

# FLOOD RISK MANAGEMENT REPORT

## 47 THE CORSO, MANLY NSW 2095 PROPOSED ADDITIONS & ALTERATIONS

**Prepared For:** Mr. Tarek Gergis

**Project No:** MBR23160

**Issue:** A

**Date:** 19/02/2024

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Issue	Date	Description	Prepared By	Checked By
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## 1. Introduction & Background

MBR Consulting Engineers has been engaged by Mr. Tarek Gergis to prepare a Flood Risk Management Report for the proposed addition and alteration works at 47 The Corso, Manly NSW 2095 to be submitted to Northern Beaches Council.

This report is prepared generally in accordance with:

- Australia Government, Bureau of Meteorology Website <http://www.bom.gov.au/>;
- Northern Beaches Council – Holroyd Development Control Plan;
- New South Wales Government – Floodplain Development Manual – The management of flood liable land, April 2005;
- LiDAR Data – Collected by 'Land and Property Information';
- Australia Rainfall and Runoff 2016.

### 1.1 Location

The existing site is a two-storey shop and residence building located within the municipality of Northern Beaches Council and identified as Lot 6 on DP 26171. The site has a total site area of approximately 151m<sup>2</sup> by title and is bounded by mixed-use allotments to the east and west, The Corso to the south, and Market Place to the north.

Figure 2.1 below shows the site's location outlines in red.

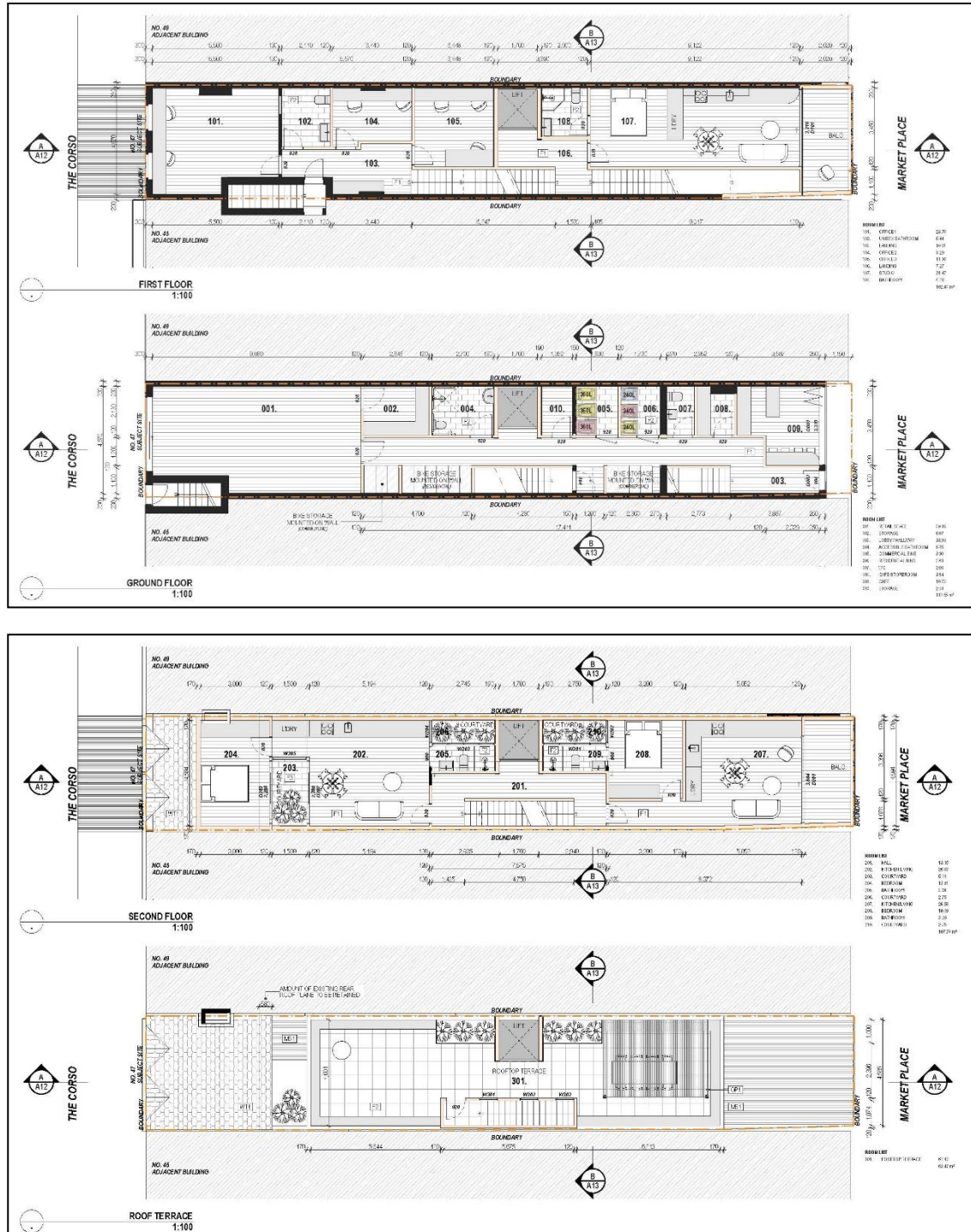




## 1.2 Proposed Development

The site owner proposes to conduct addition and alteration works on the existing two storey dwelling. The proposed development consists of a commercial / retail shop and a multi-level residence. Refer to **Appendix B** for the architectural plans of the proposed development.

Figure 2.2 below shows the proposed development plan.



### 1.3 Published Flood Data & Observations

A flood study 'Manly to Seaforth Flood Study' was previously prepared by Cardno in 2019 and has been adopted by Northern Beaches Council as their base flood model for the catchment.

Flood levels near the development site were adopted and applied to this study as prescribed by Northern Beaches Council in their flood advice letter dated 31/10/2023 (refer **Appendix C**), and extracted below:

#### Map A - Flood Risk Precincts

Maximum Flood Planning Level (FPL) <sup>2, 3, 4</sup>: 5.94 m AHD

#### Map B - 1% AEP Flood & Key points

1% AEP Maximum Water Level <sup>2, 3</sup>: 5.43 m AHD

1% AEP Maximum Depth from natural ground level<sup>3</sup>: 0.22 m

1% AEP Maximum Velocity: 0.20 m/s

#### 1% AEP Hydraulic Categorisation

1% AEP Hydraulic Categorisation: Flood Fringe

#### Map C - Probable Maximum Flood

PMF Maximum Water Level (PMF) <sup>4</sup>: 5.73 m AHD

PMF Maximum Depth from natural ground level: 0.52 m

PMF Maximum Velocity: 0.21 m/s

#### Map D - Flooding with Climate Change

1% AEP Maximum Water Level with Climate change <sup>3</sup>: 5.49 m AHD

1% AEP Maximum Depth with Climate Change<sup>3</sup>: 0.21 m

Based on the above information, a site-specific flood impact assessment would not be required, particularly as the proposed development would not have any impact on the existing flooding regime of any adjoining properties with regards to the existing flood flows, flood water levels, flood velocities or flood hazards.

However, in order to protect the proposed building and prevent any harm to the occupants during a flood event, a Flood Risk Management strategy is prepared in the following section of this report.

## 2. Flood Risk Management

### 2.1 Flood Classification

The Floodplain Development Manual developed by New South Wales Government specifies three flood classifications. They are as follows:

- **High Flood Risk Precinct**  
This precinct is defined where high flood damages, potential risk to life or evacuation problems would be anticipated without compliance with flood related building and planning controls.
- **Medium Flood Risk Precinct**  
This precinct is defined where a significant risk of flood damage is still existing, but these damages can be minimised by the application of appropriate development controls.
- **Low Flood Risk Precinct**  
This precinct is where the risk of damages is low for most land uses. This area is above the 100yr ARI Flood Level and most land uses would be permitted.

According to Council's flood information letter, the floodwaters pose Medium Risk Precinct within and around the subject site.

### 2.2 Design Floor Levels

To ensure that the risk of flood impacts is minimised, Northern Beaches Council sets the minimum habitable level of the proposed development to be 500mm above the 1% AEP flood levels. Therefore, since the 1% AEP flood level impacting the site is RL 5.43m AHD, the flood planning level for the proposed development is RL 5.93m AHD.

### 2.3 Building Components

The existing and proposed development are depicted as being constructed as a solid structure. This construction method will maintain the existing flood storage volume on site and minimise the disturbance to the existing flood regime, within the subject site and the neighbouring properties, for all flood events up to and including the PMF.

The proposed development is to be constructed from flood compatible materials below RL 5.93m AHD utilising waterproofing methods. Carpets and wallpaper shall not be used. Bolts, nails, hinges and fittings shall be galvanised or stainless steel. The sewerage system must incorporate a backflow system to prevent sewerage to surcharge into the building. Extensive guidance on flood compatible building materials and methods is provided in 'Reducing Vulnerability of Buildings to Flood Damage: Guidance on Building in Flood Prone Areas'.

The proposed internal and external structures should be designed to withstand the forces, including hydrostatic, hydrodynamic, buoyancy and debris impact forces imposed by the 1% AEP floodwaters plus 0.5m freeboard (RL 5.93m AHD). The structural design must be undertaken by a suitably qualified Structural Engineer with relevant experience designing structures on flood prone lands. Prior to issuing the Occupation Certificate, a structural assessment by an accredited structural engineer is to be carried out to ensure the proposed works were carried out in accordance with BCA (Building Code of Australia).

All proposed electrical wiring, switches, outlets connections to main power supplies, switch boards and metering equipment should be located above RL 5.93m AHD. Earth core leakage systems or safety switches are to be installed. All wiring connections and conduits below RL 5.93m AHD should be suitable for submergence in water. Conduits shall be installed so they will be self-

draining in the event of flooding. Where this is not possible for an already existing circuit, these existing circuits must be fitted with safety switches by a licensed electrician.

Heating and air-conditioning systems, including fuel supply and ducting, must be installed above RL 5.93m AHD. Where this is not possible, they should be installed in a manner to minimise damage from submersion. This may be achieved through measures such as access for cleaning and draining of water after flood events, manually operated cut off valves for fuel supply lines and ducts, securely fastening heating equipment and fuel storage tanks to prevent movement, and venting of fuel supply tanks, if applicable.

All materials, which may cause pollution or be potentially hazardous during any flood, must be stored above the PMF level of RL 5.73m AHD.

All works must be designed to comply with the Standard for Construction of Buildings in Flood Hazard Areas in accordance with Section 3.10.3 of the Building Code of Australia

## 2.4 Climate Change

Due to the climate change and the potential increase in rainfall intensities, it is recommended to review this Flood Risk Management every 5 years and assess the new risks and findings.

## 2.5 Evacuation Procedures

The State Emergency Service of New South Wales (SES) is responsible for providing flood updates and issuing Flood Evacuation Warnings and Flood Evacuation Orders. Flood information issued by the SES may be received by local radio, television news, SMS messaging and door-knocking in affecting communities. The timing for the evacuation of persons is to be established in consultation with the SES.

To increase the flood-readiness of the occupants of the proposed development, owners/occupiers of the site should be made aware of FloodSafe kits developed by the NSW SES which aid household development of a Flood Emergency Plan. Information regarding FloodSafe kits is available from <https://www.ses.nsw.gov.au/disaster-tabs-header/flood/>.

Future owners and/or occupiers of the site should prepare, regularly review and update a household Flood Emergency Plan. A copy of the household Flood Emergency Plan should be kept on the inside door of a kitchen or laundry cupboard, alongside instructions for operating any shut-off valves.

Future owners and/or occupiers of the site should also prepare, maintain and replace (if necessary) the following items for any expected emergency that may happen:

- First aid kit and prescription medicines
- Radio with batteries and spare batteries
- Home-prepared emergency plan
- Store basic food items and bottled water
- Torch
- Local map
- Wet weather clothing
- Mobile phone

The existing ground floor level of RL 5.68m AHD will provide 250mm freeboard to the 1% AEP floodwaters. In this regard, occupants may remain on site within the proposed dwellings during any flood event. In the event that the 1% AEP flood event is expected to be exceeded, strategies should be adopted in accordance with NSW Government operational guidelines and SES Emergency Evacuation operational guidelines.



### 3. Glossary

Terminology in this Glossary has been derived or adapted from the Floodplain Development Manual (NSW DIPNR 2005), where appropriate.

- **Annual Exceedance Probability (AEP)**  
The chance of a flood of a given or larger size occurring in any one year, expressed as a percentage.
- **Australian Height Datum (AHD)**  
A common national surface level datum approximately corresponding to sea level.
- **Average Recurrence Interval (ARI)**  
The long-term average number of years between the occurrence of a flood as big as or larger than the selected event.
- **Local Overland Flooding**  
Inundation by local runoff rather than overbank discharge from a stream, river, estuary, lake or dam.
- **Mainstream Flooding**  
Inundation of normally dry land occurring when water overflows the natural or artificial banks of a stream, river, estuary, lake or dam.
- **Probable Maximum Flood (PMF)**  
The PMF is the largest flood that could conceivably occur at a particular location.
- **Risk**  
Chance of something happening that will have an impact. It is measured in terms of consequences and likelihood.
- **Flood**  
Relatively high stream flow which overtops the natural or artificial banks in any part of a stream, river, estuary, lake or dam, and/or local overland flooding associated with major drainage before entering a watercourse, and/or coastal inundation resulting from super-elevated sea levels and/or waves overtopping coastline defences excluding tsunamis.
- **Flood Hazard**  
A measure of the floodwaters potential to cause harm or loss. Full definitions of hazard categories are provided in Appendix L of the Floodplain Development Manual (NSW Government, 2005). In summary:
  - a- High: conditions that pose a possible danger to personal safety, evacuation by trucks difficult, able-bodied adults would have difficulty wading to safety, potential for significant structural damage to buildings.
  - b- Low: conditions such that people and their possessions could be evacuated by trucks, able-bodied adults would have little difficulty wading to safety.
- **Floodplain, Flood-prone Land**  
Land susceptible to inundation by the probable maximum flood (PMF) event, i.e. the maximum extent of flood liable land.
- **Freeboard**  
Provides reasonable certainty that the risk exposure selected in deciding on a particular flood chosen as the basis for the FPL is actually provided. It is a factor of safety typically used in relation to the setting of floor levels, levee crest levels etc... (see Section K5 of Floodplain Development Manual).
- **Hydraulics**  
The term given to the study of water flow in a river, channel or pipe, in particular, the evaluation of flow parameters such as stage and velocity.

## Appendix A

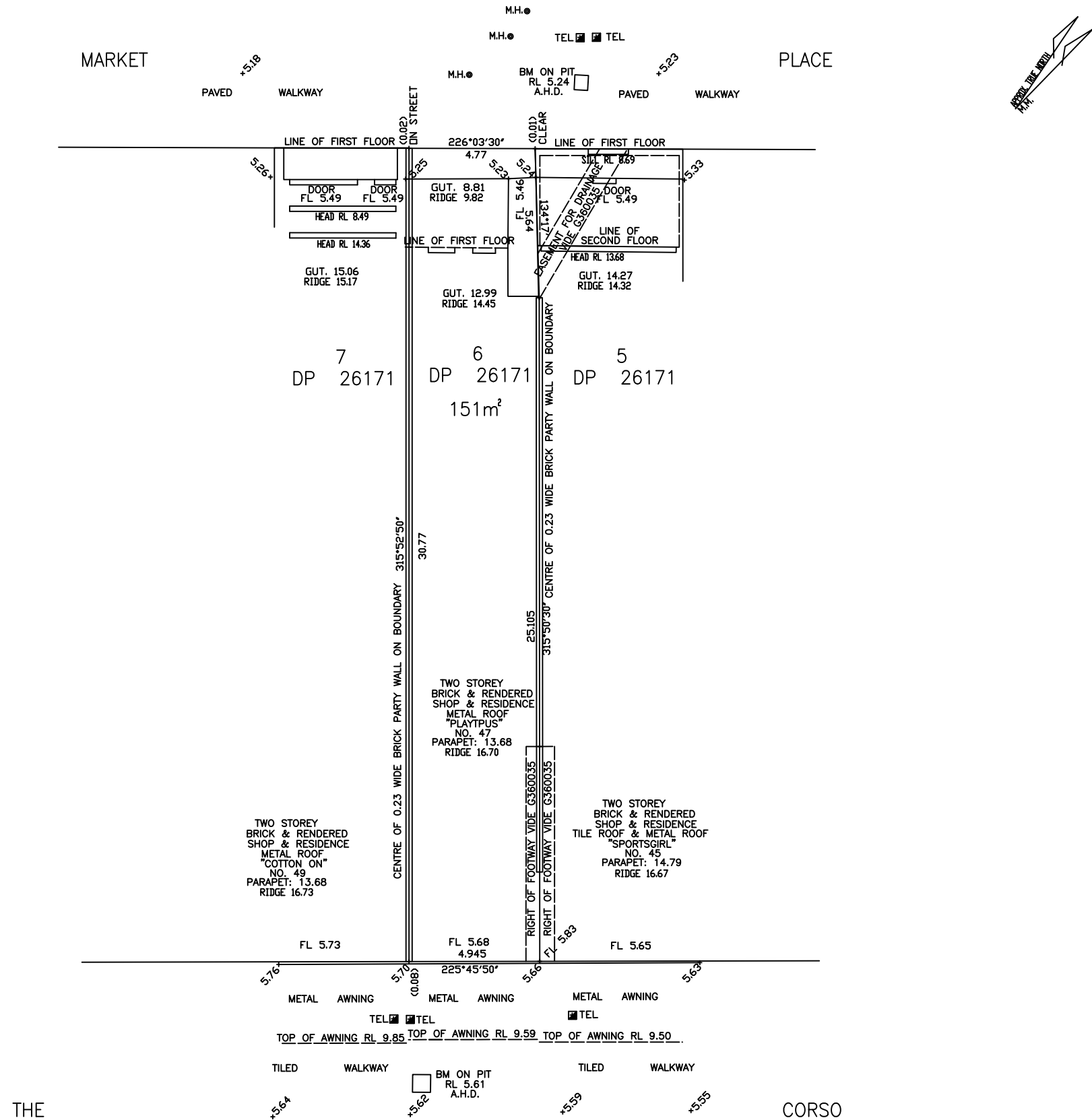
Survey Plan prepared by Chami & Associates

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Rev	DATE	REVISIONS	Dm	Chk

DESIGNED: I.C.	A1	DATUM: A.H.D.
DRAWN: I.C.		
CHECKED: I.C.		
RECOMMENDED: PROJ. MAN.	APPROVED: PROJ. DIR.	
SCALE 1/100		

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### ILEJAZZ PTY LIMITED

DETAIL SURVEY  
LOT 6 DP 26171  
47 THE CORSO  
MANLY

DATE: 16-01-2023	Rev
DRAWING No: 3779aCD	

## Appendix B

Architectural Plans prepared by Sandbox Studio

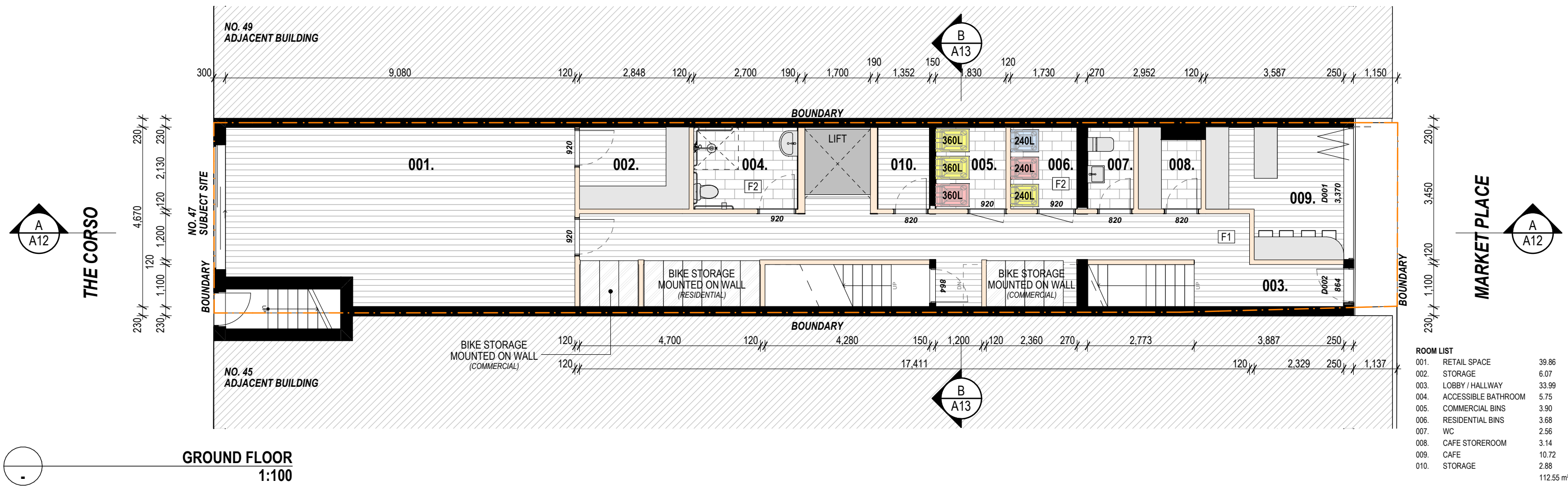
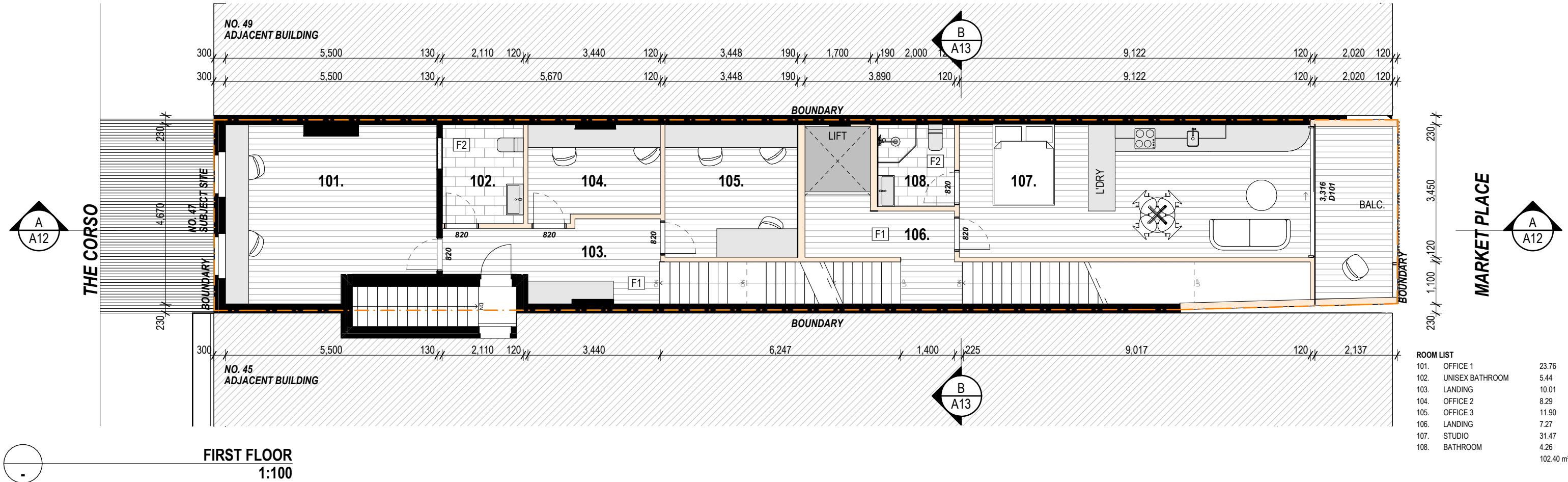
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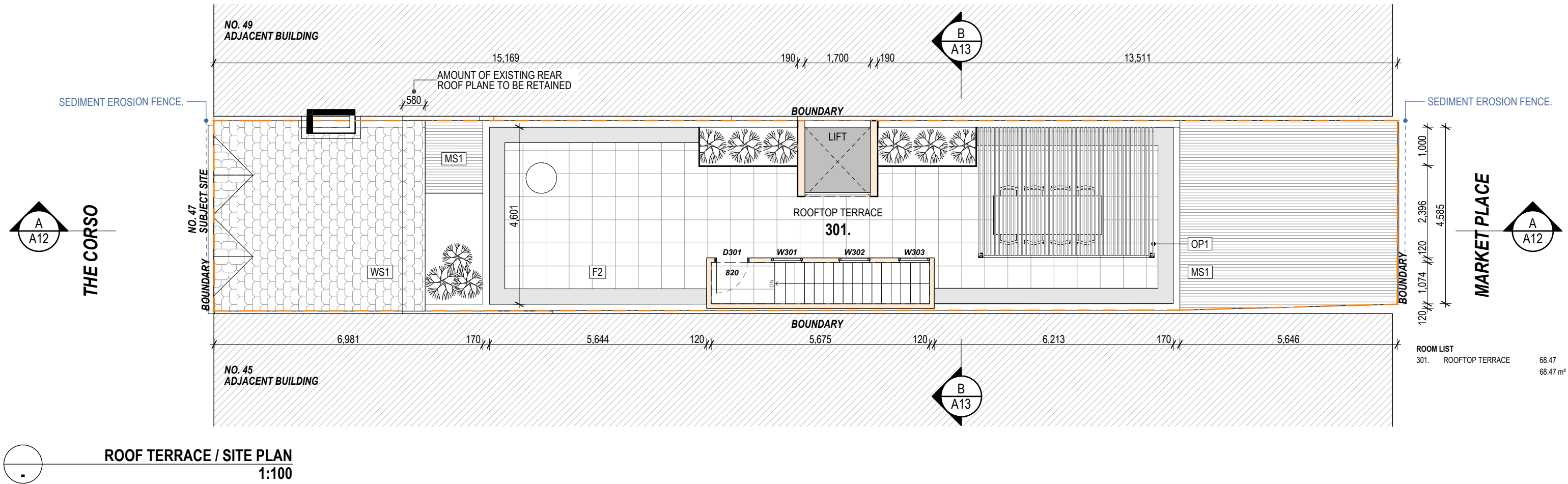
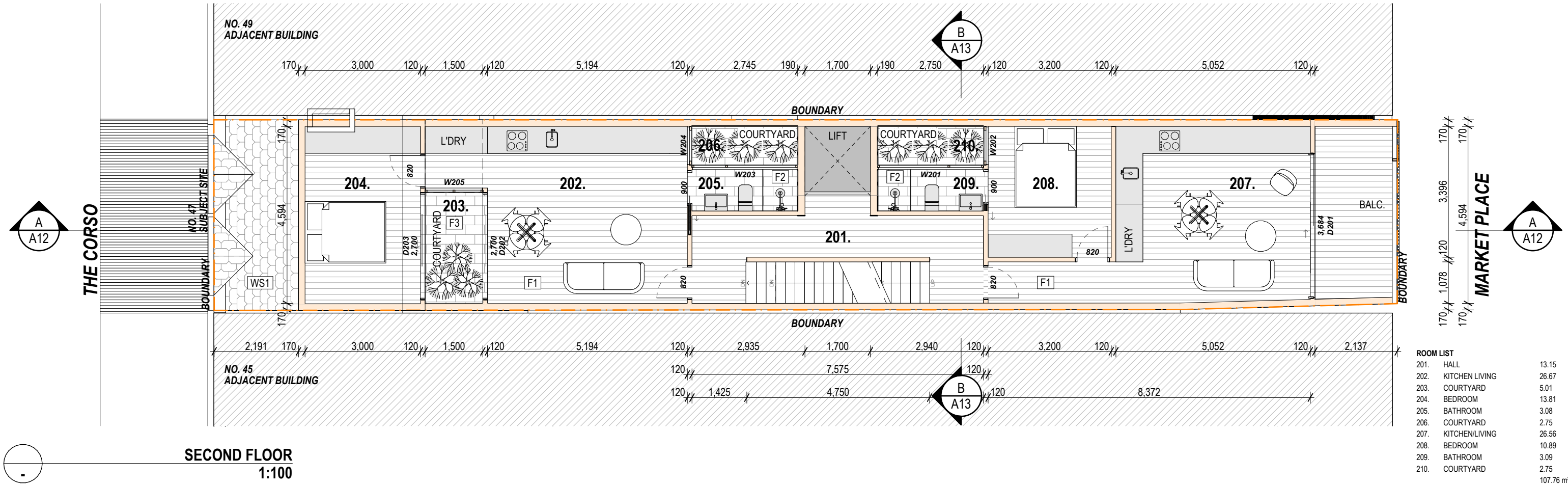
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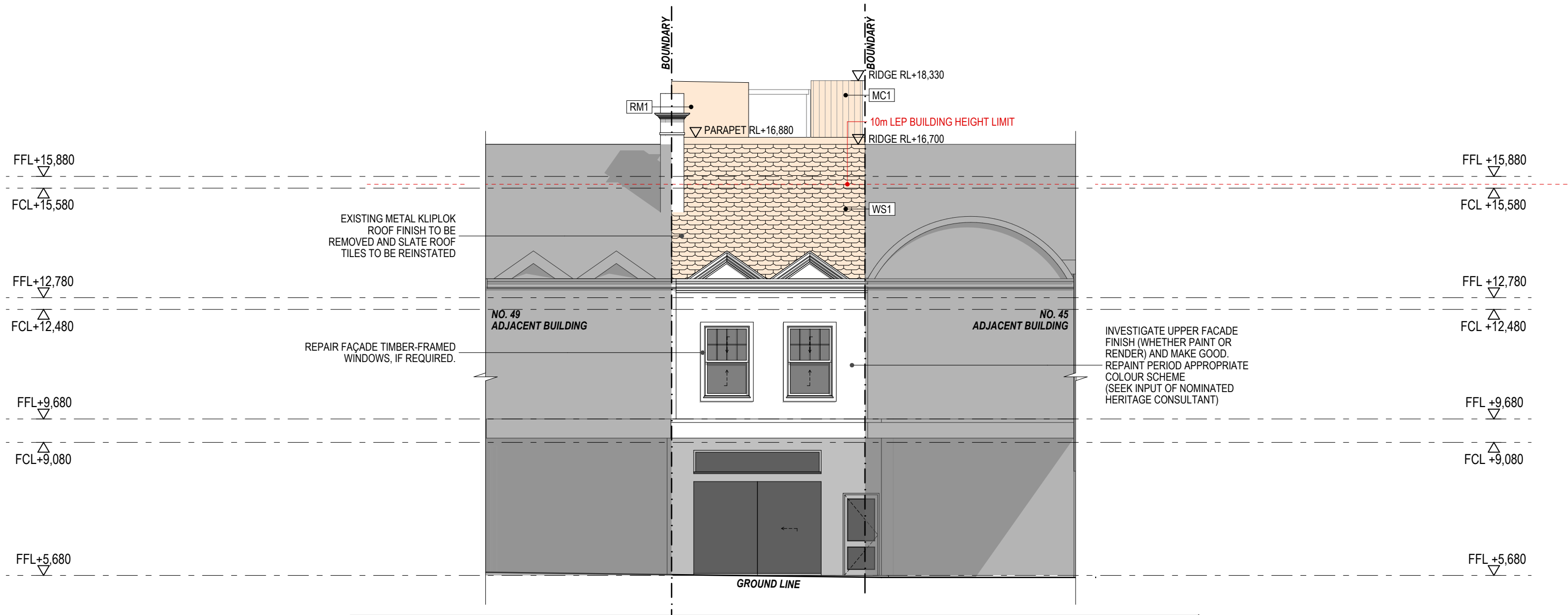
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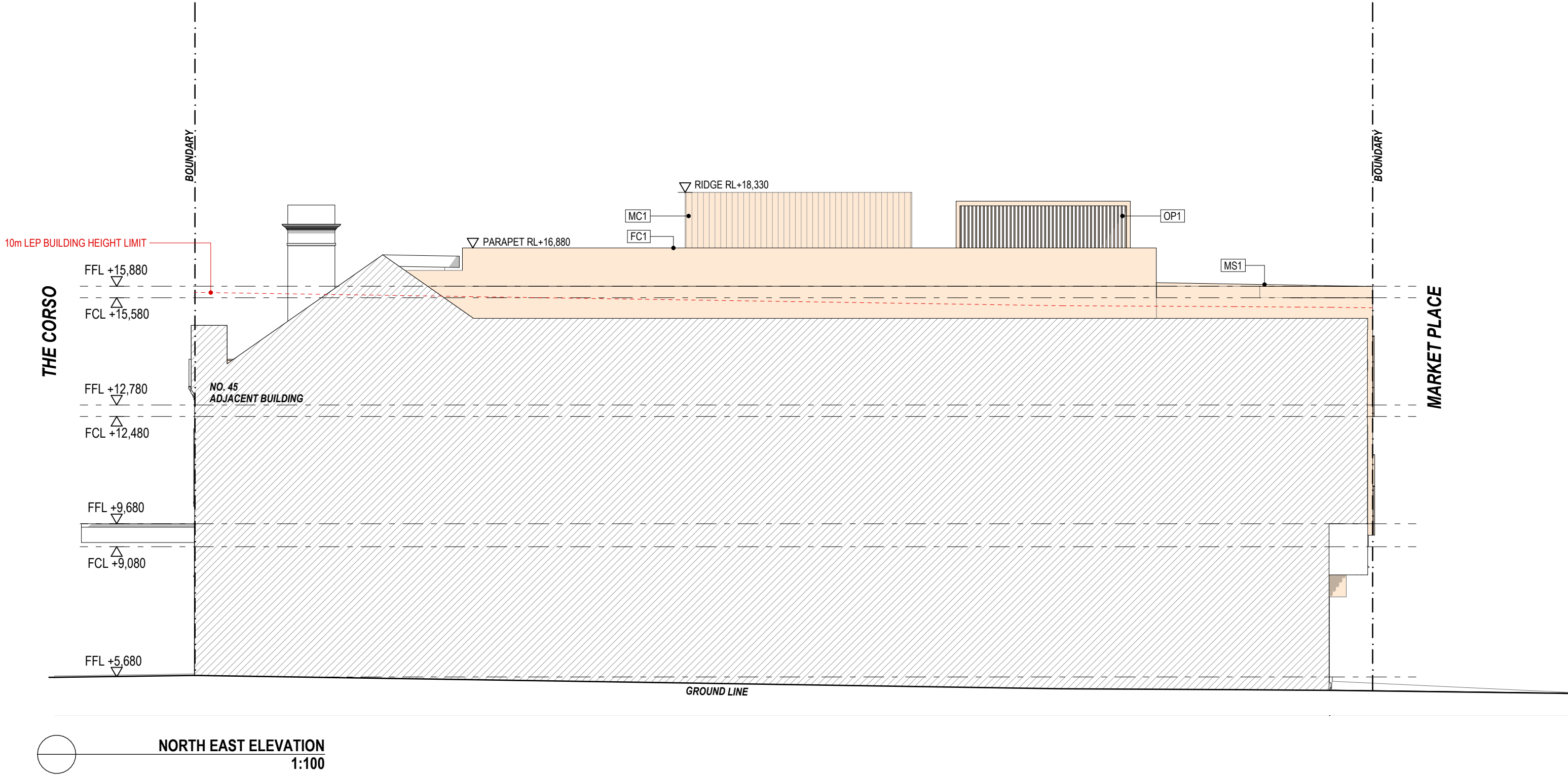




**SOUTH EAST ELEVATION**  
**1:100**







SANDBOX STUDIO®

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LEGEND:

- EXISTING BUILDING FABRIC
- BUILDING FABRIC TO BE DEMOLISHED
- PROPOSED BUILDING FABRIC

REVISION	DESCRIPTION	DATE
A	DEVELOPMENT APPLICATION	08.07.2024

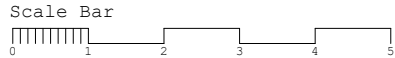
Check all dimensions on site and report any discrepancies immediately before proceeding with the works. Do not scale from drawings. Accuracy of dimensions on site are the responsibility of the contractor.

All boundaries and contours are subject to the survey plan. All levels to Australian Height Data. It is the contractors responsibility to confirm all measurements on site and locations of any services prior to work on site.

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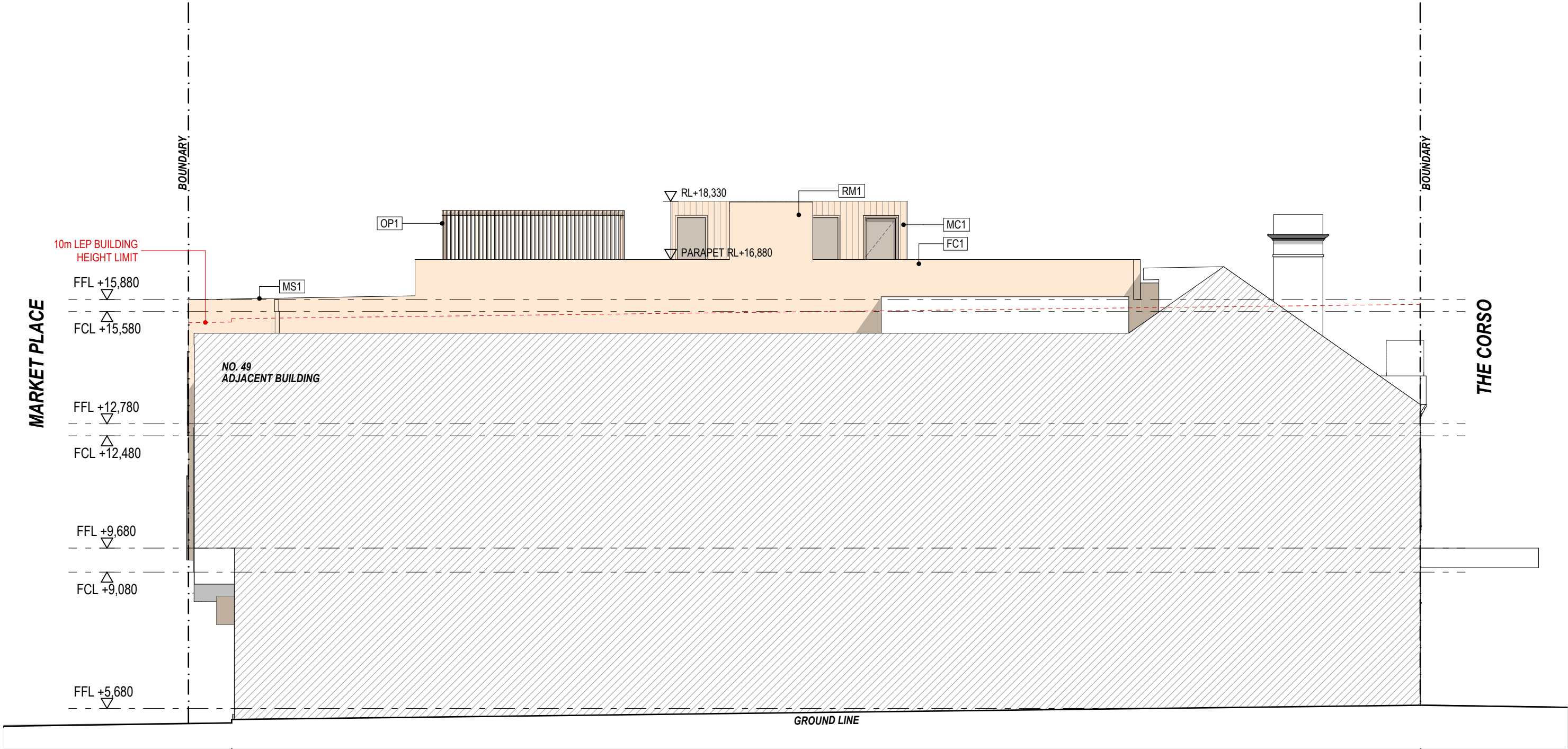
CLIENT(S): TAREK GERGIS  
ADDRESS: 47 THE CORSO MANLY NSW 2095

PAGE: NORTH EAST ELEVATION



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**NOT FOR CONSTRUCTION**

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PAGE SIZE. **A3**



**SOUTH WEST ELEVATION**  
**1:100**

## Appendix C

Flood Information Report issued by Northern Beaches Council

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# FLOOD INFORMATION REPORT (COMPREHENSIVE)

**Property:** 47 The Corso MANLY NSW 2095

**Lot DP:** Lot 6 DP 26171

**Issue Date:** 31/10/2023

**Flood Study Reference:** Manly to Seaforth Flood Study 2019, Cardno

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## Flood Information<sup>1</sup>:

### **Map A - Flood Risk Precincts**

Maximum Flood Planning Level (FPL)<sup>2, 3, 4</sup>: 5.94 m AHD

### **Map B - 1% AEP Flood & Key points**

1% AEP Maximum Water Level<sup>2, 3</sup>: 5.43 m AHD

1% AEP Maximum Depth from natural ground level<sup>3</sup>: 0.22 m

1% AEP Maximum Velocity: 0.20 m/s

### **1% AEP Hydraulic Categorisation**

1% AEP Hydraulic Categorisation: Flood Fringe

### **Map C - Probable Maximum Flood**

PMF Maximum Water Level (PMF)<sup>4</sup>: 5.73 m AHD

PMF Maximum Depth from natural ground level: 0.52 m

PMF Maximum Velocity: 0.21 m/s

### **Map D - Flooding with Climate Change**

1% AEP Maximum Water Level with Climate change<sup>3</sup>: 5.49 m AHD

1% AEP Maximum Depth with Climate Change<sup>3</sup>: 0.21 m

### **Map E - Flood Life Hazard Category in PMF**

### **Map F - Indicative Ground Surface Spot Heights**

- (1) The provided flood information does not account for any local overland flow issues nor private stormwater drainage systems.
- (2) Overland flow/mainstream water levels may vary across a sloping site, resulting in variable minimum floor/ flood planning levels across the site. The maximum Flood Planning Level may be in a different location to the maximum 1% AEP flood level.
- (3) Intensification of development in the former Pittwater LGA requires the consideration of climate change impacts which may result in higher minimum floor levels.
- (4) Vulnerable/critical developments require higher minimum floor levels using the higher of the PMF or FPL

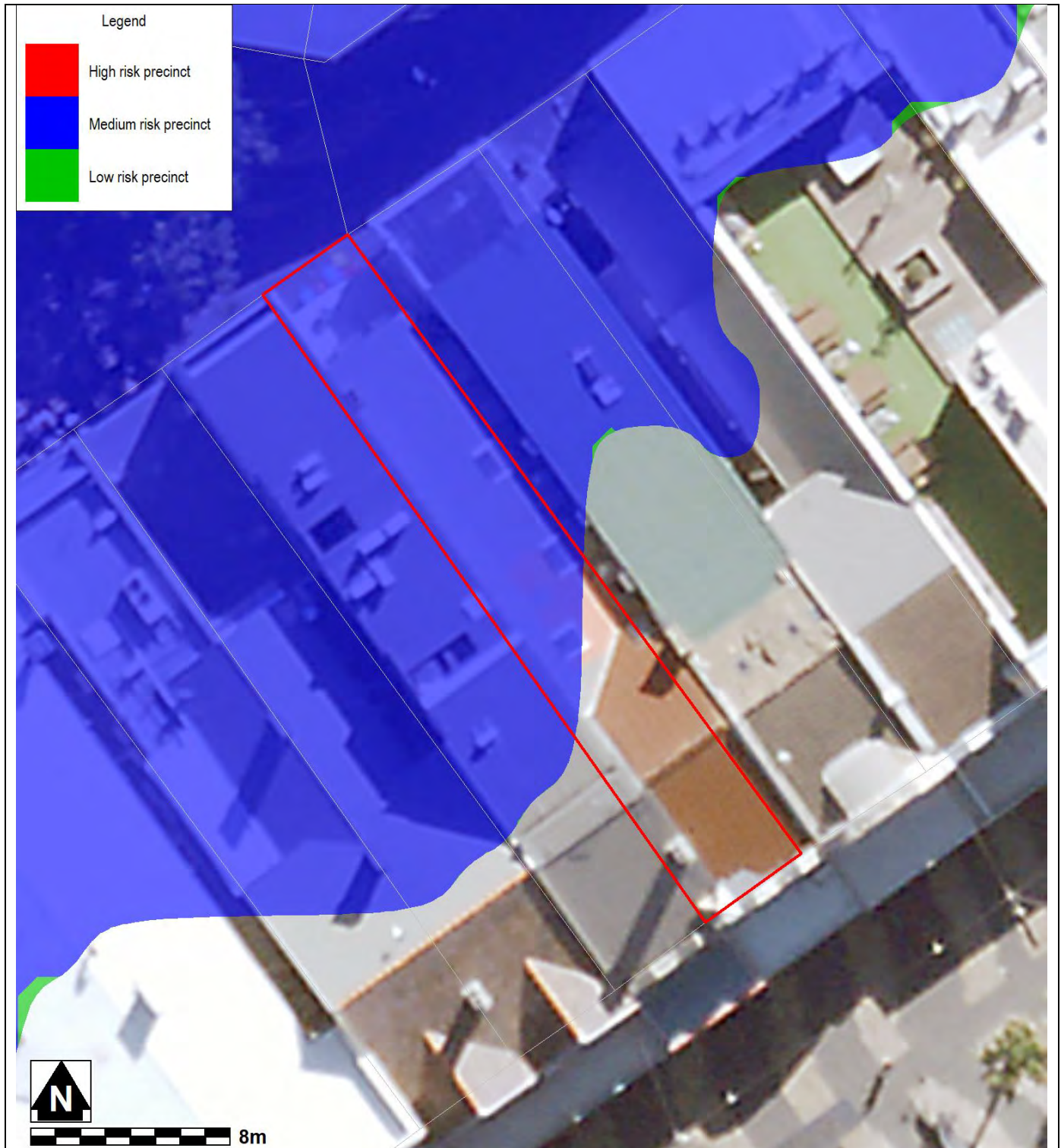


## Notes

### **General**

- All levels are based on Australian Height Datum (AHD) unless otherwise noted.
- This is currently the best available information on flooding; it may be subject to change in the future.
- Council recommends that you obtain a detailed survey of the above property and surrounds to AHD by a registered surveyor to determine any features that may influence the predicted extent or frequency of flooding. It is recommended you compare the flood level to the ground and floor levels to determine the level of risk the property may experience should flooding occur.
- Development approval is dependent on a range of issues, including compliance with all relevant provisions of Northern Beaches Council's Local Environmental Plans and Development Control Plans.
- Please note that the information contained within this letter is general advice only as a detail survey of the property as well as other information is not available. Council recommends that you engage a suitably experienced consultant to provide site specific flooding advice prior to making any decisions relating to the purchase or development of this property.
- The Flood Studies on which Council's flood information is based are available on Council's online [Flood Study Reports](#) webpage.
- If the FPL is higher than the PMF level, then the FPL should still be used as the FPL, as it includes freeboard which the PMF does not.
- If the property is affected by an Estuarine Planning Level (EPL) which is higher than the FPL, then the EPL should be used as the FPL.
- Areas affected by an EPL in the former Pittwater LGA are mapped on Council's online [Estuarine Hazard Map](#). Note that areas in the former Manly LGA affected by an EPL have been identified and will be soon added to this map.
- Council's drainage infrastructure is mapped on Council's [Stormwater Map](#). Note that locations are indicative only and may not be exactly as shown.

# MAP A: FLOOD RISK PRECINCTS



## Notes:

- **Low Flood Risk precinct** means all flood prone land not identified within the High or Medium flood risk precincts.
- **Medium Flood Risk precinct** means all flood prone land that is (a) within the 1% AEP Flood Planning Area; and (b) is not within the high flood risk precinct.
- **High Flood Risk precinct** means all flood prone land (a) within the 1% AEP Flood Planning Area; and (b) is either subject to a high hydraulic hazard, within the floodway or subject to significant evacuation difficulties (H5 or H6 Life Hazard Classification).
- The **Flood Planning Area** extent is equivalent to the Medium Flood Risk Precinct extent and includes the High Flood Risk Precinct within it. The mapped extent represents the 1% annual Exceedance Probability (AEP) flood event + freeboard.
- None of these mapped extents include climate change.
- Cadastre Lines (Source: NSW Government Land and Property Information), flood levels/extents (Source: Manly to Seaforth Flood Study 2019, Cardno) and aerial photography (Source: NearMap 2014) are indicative only.



## MAP B: FLOODING - 1% AEP EXTENT & KEY POINTS



### Notes:

- Extent represents the 1% annual Exceedance Probability (AEP) flood event.
- Flood events exceeding the 1% AEP can occur on this site.
- Extent does not include climate change.
- Cadastre Lines (Source: NSW Government Land and Property Information), flood levels/extents (Source: Manly to Seaforth Flood Study 2019, Cardno) and aerial photography (Source Near Map 2014) are indicative only.

## Flood Levels

ID	5% AEP Max WL (m AHD)	5% AEP Max Depth (m)	1% AEP Max WL (m AHD)	1% AEP Max Depth (m)	1% AEP Max Velocity (m/s)	Flood Planning Level (m)	PMF Max WL (m AHD)	PMF Max Depth (m)	PMF Max Velocity (m/s)
1	N/A	N/A	5.43	0.16	0.20	5.93	5.73	0.46	0.20
2	N/A	N/A	N/A	N/A	N/A	5.93	5.73	0.33	0.15
3	N/A	N/A	N/A	N/A	N/A	5.93	5.73	0.33	0.14
4	N/A	N/A	N/A	N/A	N/A	5.93	5.72	0.18	0.16
5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

## Climate Change Flood Levels (30% Rainfall intensity and 0.9m Sea Level Rise)

ID	CC 1% AEP Max WL (m AHD)	CC1 % AEP Max Depth (m)
1	5.49	0.17
2	N/A	N/A
3	N/A	N/A
4	N/A	N/A
5	N/A	N/A
6	N/A	N/A

WL – Water Level

PMF – Probable Maximum Flood

N/A - No Peak Water Level/Depth/Velocity Available.

### Notes:

- The flood planning levels above are calculated by adding a 0.5m freeboard to the 1% AEP water level. However, if the depth of flow is less than 0.3m and a Velocity X Depth product is less than 0.3m<sup>2</sup>/s, a freeboard of 0.3m may be able to be justified for development.



## MAP C: PMF EXTENT MAP



### Notes:

- Extent represents the Probable Maximum Flood (PMF) flood event
- Extent does not include climate change
- Cadastre Lines (Source: NSW Government Land and Property Information), flood levels/extents (Source: Manly to Seaforth Flood Study 2019, Cardno) and aerial photography (Source: NearMap 2014) are indicative only



## MAP D: FLOODING – 1% AEP EXTENT PLUS CLIMATE CHANGE

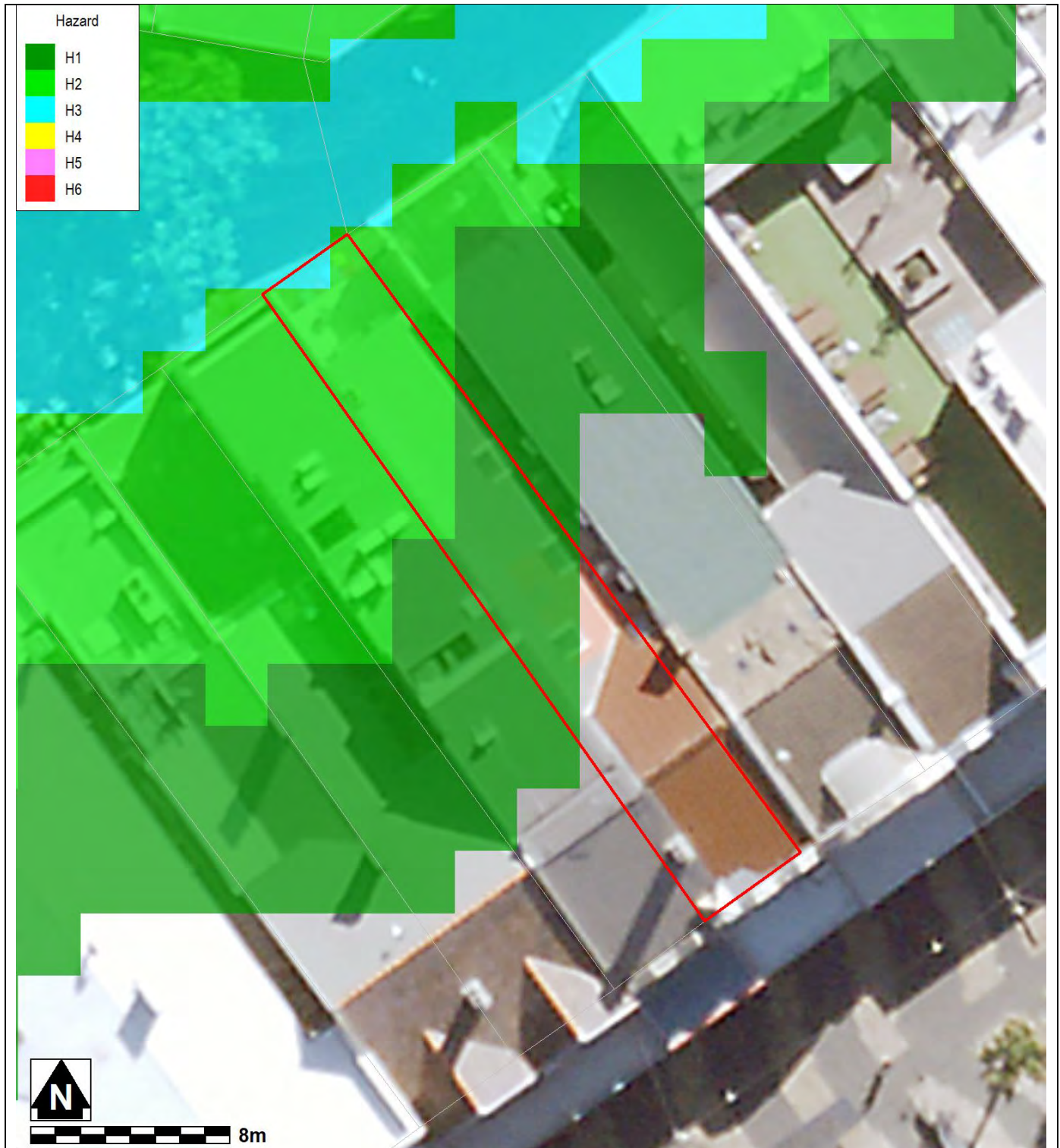


### Notes:

- Extent represents the 1% annual Exceedance Probability (AEP) flood event including 30% rainfall intensity and 0.9m Sea Level Rise climate change scenario
- Flood events exceeding the 1% AEP can occur on this site.
- Cadastre Lines (Source: NSW Government Land and Property Information), flood levels/extents (Source: Manly to Seaforth Flood Study 2019, Cardno) and aerial photography (Source: NearMap 2014) are indicative only



## MAP E: FLOOD LIFE HAZARD CATEGORY IN PMF

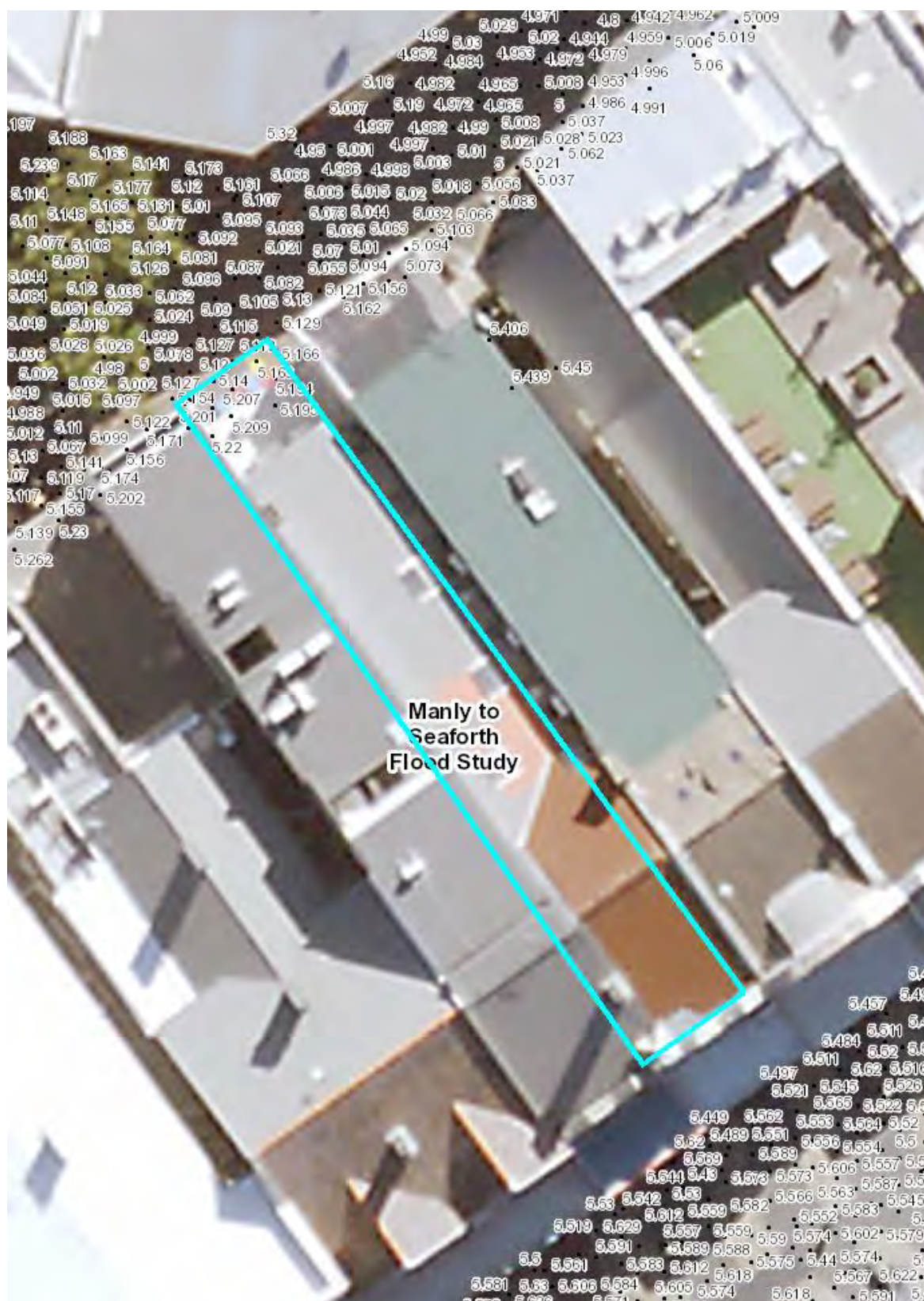


### Notes:

- Cadastre Lines (Source: NSW Government Land and Property Information), flood levels/extents (Source: Manly to Seaforth Flood Study 2019, Cardno) and aerial photography (Source Near Map 2014) are indicative only.



# MAP F: INDICATIVE GROUND SURFACE SPOT HEIGHTS



## Notes:

- The surface spot heights shown on this map were derived from Airborne Laser Survey and are indicative only.
- Accuracy is generally within  $\pm 0.2\text{m}$  vertically and  $\pm 0.15\text{m}$  horizontally, and Northern Beaches Council does not warrant that the data does not contain errors.
- If accuracy is required, then survey should be undertaken by a registered surveyor.

# Preparation of a Flood Management Report

## Introduction

These guidelines are intended to provide advice to applicants on how to determine what rules apply on flood prone land, and how to prepare a Flood Management Report. The purpose of a Flood Management Report is to demonstrate how a proposed development will comply with flood related planning requirements.

## Planning Requirements for Flood Prone Land

Development must comply with the requirements for developing flood prone land set out in the relevant Local Environment Plan (LEP) and Development Control Plan (DCP). There are separate LEPs and DCPs for each of the former Local Government Areas (LGAs), although preparation of a LGA-wide LEP and DCP is currently under way.

The clauses specific to flooding in the LEPs and DCPs are as follows:

LEP Clauses	DCP Clauses
Manly LEP (2013) – 5.21 Flood Planning	Manly DCP (2013) – 5.4.3 Flood Prone Land
Warringah LEP (2011) – 5.21 Flood Planning Warringah LEP (2000) – 47 Flood Affected Land *	Warringah DCP (2011) – E11 Flood Prone Land
Pittwater LEP (2014) – 5.21 Flood Planning Pittwater LEP (2014) – 7.4 Flood Risk Management	Pittwater 21 DCP (2014) – B3.11 Flood Prone Land Pittwater 21 DCP (2014) – B3.12 Climate Change

\* The Warringah LEP (2000) is relevant only for the “deferred lands” which affects only a very small number of properties, mostly in the Oxford Falls area.

Development on flood prone land must also comply with Council’s Water Management for Development Policy, and if it is in the Warriewood Release Area, with the Warriewood Valley Water Management Specification. Guidelines for Flood Emergency Response Planning are available for addressing emergency response requirements in the DCP. These documents can be found on Council’s website on the [Flooding page](#).

Note that if the property is affected by estuarine flooding or other coastal issues, these need to be addressed separately under the relevant DCP clauses.

## When is a Flood Management Report required?

A Flood Management Report must be submitted with any Development Application on flood prone land (with exceptions noted below), for Council to consider the potential flood impacts and applicable controls. For Residential or Commercial development, it is required for development on land identified within the Medium or High Flood Risk Precinct. For Vulnerable or Critical development, it is required if it is within any Flood Risk Precinct.

There are some circumstances where a formal Flood Management Report undertaken by a professional engineer may not be required. However the relevant parts of the DCP and LEP would still need to be addressed, so as to demonstrate compliance. Examples where this may apply include:

- If all proposed works are located outside the relevant Flood Risk Precinct extent
- First floor addition only, where the existing ground floor level is above the FPL
- Internal works only, where habitable floor areas below the FPL are not being increased

Note that development on flood prone land will still be assessed for compliance with the relevant DCP and LEP, and may still be subject to flood related development controls.

## What is the purpose of a Flood Management Report?

The purpose of a Flood Management Report is to demonstrate how a proposed development will comply with flood planning requirements, particularly the development controls outlined in the relevant LEP and DCP clauses. The report must detail the design, measures and controls needed to achieve compliance, following the steps outlined below.

A Flood Management Report should reflect the size, type and location of the development, proportionate to the scope of the works proposed, and considering its relationship to surrounding development. The report should also assess the flood risk to life and property.

## Preparation of a Flood Management Report

The technical requirements for a Flood Management Report include (where relevant):

### 1. Description of development

- Outline of the proposed development, with plans if necessary for clarity
- Use of the building, hours of operation, proposed traffic usage or movement
- Type of use, eg vulnerable, critical, residential, business, industrial, subdivision, etc

### 2. Flood analysis

- 1% AEP flood level
- Flood Planning Level (FPL)
- Probable Maximum Flood (PMF) level
- Flood Risk Precinct, ie High, Medium or Low
- Flood Life Hazard Category
- Mapping of relevant extents
- Flood characteristics for the site, eg depth, velocity, hazard and hydraulic category, and the relevance to the proposed development

If the property is affected by an Estuarine Planning Level (EPL) which is higher than the FPL, then the EPL should be used as the FPL. If the FPL is higher than the PMF level, then the FPL should still be used as the FPL, as it includes freeboard which the PMF does not.

### 3. Assessment of impacts

- Summary of compliance for each category of the DCP, as per the table below.

	Compliance		
	N/A	Yes	No
A) Flood effects caused by Development			
B) Building Components & Structural Soundness			
C) Floor Levels			
D) Car parking			
E) Emergency Response			
F) Fencing			
G) Storage of Goods			
H) Pools			

- Demonstration of how the development complies with any relevant flood planning requirements from the DCP, LEP, Water Management for Development Policy, and if it is in the Warriewood Valley Urban Land Release Area, with the Warriewood Valley Water Management Specification



(2001)

- For any non-compliance, a justification for why the development should still be considered.
- Calculations of available flood storage if compensatory flood storage is proposed
- Plan of the proposed development site showing the predicted 1% AEP and PMF flood extents, as well as any high hazard or floodway affectation
- Development recommendations and construction methodologies
- Qualifications of author - Council requires that the Flood Management Report be prepared by a suitably qualified Engineer with experience in flood design / management who has, or is eligible for, membership to the Institution of Engineers Australia
- Any flood advice provided by Council
- Any other details which may be relevant

Further information and guidelines for development are available on Council's website at:

<https://www.northernbeaches.nsw.gov.au/planning-and-development/building-and-renovations/development-applications/guidelines-development-flood-prone-land>

Council's Flood Team may be contacted on 1300 434 434 or at [floodplain@northernbeaches.nsw.gov.au](mailto:floodplain@northernbeaches.nsw.gov.au) .