

**BRIDGES**  
Fund Management

# Bridges Healthcare (Richmond) Limited



# RICHMOND INN

Flood Risk Assessment  
Elliot Wood Partnership








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**50-56 Sheen Road,  
Richmond, TW9 1UG**

Flood Risk Assessment

engineering a better society

		Remarks:	Issued for Planning				
Revision:	P1	Prepared by:	Harry Hunter BEng (Hons)	Checked by:	Keri Trimmer MEng CEng MICE	Approved by:	Keri Trimmer MEng CEng MICE
Date:	05/05/2022	Signature:		Signature:		Signature:	

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# One

## Executive Summary

The proposed development is located at 50 - 56 Sheen Road, Richmond, TW9 1UG within the London Borough of Richmond upon Thames.

The site lies within Flood Zone 1 and is therefore classified as having a very low probability of flooding from tidal and fluvial sources.

A review of all other potential sources of flooding has found the site be at low risk, providing a suitable drainage scheme is in place.

This report demonstrates that the proposed development has a low probability of flooding, and that it can be occupied safely. It is considered that the information provided within this report satisfies the requirements of the National Planning Policy Framework, London Plan and local policy.

# Two

## Introduction

Elliott Wood Partnership Ltd has been commissioned to provide a Flood Risk Assessment (FRA) to support the full planning application for the proposed development at 50 - 56 Sheen Road, Richmond, TW9 1UG, located within the London Borough of Richmond upon Thames.

This FRA will assess the risk of flooding to the site and review the impact the proposed development will have with regards to flood risk to surrounding properties. This is in line with the requirements of the National Planning Policy Framework (NPPF).

The Flood Risk Mechanisms being considered as part of this Flood Risk Assessment (FRA) are as follows:

- Rivers and Sea
- Overland Flow
- Flooding from Artificial Waterbodies
- Infrastructure Failure / Sewer Flooding
- Groundwater

# Three

## Site Context

### 3.1 Site Location

The site is situated to the northeast of the junction between Sheen Road and Church Road, covering the plots occupied by 50 - 56 Sheen Road. The national grid reference for the site is 518335 E, 175018 N.

The River Thames runs approximately 750m to the south west of the site. The site area is approximately 0.14ha.

The Lead Local Flood Authority (LLFA), responsible for all flood risk matters that do not relate directly to designated Main Rivers, is London Borough of Richmond upon Thames (LBR). The Statutory Sewerage Undertaker for the area is Thames Water (TW).



Figure 1: Site Location Plan

### 3.2 Existing Development

The existing development is comprised of Two Victorian dwellings which have been connected and extended along Church Road in a C shape around the central courtyard, forming the Richmond Inn Hotel. The central courtyard is largely stone paved with 8 parking spaces and a large central tree. There is a single vehicular access on the northern boundary of the site from Sydney Road.

The total area of the site is approximately 1,400m<sup>2</sup>, of which 94% is currently considered to be impermeable area with soft landscaping comprising discreet hedged or tree pit areas only.

### 3.3 Topography

A topographic survey of the site was undertaken by Mobile Cad Surveying Ltd in August 2020; this can be found in **Appendix A**.

The topographic survey shows that across the site, the levels along the site frontage on Sheen Road are largely flat and vary between 12.19 and 12.40m AOD. The building is set with an upper and lower ground floor with the primary entrance achieved via a set of steps from the building frontage on Sheen Road. The upper and lower ground levels are broadly 13.00 and 10.40m AOD respectively. A Lightwell is located either side of the primary access with a level of 11.20 to 11.40m AOD. Levels within the rear courtyard are largely flat around the building and fall towards the northern boundary from broadly 10.10m to 9.00m at the vehicular access which is also the low point of the site.

### 3.4 Proposed Development

The development proposals seek to convert the existing hotel into an alternative type of visitor accommodation. The proposals will provide all of the facilities associated with a 4-star hotel, including private en-suite rooms, dining facilities, communal lounge and wellness treatments. In addition to this, the proposals will provide bespoke physiotherapy led rehabilitation and recovery facilities including hydrotherapy pools and specialist gym equipment.

To facilitate the redevelopment of the site, it is proposed to demolish the extended buildings to the rear of the building which were all constructed since 1996, and retain the existing joined Victorian buildings on the site frontage. It is then proposed to reconstruct the demolished section of the building with a similar size and shape, extending further along the northern boundary and including an undercroft vehicle access. The lower ground floor will be constructed approximately 1m lower than the previous building.

Please refer to **Appendix B** for Proposed Development Plans.

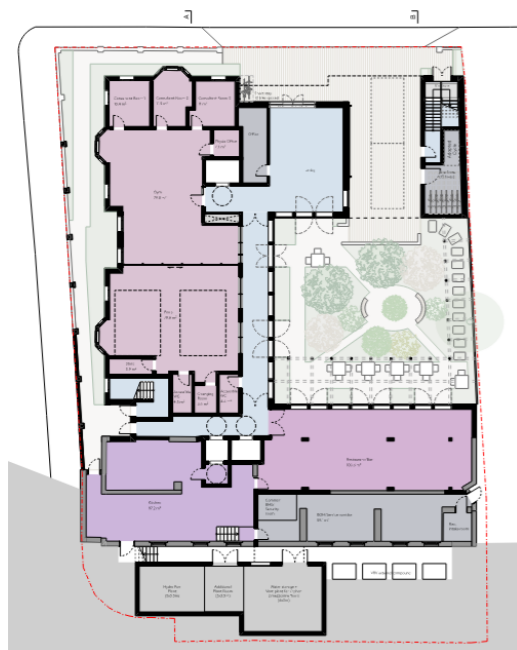


Figure 2: Proposed Lower Ground Floor Plan

## Four

### Planning and Flood Risk Policy

#### 4.1 Policy Summary

This Flood Risk Assessment has been written in accordance with GOV.uk guidelines and the NPPF. Flood risk will be assessed for the following flood risk mechanisms:

- Rivers and Seas
- Overground Surface Water Flows
- Sewer Flooding / Infrastructure Failure
- Groundwater
- Artificial Waterbodies

The following documents have been reviewed in preparation of this flood risk assessment:

- London Borough of Richmond upon Thames Strategic Flood Risk Assessment (SFRA) March 2021
- London Borough of Richmond upon Thames Local Plan July 2018
- London Borough of Richmond upon Thames Surface Water Management Plan (SWMP) December 2021
- GOV.uk flood risk maps

## Five

### Sources of Potential Flooding

#### 5.1 Flooding from Rivers and Sea

Flood zone information published by GOV.uk shows that the development is located within Flood Zone 1 and, therefore, has a very low risk of flooding from rivers or the sea.



Figure 3: GOV.UK Flood Map for Planning – Flood risk from rivers or the sea

## 5.2 Flooding from Surface Water

Overland rainwater flows occur when the infiltration capacity of land or the drainage capacity of a local sewer network is exceeded. The extents of overland flooding will depend upon the rainfall event, the degree of saturation of the soil, the permeability of soils and the topography of the site.

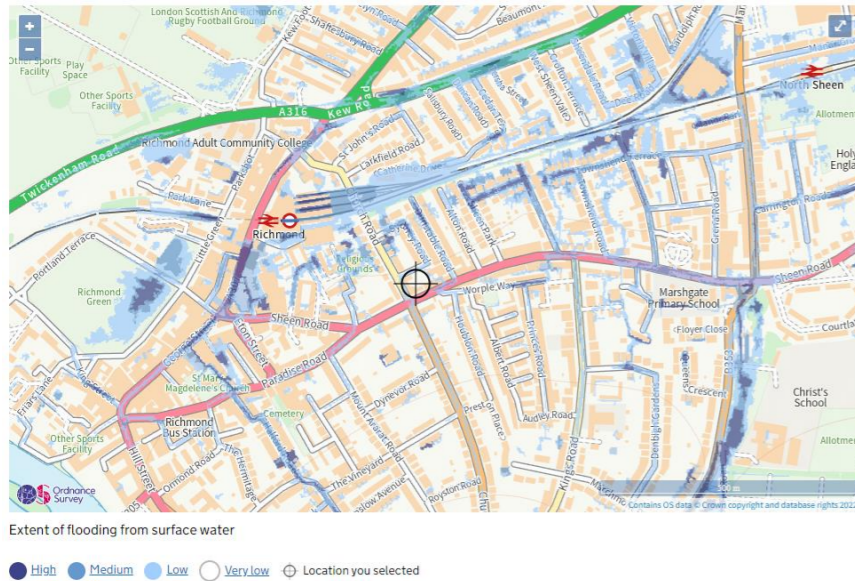


Figure 4: GOV.UK Flood Map for Planning – Flood risk from surface water

Review of the GOV.uk flood risk from surface water map indicates that the site is at 'very low' risk of surface water flooding. The area within Sydney Road to the north of the site which is at a 'low' risk of flooding. This is beyond the current low point on the site and is at a lower level to the development site.

Church Road to the west of the site is also at low risk of flooding from surface water runoff, however, it can be expected that the water will be conveyed via the kerb upstands and an existing retaining wall

Levels on site will be designed to route surface water away from building edges. This will increase the buildings resilience to flooding from overland flow.

After review of the relevant information, the risk of flooding from overland surface water flow is considered to be **low**.

## 5.3 Flooding from Groundwater

Groundwater flooding can occur following an extended prolonged period of low intensity rainfall. The future risk from this source is more uncertain than surface water as the climate change predictions indicate that although sea levels will rise, thus possibly raising groundwater levels, overall summer rainfall will decrease, therefore having a long-term effect of lowering the groundwater levels. However, long periods of wet weather are predicted to increase, and these are the type of weather patterns that can cause groundwater flooding to occur.

Review of the BGS maps show the site is situated on a bedrock of London Clay Formation with no superficial deposits. The nearest historical borehole is located approximately 270m to the west of the site on the site currently occupied by Waitrose. This borehole indicates 1.70m of made ground from the surface, above a layer of sandy clay, medium dense clayey gravel, dense medium to coarse sand and gravel before reaching stiff silty clay at 5.9mBGL.

Site specific intrusive ground investigation works are programmed to be undertaken to confirm the on-site ground conditions.

The development site will largely be hard paved, with permeable surfaces being underlain with a geomembrane to attenuate surface water runoff. This will form a barrier below ground and prevent the emergence of ground water. The lower ground floors will be constructed with suitable materials to form a waterproof barrier and prevent the ingress of groundwater.

Based on the Increased Potential for Elevated Groundwater Interactive Map accompanying the Richmond upon Thames SFRA, and the Susceptibility to Groundwater Flooding Version 6 by BGS, the site is not located within an area with potential for groundwater flooding. Refer to **Appendix C** for Flood Risk Maps.

Following implementation of the above mitigation measures, the risk of flooding from groundwater is considered to be **low**.

## 5.4 Flooding from Artificial Water Bodies

The consequence of flooding occurring as a result of reservoir failure is considered to be significant, as it can result in rapid inundation which can quickly obstruct emergency egress routes.

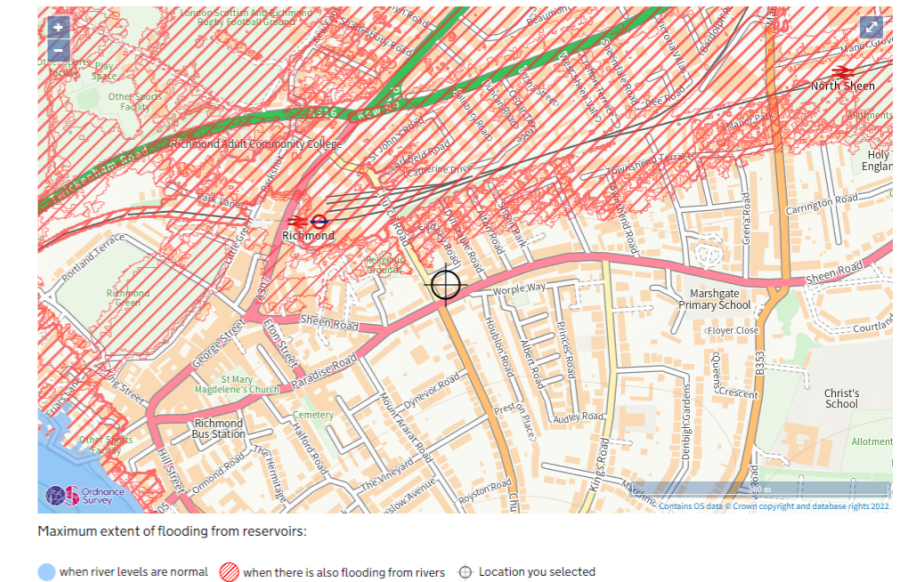


Figure 5: GOV.UK Flood Map for Planning – Flood risk from reservoirs

Review of the GOV.uk flood risk from reservoirs map indicates that the site is located outside of a reservoir Flood Risk Zone (an area expected to flood if a local reservoir was to fail or be breached).

Following review of the relevant information, the risk of flooding from artificial water bodies is considered to be **very low**.

## 5.5 Flooding from Infrastructure / Sewer Failure

Public sewer records have been obtained from Thames Water; these are included within **Appendix D**. These show that the area is served by a network of foul water sewers within Church and Sydney Road. A surface water sewer is located beyond the northwest corner of the site and continues down Church Road.

Thames Water are responsible for operating and maintaining their sewer infrastructure, therefore the likelihood of surcharge due to blockages is expected to be low.

The Richmond SFRA has identified 0-10 properties within the same postcode that were flooded as a result of overloaded sewers. The maps do not provide details of exact locations of these properties. Refer to **Appendix C** for Flood Risk Maps.

Due to the low number of historical sewer flooding events in the vicinity, there is no indication of an underlying sewer capacity issues.

As a result, the risk of flooding from infrastructure and sewer failure is considered to be **low**.

# Six

## Conclusion

The development is located within Flood Zone 1, in an area not subject to flooding from surface water runoff, groundwater, sewer failure or from artificial bodies.

A review of all other potential sources of flooding has found the site to be at low risk, providing a suitable drainage scheme is in place.





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## **Appendices**

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## A Topographic Survey



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NOTE:  
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**LEVEL DATUM & ORIENTATION**

LEVELS & DRAWING ORIENTATION CO-ORDINATE TO WORLD CO-ORDINATES USING GPS EQUIPMENT (SPECTRA SP60). PERMANENT STATIONS LOCATED IN POSITIONS INDICATED ON PLAN AS FOLLOWS:-

STN 01	E-518329.393	N-175048.217	HT - 8.892M
STN 02	E-518327.4526	N-175039.2538	HT - 9.108M
STN 03	E-518337.735	N-175044.904L	HT - 8.908M
STN 04	E-518305.6671	N-175017.4208	HT - 10.174M
STN 05	E-518317.6783	N-175016.7135	HT - 10.832M
STN 06	E-518314.9712	N-175000.6864	HT - 11.367M
STN 07	E-518341.5629	N-174993.3624	HT - 12.394M
STN 08	E-518352.5672	N-174990.4566	HT - 12.526M
STN 09	E-518353.8725	N-174999.0596	HT - 12.373M

**ABBREVIATIONS & LEGEND:**

<b>LEVELS &amp; HEIGHTS</b>	<b>SERVICES</b>
CL - COVER LEVEL	BT - BRITISH TELECOMS
L - INVERT LEVEL	CATV - CABLE TELEVISION
EL - LEVEL	ER - EARTHING ROD
HT - HEIGHT	ES - ELECTRICAL SUPPLY
STN - SURVEY STATION	EH - FIRE HYDRANT
BM - BENCH	GS - GAS SUPPLY
CE - CEILING	PO - POST OFFICE TELEPHONE
CO - COSTS	SV - STOP VALVE
RA - RAFTERS	TSSU - TRAFFIC LIGHT SIGNALS
E - EAVES	
FR - FLAT ROOF	<b>DRAINAGE</b>
PM - PARAPET	DC - DRAINAGE CHANNEL
F - FENCE	G - GULLY
US - UNDERSIDE OF	I/C - INSPECTION CHAMBER
R - ROOF	MH - MANHOLE
SL - SLAB	RE - ROODING EYE
SF - SOFFIT	RWP - RAIN WATER PIPE
T - TREE	UTL - UNABLE TO LIFT
THR - THRESHOLD	SVP - SOIL & VENT PIPE
To - TOP OF	ST - STOP TAP
W - WALL	WH - WATER METER
HH - HEAD HEIGHT	
OH - OPENING HEIGHT	<b>TYPICAL DRAWING SYMBOLS</b>
SH - SILL HEIGHT	SPOT LEVEL X 96.256
	SPOT HEIGHT X 99.034
	SURVEY STATION X STN 01 EL: 96.256 HT: 95.162
	MANHOLE / INSPECTION CHAMBER X I/C EL: 96.256
	SURVEY HEIGHT X 96.256
	WINDOW TAG X 96.256
	DOOR TAG X 96.256
	RADIATOR TAG X 96.256
	<b>TOPOGRAPHICAL SYMBOLS</b>
	OVERHEAD ELECTRICAL - ELEC -
	OVERHEAD TELEPHONE - TELE -
	FENCE LINE
	VEGETATION OUTLINE
	SINGLE GATE
	DOUBLE GATE
	TREE
	CONTOURS X 0.000M

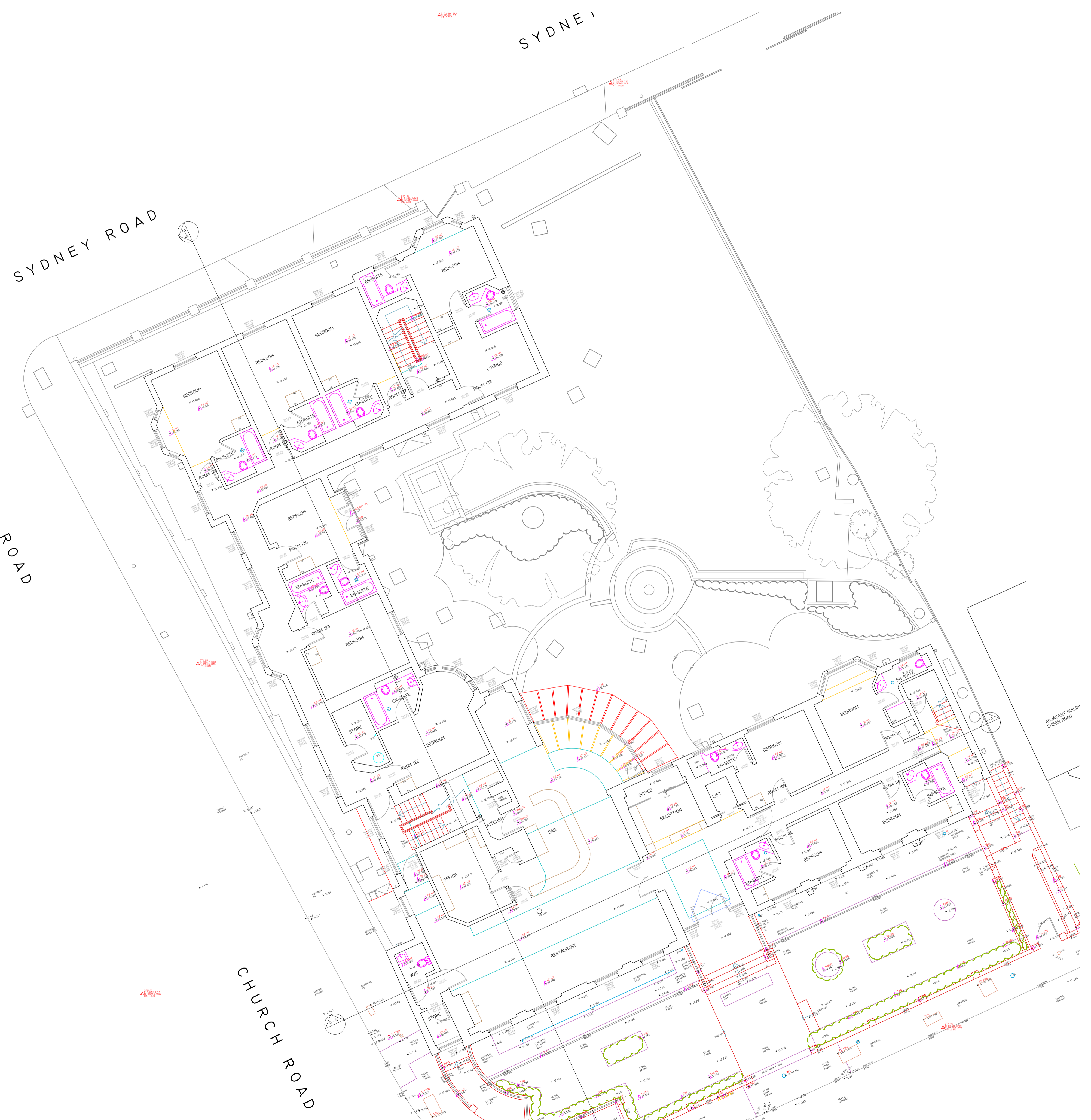
LOWER GROUND FLOOR PLAN  
1:100 SCALE

REV	DATE	AMENDMENTS

**Mobile CAD Surveying** office & on site

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DWG NO.: 2844 - 02  
DWG TITLE: LOWER GROUND FLOOR PLAN  
DWG DATE: AUGUST 2020  
DWG SIZE: SCALE AS SHOWN @ A1  
DRAWN: MW | CHECKED: JW | ISSUE: 1



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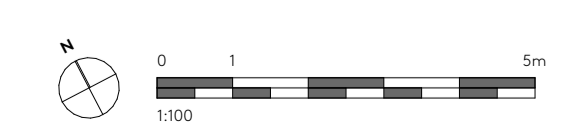
GROUND FLOOR PLAN  
1:100 SCALE

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DWG NO.: 2844 - 03  
DWG TITLE: GROUND FLOOR PLAN  
DWG DATE: AUGUST 2020  
DWG SIZE: SCALE AS SHOWN @ A1  
DRAWN: MW | CHECKED: JW | ISSUE: 1

## B Proposed Development Plans





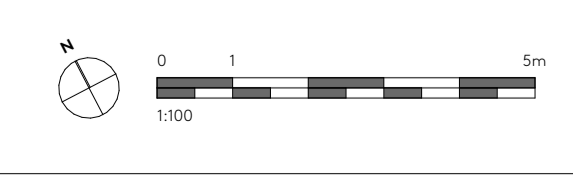
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No.	Date	Comment
P1	06/05/22	PLANNING APPLICATION

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**Key**

	Site boundary		Circulation
	Existing structure		Rooms
	Proposed structure		



Project <b>888 - Richmond Rehab Centre</b>		Dwg Title <b>Proposed Ground Floor Plan</b>	
Client <b>Bridges Fund Management Ltd.</b>		Dwg No. <b>888-101</b>	
Date <b>APRIL 2022</b>	Drawn <b>YC</b>	Checked <b>OL</b>	Scale <b>1:100</b>
		Current Stage <b>PLANNING</b>	Issue <b>P1</b>





A

B



A

B

Issue		
No.	Date	Comment
P1	06/05/22	PLANNING APPLICATION

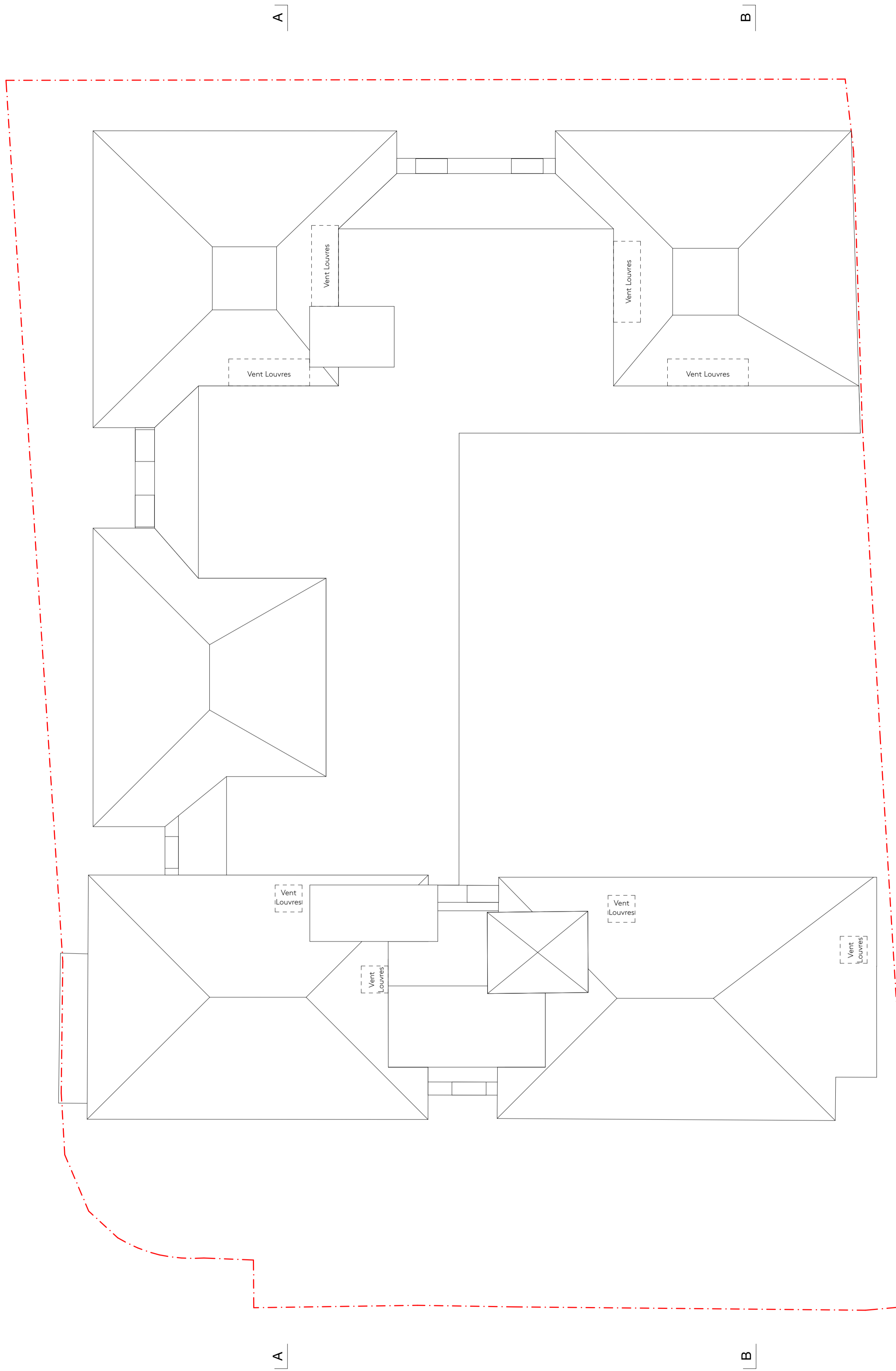
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Key	
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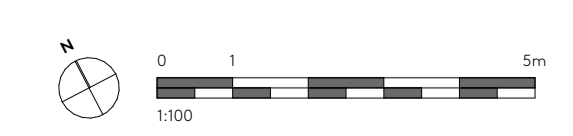
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Date <b>APRIL 2022</b>	Drawn <b>YC</b>	Checked <b>OL</b>	Scale <b>1:100</b>
Current Stage <b>PLANNING</b>		Issue <b>P1</b>	



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**Key**  
 - - - Site boundary



<b>Project</b> 888 - Richmond Rehab Centre		<b>Dwg Title</b> Proposed Roof Plan	
<b>Client</b> Bridges Fund Management Ltd.		<b>Dwg No.</b> 888-103	
<b>Date</b> APRIL 2022	<b>Drawn</b> YC	<b>Checked</b> OL	<b>Scale</b> 1:100
		<b>Current Stage</b> PLANNING	<b>Issue</b> P1

C Flood Maps for Planning

