



Flood Impact Assessment

34-40 South Parade Wagga Wagga
Development

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Prepared by:

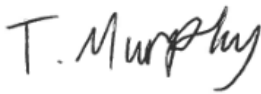
Tim Murphy

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Prepared by  _____
 (signature)
Tim Murphy


Approved by  _____
 (signature)
John Sutcliffe

Table of Contents

1.0	INTRODUCTION	3
1.1	WAGGA WAGGA LEP	4
1.2	PROPOSED DEVELOPMENT	5
2.0	MITIGATION MEASURES	6
2.1	FINISHED FLOOR LEVELS	6
2.2	BUILDING FOOTPRINT	7
2.3	LOW HAZARD AREA	7
3.0	PROBABLE MAXIMUM FLOOD (PMF)	9

LIST OF FIGURES

Figure 1-1	Wagga Wagga Riverina Flood Planning Area	3
Figure 1-2	Wagga Wagga MOFFS Flood Planning Area	4
Figure 1-3	Proposed Ground Floor Layout.....	5
Figure 2-1	Overland Flow Levels, Depths, and Velocities.....	6
Figure 2-2	Evacuation Area.....	8
Figure 3-1	PMF MOFFS Data	9
Figure 3-2	MOFFS PMF	10

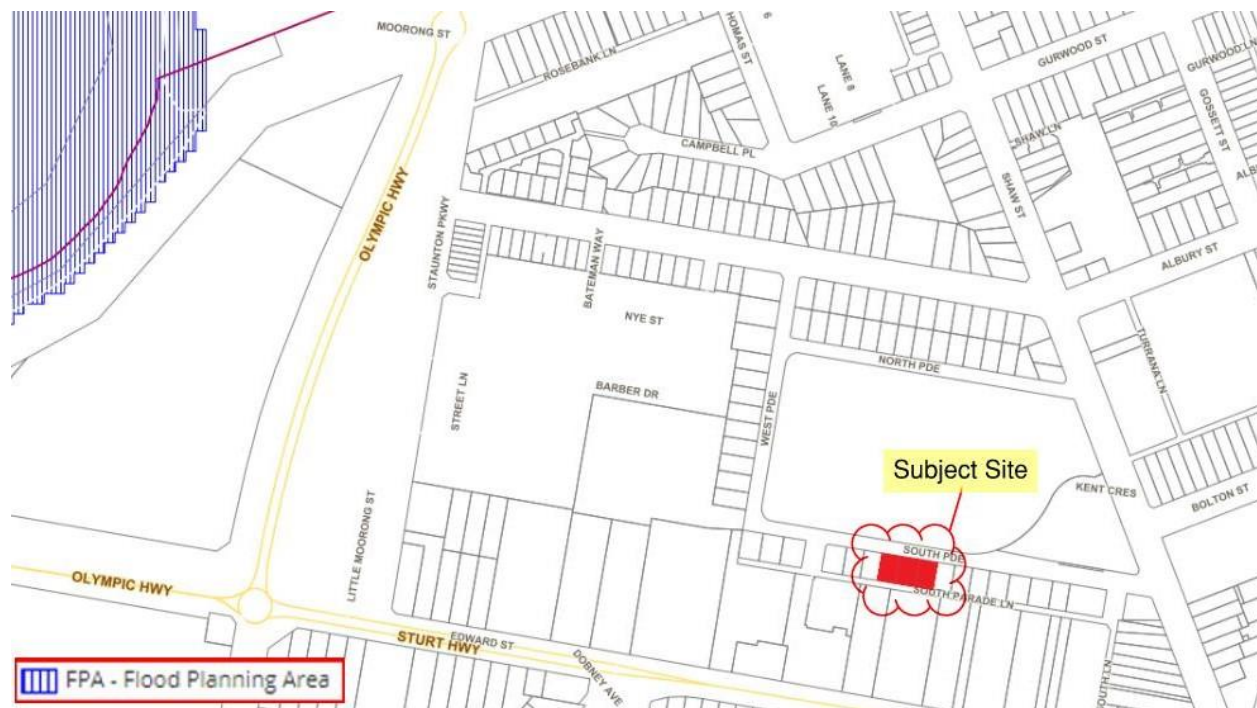


Introduction

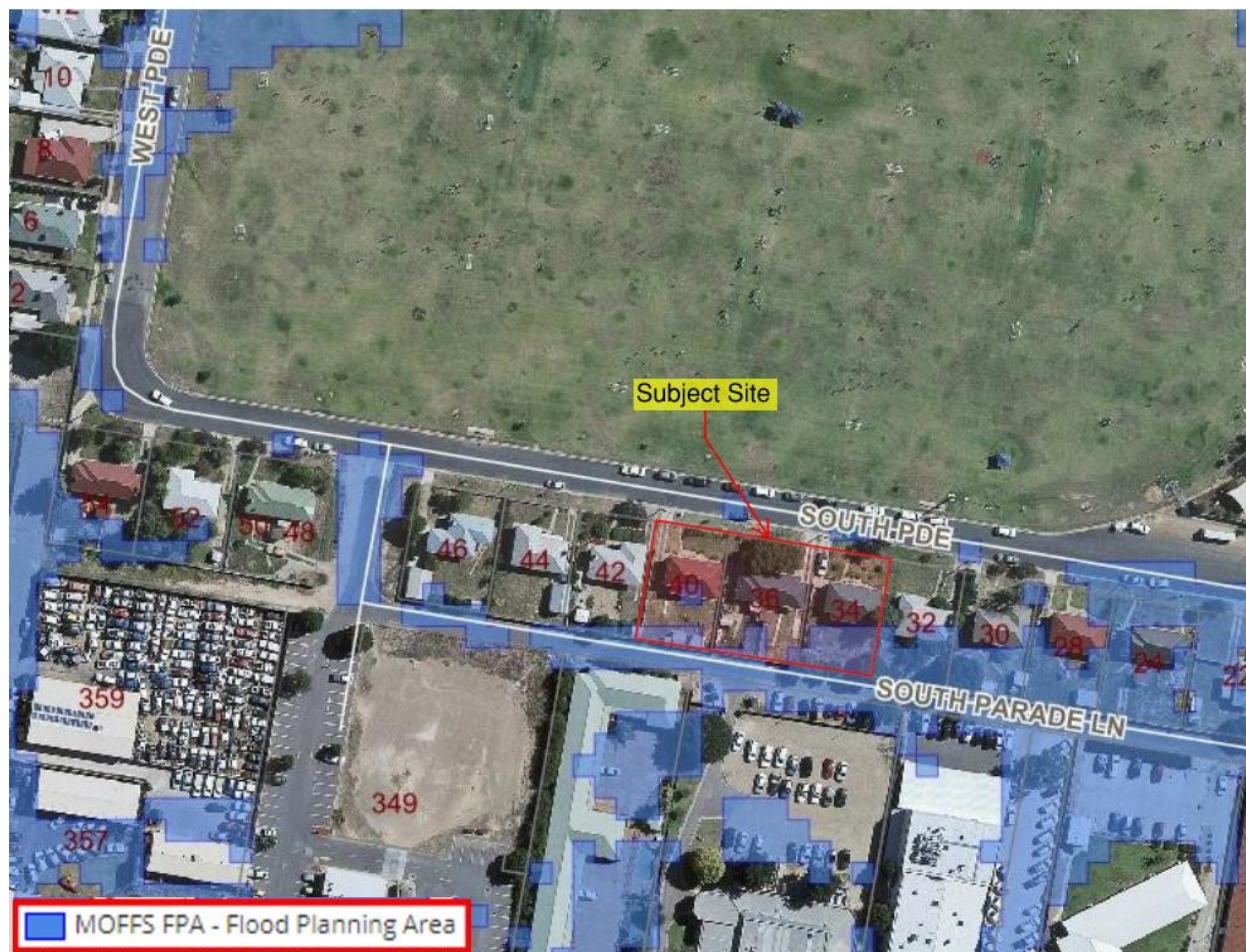
1.0 INTRODUCTION

As part of the proposed development upon 34-40 South Parade, Wagga Wagga, an investigation was undertaken into the impact of flooding on the subject site. Using flood mapping information supplied by Wagga Wagga City Council (WWCC), the subject site is not expected to experience riverine flooding during a 1% AEP Flood Event and therefore is not within the WWCC Riverine Flood Planning Area (FPA). Refer to **Figure 1-1**. The site is, however, affected by the 1% AEP and is within the Major Overland Flow Flood Study (MOFFS 2021) FPA. Refer to **Figure 1-2**.

Figure 1-1 Wagga Wagga Riverina Flood Planning Area



Introduction

Figure 1-2 Wagga Wagga MOFFS Flood Planning Area

The purpose of this report is to summarise the mitigation measures that have been considered for this development to manage the impact of the flooding and ensure the safety of the occupants of the proposed development in accordance with Clause 5.21 of the Wagga Wagga Local Environmental Plan 2010 (LEP).

1.1 WAGGA WAGGA LEP

Under Clause 5.21 Flood Planning, of the Wagga Wagga LEP, the following objectives are required for developments within the FPA.

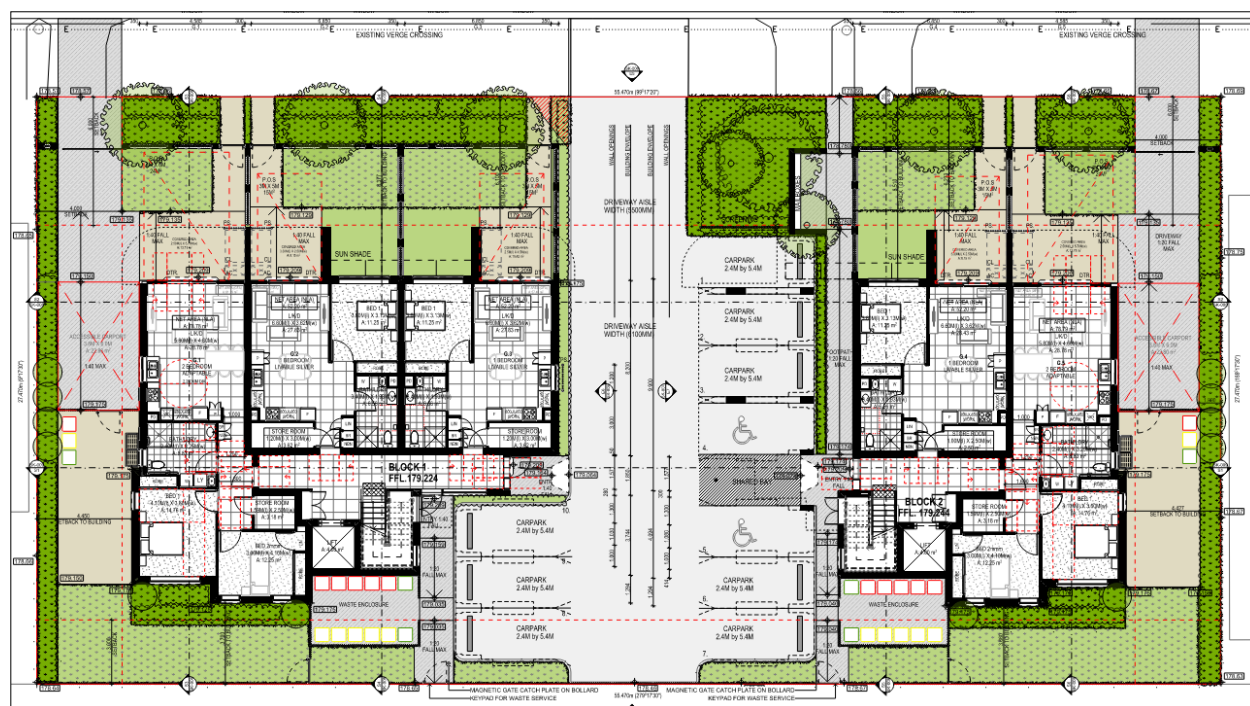
- Minimise the flood risk to life and property associated with the use of the land.
- Allow the development on land that is compatible with the flood function and behaviour of the land, taking into account projected changes as a result of climate change.
- Avoid adverse or cumulative impacts on flood behaviour and the environment.
- Enable the safe occupation and efficient evacuation of people in the event of a flood.

Introduction

1.2 PROPOSED DEVELOPMENT

It is understood that the three existing dwellings and all other structures and trees within the Subject Site are to be demolished/removed. A new 3-storey structure is to be constructed, containing eleven 1-bedroom units and six 2-bedroom units for a total of 17 units within the Subject Site. The proposed ground floor layout of the proposed development is shown in **Figure 1-3**. The development will include provisions for off-street parking.

Figure 1-3 Proposed Ground Floor Layout

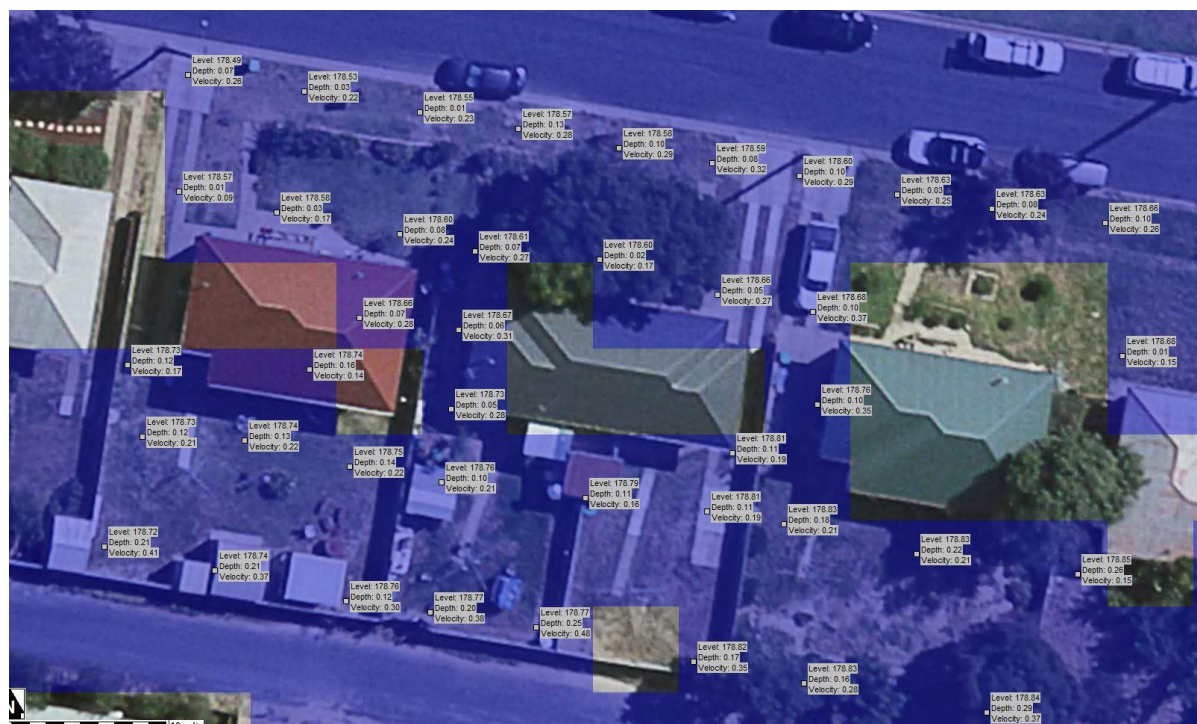


2.0 MITIGATION MEASURES

In order to ensure that the development remains habitable, and the occupants remain safe during 1% AEP events, the Finished Floor Level (FFL) of the development has been designed to be a minimum of 300mm above both the maximum MOFFS level across the subject site and the OSD storage's maximum design water surface level. This is in accordance with WWCC's Engineering Guidelines.

From flooding information supplied by WWCC, as shown in **Figure 2-1**, the maximum MOFFS level within the site is AHD 178.83, and from the design, the OSD storage's maximum design water surface level is 178.92. Therefore, the proposed development has been designed to have an FFL of AHD 179.22. This ensures that the properties and the occupants will not become inundated during the 1% AEP event, allowing them to safely wait in the buildings until the waters recede. Additionally, the 300mm freeboard ensures adequate room for any increases in the 1% AEP level due to climate change or other climate-related events.

Figure 2-1 Overland Flow Levels, Depths, and Velocities



Mitigation Measures

2.2 BUILDING FOOTPRINT

The approximate total footprint of the existing dwellings and sheds on the site is 357m², and the proposed development has a footprint of approximately 430m², an increase of 73m². Given the depths and velocities of the 1% AEP Overland Flows provided in **Figure 2-1**, a net increase of 73m² is not expected to result in any significant flooding impacts on the infrastructure downstream of the development.

2.3 LOW HAZARD AREA

As discussed in the 2021 Wagga Wagga Major Overland Flow Floodplain Risk Management Study and Plan, there are six levels of hydraulic hazard classification that are used to assess the floodplain risk management of a development. These are ranked H1 to H6 with H1 being the lowest hazard rating and H6 being the highest hazard rating. The level of the hazard is determined by a combination of the depth and velocity of the flood waters. Each level of hazard represents an increasing safety risk for people, vehicles, and buildings. The hazard levels and their associated risks are as follows.

- H1 – No constraints
- H2 – Unsafe for small vehicles
- H3 – Unsafe for all vehicles, children, and the elderly
- H4 – Unsafe for all people and all vehicles
- H5 – Unsafe for all people and all vehicles. Buildings require special engineering design and construction
- H6 – Unsafe for people and vehicles. All building types considered vulnerable to failure

From the MOFFS data supplied by WWCC, the maximum depth of the water within the site is 0.29m and the maximum velocity of the water is 0.41m/s. The limits of a H1 flood hazard are 0.3m depth and 2m/s velocity. Hence, the hazard across the subject site is all H1. Therefore, the 1% AEP overland flows are unlikely to impact on the safety of buildings, nor is it likely to prevent the future occupants of the development evacuating safely if they desire.

If the occupants do wish to evacuate, the Duke of Kent Oval on the north side of South Parade is outside the FPA as shown in **Figure 2-2** and identified as not being impacted by the MOFFS, providing a safe evacuation point that is close by and easily accessible.



Mitigation Measures

Figure 2-2 Evacuation Area



Probable Maximum Flood (PMF)

3.0 PROBABLE MAXIMUM FLOOD (PMF)

The Probable Maximum Flood (PMF) is the theoretical, absolute maximum flooding that could occur in an area. In Wagga Wagga, there are two types of PMF that can impact an area; Riverine flooding, which is flooding that is caused by the Murrumbidgee River's level rising as a result of the PMF storm event, and Major Overland Flow Flooding (MOFFS), which occurs from the overland rainfall run-off from a PMF event.

The Subject Site is not impacted by Riverine PMF; however, it is affected by MOFFS PMF. **Figure 3-1** below shows the approximate depth and velocity of the PMF across the site.

Figure 3-1 PMF MOFFS Data



As can be seen, the average depth across the site is 1.05m while the average velocity is 0.44m/s. this means that the site will have a Hazard Level of H4, which is considered unsafe for vehicles and people.

In accordance with the Wagga Wagga City Council Guidelines, finished floor levels of the residential developments only need to be designed to the 1% flooding event. Therefore, the PMF levels do not impact the design of the proposed development.

Probable Maximum Flood (PMF)

Figure 3-2 MOFFS PMF

