation modelling or detailed assessments being carried out.

6. PRINCIPAL BUILDING CHARACTERISTICS

Warringah Mall is an existing major urban shopping centre development located in Brookvale, NSW 2100. The building is located within an industrial business precinct and is bounded by Cross Street, Pittwater Road, Condamine Street and Old Pittwater Road.

The existing building is spread over three (3) interconnected retail levels and currently accommodates a number of major tenancies (Myer, David Jones, Coles, Woolworths, Target and Big W). The shopping centre also contains a number of mini-major and specialty tenancies. There are a number of multi-level undercover and open deck carparks and a cinema complex, library and a community centre forming part of the building.

The original building is understood to have been constructed in the mid-1960s with two major developments occurring from 1997 through to 2002 known as Stage 1 and 2. A recent extension to the building was completed in 2016.
In accordance with the DTS provisions of the BCA, the building is understood to have the following characteristics:

Table 6-1: BCA descriptive characteristics for Warringah Mall

Characteristic	Description
Building Use	Shopping Mall, Car Park, Cinema
Classification	**Class 6** – Retail) **Class 7a** – Carpark **Class 9b** – Cinemas
Type of Extension Required	Type A
Effective height	Less than 25m.

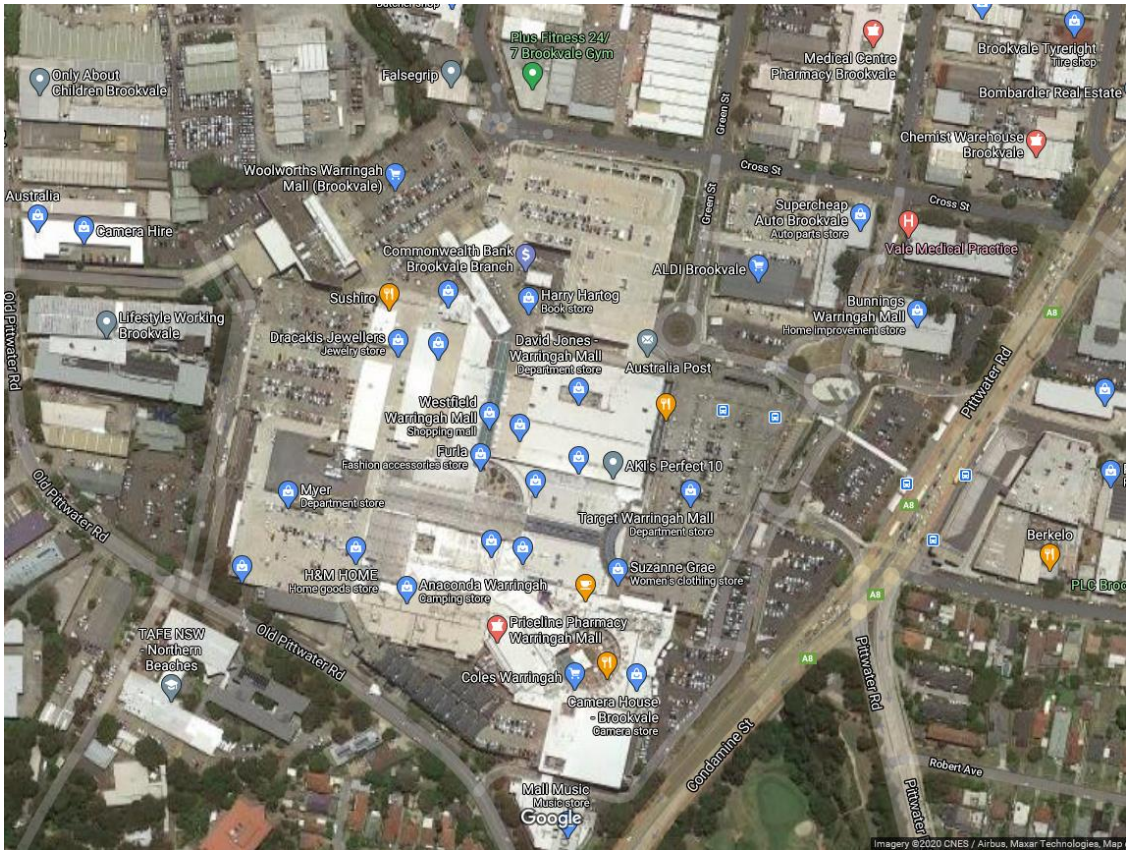


Figure 6-1: Aerial snapshot of the Warringah Mall shopping centre and surrounding streets (Courtesy Google).

7. BRIEF DESCRIPTION OF THE PROPOSED WORKS

The proposed works incorporate the replacement of an existing high-level shade sail type canopy located above the Ground Level mall within the Warringah Mall shopping centre with a new ETFE canopy supported by steel structural elements. The proposed canopy is to serve the new bridge which is to serve the proposed mini major tenancies and common mall areas on Level 2 (location described in **Figure 7-1**) which form part of the Stage 2D works which are subject of a DA submission. The proposed modifications involve the following.

- The demolition of the existing canopy and associated structural elements which currently serve the common mall areas on Level 1 as identified in **Figure 7-2;** and
- Construction of a new canopy and associated structure to serve both the existing mall areas and proposed bridge providing access to the new mini major tenancies as identified in **Figure 7-4** and **Figure 7-5**

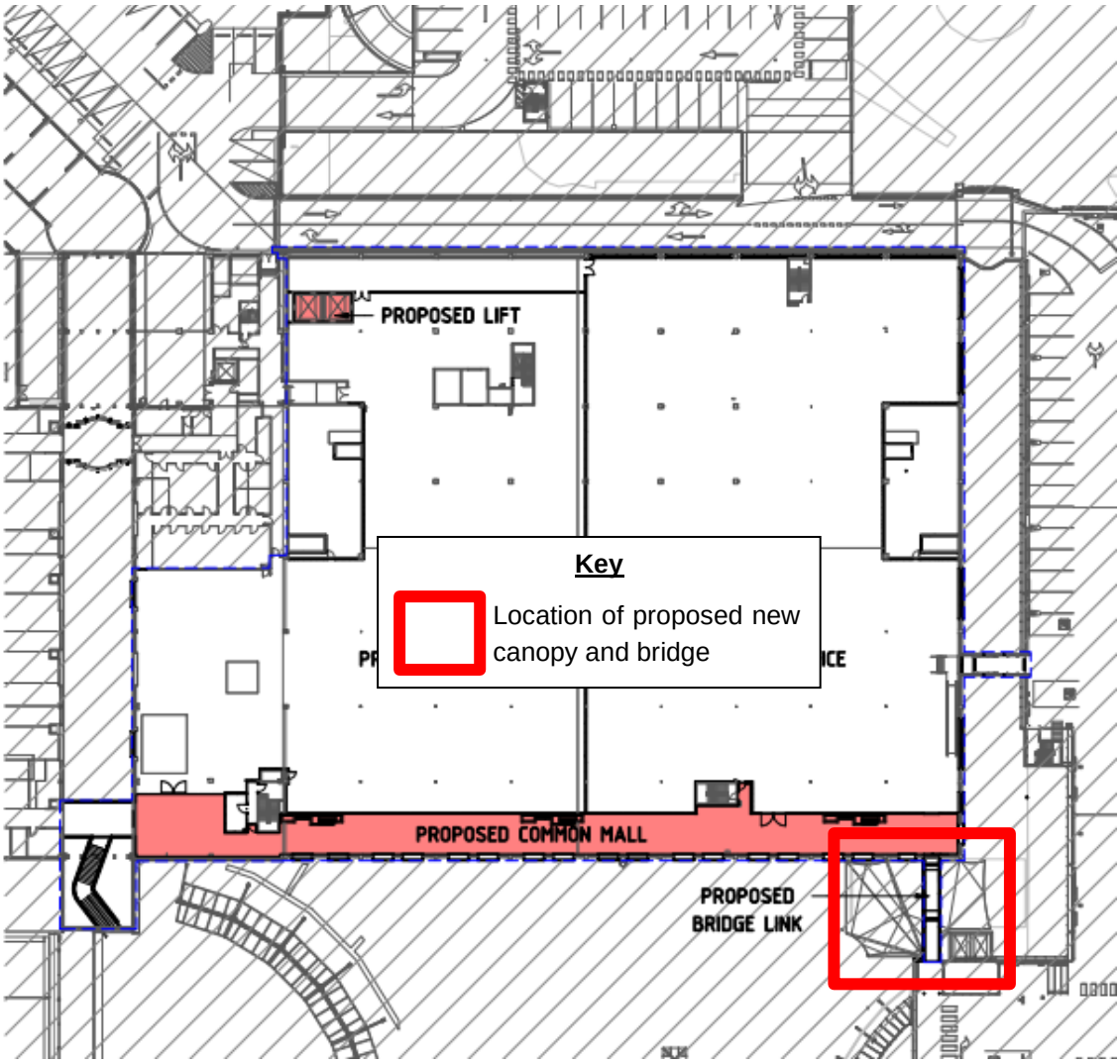


Figure 7-1: Location of proposed canopy and bridge – L2 Warringah Mall

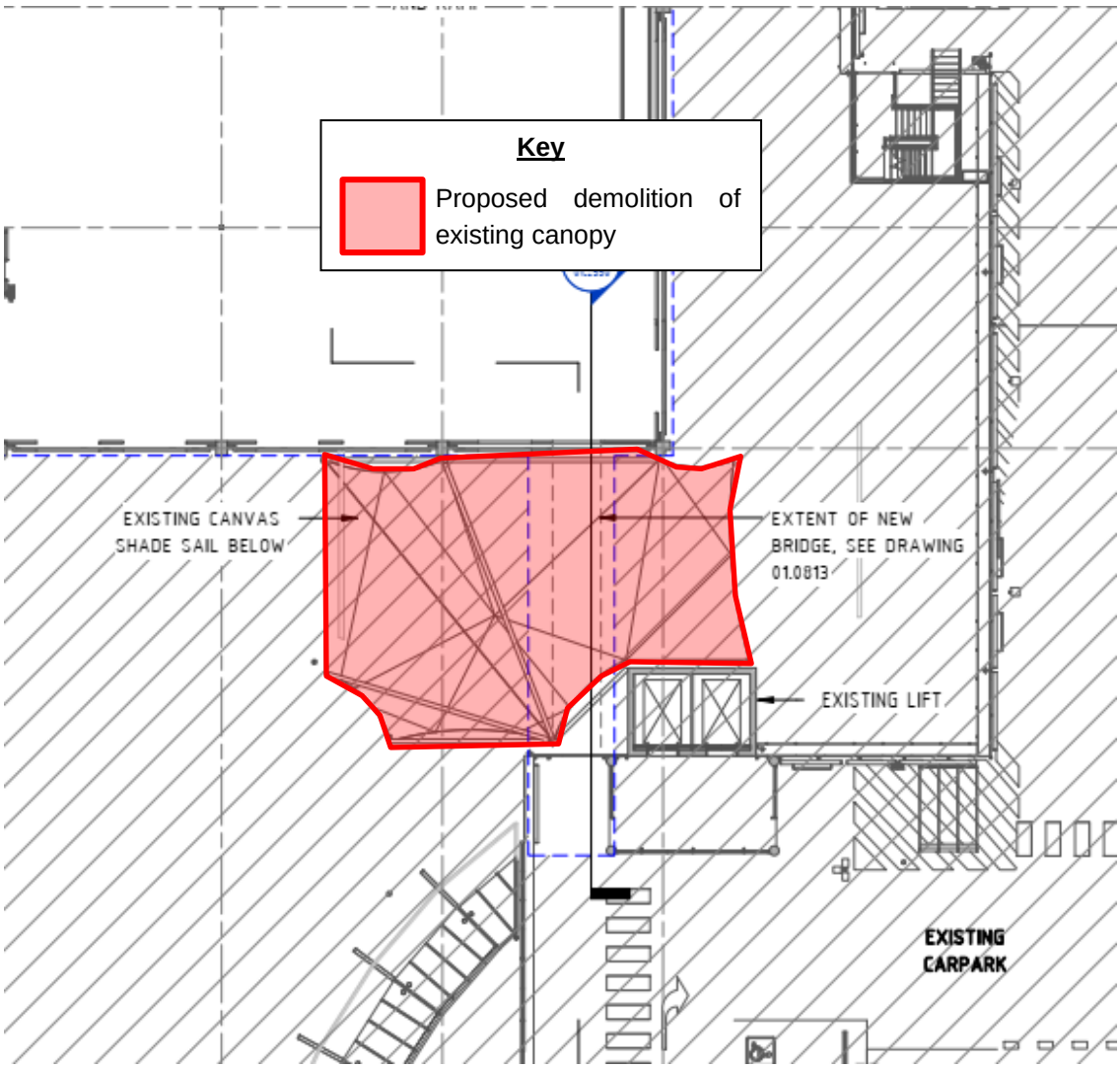


Figure 7-2: Extent of proposed demolition works of existing canopy – L2 Warringah Mall

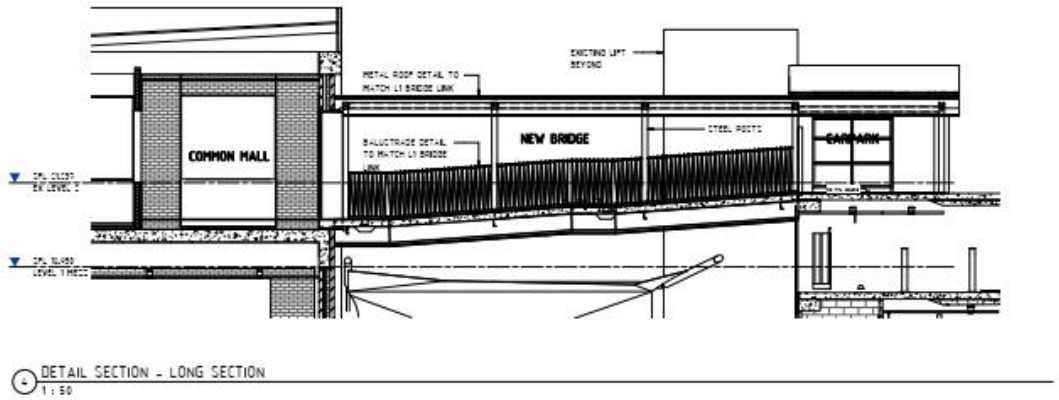


Figure 7-3: Detailed section of proposed bridge – L2 Warringah Mall

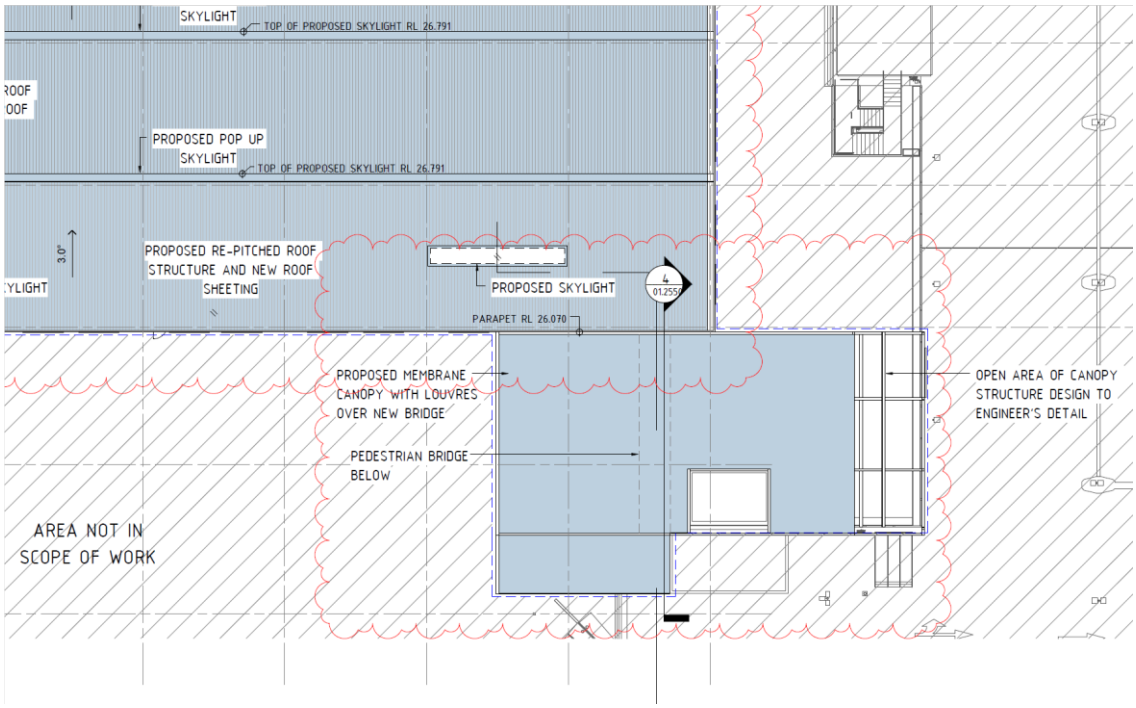


Figure 7-4: Coverage of proposed new canopy – L2 Warringah Mall

Figure 7-5: 3D render of proposed Bridge and Canopy – L2 Warringah Mall

8. SUMMARY OF ITEMS REQUIRING A FIRE ENGINEERING ASSESSMENT

The existing smoke management strategy for the portions of Warringah Mall which are affected by the works incorporating a replacement of the canopy is by way of natural smoke ventilation. The smoke ventilation relies on the openings at the perimeter of the canopies to permit smoke to be relieved to open space.

The proposed canopy is to be located above a new bridge which connects the refurbished retail portions on Level 2 of the building to the carpark. The location and extent of the canopy is therefore required to be assessed for its impact on the ability of smoke from a worst credible fire within the mall areas to be effectively ventilated in order to maintain tenable conditions for occupant evacuation and fire brigade intervention. The assessment will rely on computational (CFD) modelling and occupant evacuation modelling to be undertaken in the affected portions of the shopping centre building.

9. CONCLUSION

FEP have reviewed the proposed architectural design for the works associated with the modified Development Application incorporating the replacement of an existing shade sail type canopy with a new canopy to serve bridge connecting the refurbished retail areas on Level 2 which formed part of the original DA submission. The preparation of the ‘Fire Engineering Assessment Report' will require a discussion and an agreement between relevant stakeholders.

The Fire Engineering Assessment Report will identify the fire engineering strategy that is to be adopted; the methodology for the fire engineering assessment; and the acceptance criteria nominated for the proposed works to remain consistent with the base building smoke management strategy. A Trial Concept Design will also be nominated which outlines the building requirements which are required to be met in order for the building design to be shown, via supporting evidence in the form of computational modelling, to be capable of meeting the intent of the base building smoke ventilation strategy.

10. APPENDIX A – DOCUMENTATION

The drawings identified in **Table 10-1** were examined during the production of this report.

Table 10-1: Assessment Documentation

Drawing Description	Drawing No.	Revision	Drawn	Date
Warringah David Jones Conversion Stage 2D	003	-	Scentre Group	Feb 2023
Warringah David Jones Conversion Stage 2D	006	-	Scentre Group	Feb 2023
Warringah David Jones Conversion Stage 2D	007	-	Scentre Group	Feb 2023
Warringah David Jones Conversion Stage 2D	008	-	Scentre Group	Feb 2023
Stage 2D Proposed Plan – Roof	SDC-01.0814	B	Scentre Group	08/05/2023
Stage 2D East Elevation	SDC-01.2011	B	Scentre Group	08/05/2023
Stage 2D South Elevation	SDC-01.2012	B	Scentre Group	08/05/2023