

Rienco Consulting

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Review of Flood Behaviour and Associated Development Controls – Proposed Development at 197 Church Street, Parramatta.

for Holdmark Property Group Pty Ltd

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Review of Flood Behaviour and Associated Development Controls – Proposed Development at 197 Church Street, Parramatta.

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1 INTRODUCTION

1.1 BACKGROUND

Holdmark Property Group is proposing to redevelop their site at 197 Church Street, Parramatta. The site is currently fully developed with mixed use style development. The development proposal seeks to demolish the existing structures, and construct a mixed use development with basement car parking. The mixed use development will likely comprise ground floor retail areas, with commercial land uses within a podium and a residential tower above. Parramatta City Council has indicated that the existing heritage façade of the Murray Brothers building should be retained.

As part of an overall Planning Proposal being developed for the site, a design competition is required. Holdmark Property Group have engaged Rienco Consulting to provide participants in the design competition with adequate information to ensure the proposed designs provide an outcome that not only meets Parramatta City Council's flood related requirements, but also ensures the resultant development responds appropriately to issues such as street frontage activation, and pedestrian and vehicular access.

1.2 PURPOSE OF THIS REPORT

The purpose of this report is to:

- a) Review the flood certificate issued by Parramatta City Council for the subject site,
- b) Review the proposed development intent and provide guidance as to how the intended development on the site can meet and address the Section 117 directions for Flood Prone Land.
- c) Review the proposed development intent and assess it against the objectives, performance criteria and prescriptive controls of PCC's DCP 2011 (Section 2.4.2.1) to confirm the suitability of the proposed development.
- d) Review other associated guidelines to confirm any additional requirements of the proposed development, such as:
 - (a) Upper Parramatta River Floodplain Risk Management Study and Plan (2003)
 - (b) NSW Government's Floodplain Development Manual (2005)
- e) Prepare a report summarising the above suitable for provision to the design competition participants, as part of the overall Planning Proposal for the site.

1.3 LIMITATIONS AND ASSUMPTIONS

This report has been strictly prepared for the purposes stated in this report for exclusive use by the client. No other warranty, expressed or implied, is made as to the advice included in this report. This study specifically focuses on the quantification of flood related planning controls at the subject site, given current conditions and the flood behaviour information provided by Parramatta City Council.

2 EXISTING INFORMATION

2.1 DETAILED SITE SURVEY AND SITE DESCRIPTION

The site is located at the north western corner of the intersection of Church Street and Macquarie Street in the Parramatta CBD and is approximately 250m north of Parramatta Railway Station. The site address is 197 and 207 Church Street and 89 Marsden Street, Parramatta. The site has three street frontages (Church, Macquarie and Marsden Streets) and a site area of approximately 4,300 m². Existing development on the site comprises:

- A two storey, heritage listed building known as Murray Brothers building currently used for retail purposes. It is known as 197 Church Street;
- A modern three storey retail/commercial building fronting Church Street (known as 207 Church Street); and
- A modern four storey commercial building fronting Marsden Street (known as 89 Marsden Street).

Figure 2.1-1 describes the site in more detail, via the ground survey provided by H. Ramsay Surveyors in 2011.

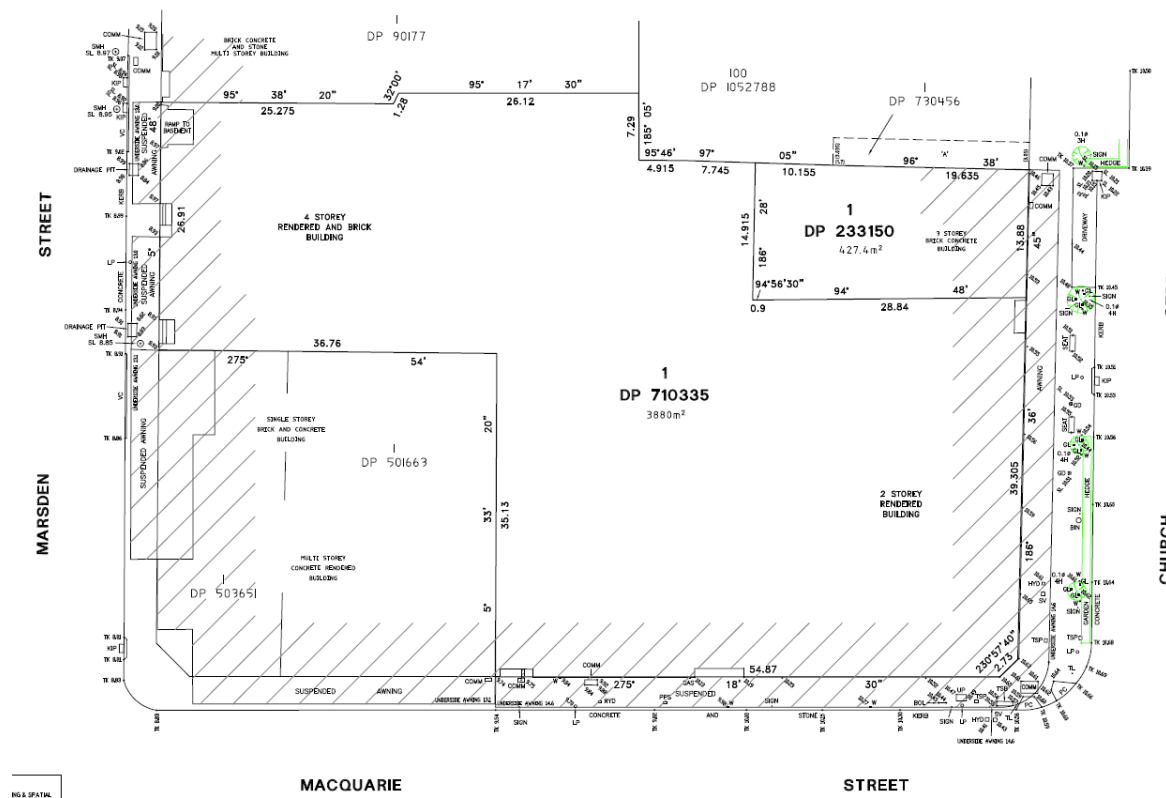


Figure 2.1-1 Existing Site Survey

Note: Survey provided by H. Ramsay Surveyors dated 2011.

2.2 EXISTING FLOOD BEHAVIOUR

PCC have provided a flood certificate for the subject site dated 9th February 2016. The site is affected by mainstream flooding from the Parramatta River. There is very little conveyance through the subject site, and it is essentially a flood storage or flood fringe area.

Figure 2.1-1 describes the existing flood extent information provided by PCC, for the 20% AEP, 1% AEP and PMF events. **Figure 2.2-2** describes the associated pre-development Flood Risk Precincts.

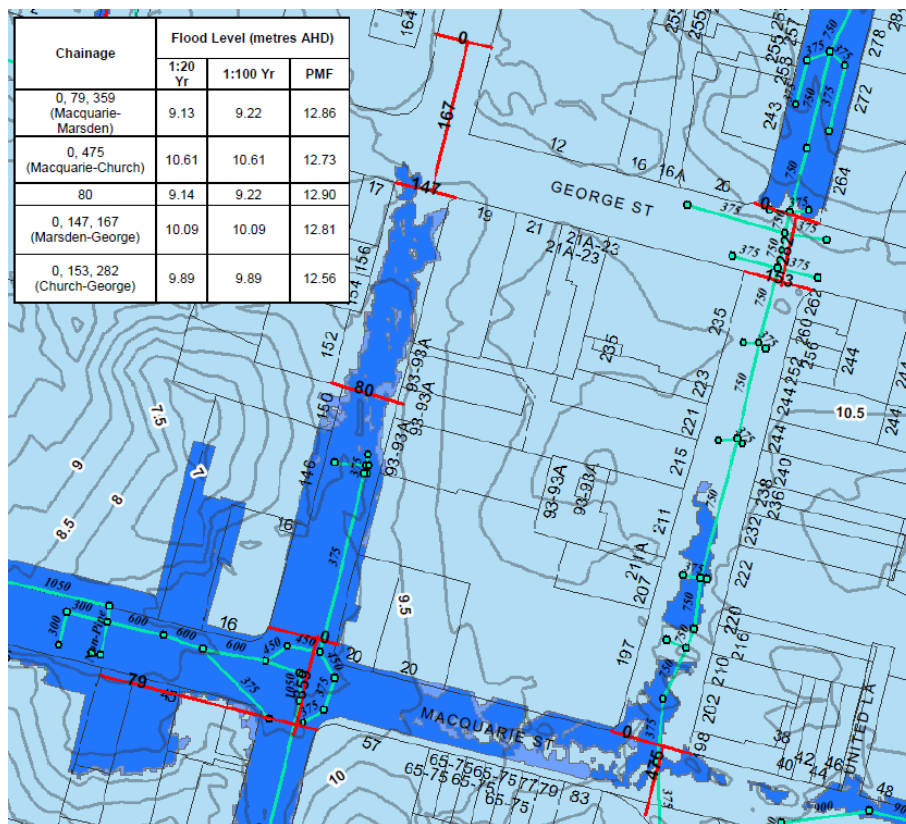


Figure 2.2-1 Existing Flood Extents

Note: Dark blue areas denote the extent of the 20% AEP design flood. Medium blue denotes the extent of the 1% AEP design flood. Light blue denotes the extent of Probable Maximum Flood (PMF). Provided by Parramatta City Council.

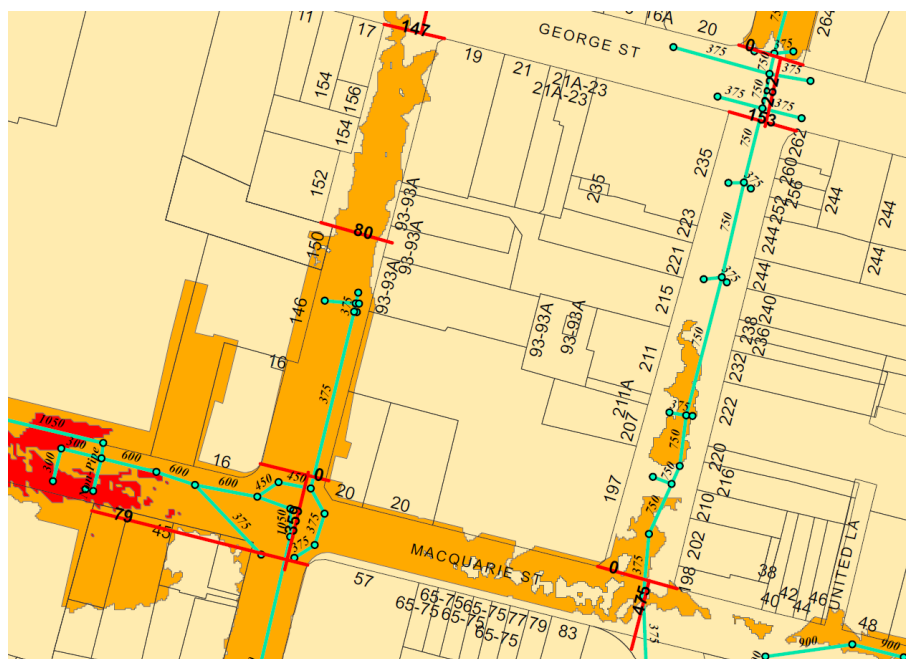


Figure 2.2-2 Existing Flood Risk Precincts

Note: Red areas denote High Flood Risk Precincts. Orange areas denote Medium Flood Risk Precincts. Beige areas denote Low Flood Risk Precincts. Provided by Parramatta City Council.

The 1% AEP flood extent affects portions of Macquarie, Marsden and Church Streets. The 1% AEP flood is largely excluded from the subject site due to the existing development on the site. There is virtually no difference between the 20% AEP and 1% AEP flood levels around the perimeter of the subject site.

The roads surrounding the subject site are located within a mix of Medium and Low Flood Risk Precincts. The site itself is entirely mapped as being within a Low Flood Risk Precinct, again owing to the existing development on the site.

2.3 ADVICE FROM PARRAMATTA CITY COUNCIL

PCC have advised, with regard to flooding, that they require a flood study to be submitted accompanying any planning proposal for the site, addressing the following:

- Direction 4.3 Flood Prone Land of the Section 117 Minister Directions.
- Council's Floodplain Risk Management Policy.
- All relevant LEP and DCP flood related controls.
- The guidelines outlined in the NSW Floodplain Development Manual.
- Details of the required design measures to mitigate the flood impacts to be investigated as part of the Design Excellence and Development Application processes.

This report meets the requirements of PCC's request for information.

3 REQUIREMENTS OF PROPOSED DEVELOPMENT

3.1 REQUIREMENTS OF SECTION 117 DIRECTION

As the subject site is susceptible to the PMF event, it is defined under NSW legislation as 'Flood Prone Land'. This definition is consistent with the NSW Government's Floodplain Development Manual (2005). As the site is defined as Flood Prone Land, the Section 117 Direction (Section 4.3) applies to development on the subject site.

The Ministerial Section 117 Direction (last amended 2nd March 2016) provides certain objectives and direction on what a relevant planning authority must do if this direction applies. **Table 3.1-1** describes each aspect of the S.117 direction, and advice on how the proposed development already complies, or what design aspects must be incorporated into the development to ensure compliance with the S.177 direction.

Table 3.1-1 – S.117 Direction Requirements

S.117 Objective	How the Proposal Addresses the Objective
To ensure that development of flood prone land is consistent with the NSW Government's Flood Prone Land Policy and the principles of the Floodplain Development Manual 2005, and	This report contains guidance on how the proposed development will be consistent with the NSW Government's Flood Prone Land Policy and the principles of the Floodplain Development Manual 2005.
To ensure that the provisions of an LEP on flood prone land is commensurate with flood hazard and includes consideration of the potential flood impacts both on and off the subject land.	This report contains guidance on how the proposed development should be designed such that it is commensurate with flood hazard, including full consideration of the potential flood impacts both on and off the subject land.
S.117 Requirements	How the Proposal Addresses the Requirement
A planning proposal must include provisions that give effect to, and are consistent with, the NSW Flood Prone Land Policy and the principles of the Floodplain Development Manual 2005 (including the Guideline on Development Controls on Low Flood Risk Areas).	This report constitutes the provisions within the Planning Proposal that give effect to, and are consistent with, the NSW Flood Prone Land Policy and the principles of the Floodplain Development Manual 2005.
A planning proposal must not rezone land within the flood planning areas from Special Use, Special Purpose, Recreation, Rural or Environmental Protection Zones to a Residential, Business, Industrial, Special Use or Special Purpose Zone.	The planning proposal does not seek to do this.
A planning proposal must not contain provisions that apply to the flood planning areas which: (a) permit development in floodway areas, (b) permit development that will result in significant flood impacts to other properties, (c) permit a significant increase in the development of that land,	The planning proposal does not propose: <ul style="list-style-type: none"> • Development in floodway areas. • Development that will result in significant flood impacts to other properties. • Significant increase in the development of that land, • Propose a development which will result in a substantially increased requirement for government spending on flood

<p>(d) are likely to result in a substantially increased requirement for government spending on flood mitigation measures, infrastructure or services, or</p> <p>(e) permit development to be carried out without development consent except for the purposes of agriculture (not including dams, drainage canals, levees, buildings or structures in floodway's or high hazard areas), roads or exempt development.</p>	<p>mitigation measures, infrastructure or services.</p> <ul style="list-style-type: none"> • Development to be carried out without development consent.
<p>A planning proposal must not impose flood related development controls above the residential flood planning level for residential development on land, unless a relevant planning authority provides adequate justification for those controls to the satisfaction of the Director-General (or an officer of the Department nominated by the Director-General)</p>	<p>The planning proposal does not impose flood related development controls above the residential flood planning level.</p>

It can be seen from **Table 3.1-1** that the proposed development can readily meet the objectives of the Section 117 direction.

3.2 REQUIREMENTS OF THE FLOODPLAIN DEVELOPMENT MANUAL

The primary documents used when assessing any development proposal, are in order of weight, the LEP and then the DCP. The flood related objectives, design principles and prescriptive controls contained PCC's DCP 2011 have been developed wholly in accordance with the NSW Government's Floodplain Development Manual (2005). As such, compliance with the DCP (as described elsewhere in this report) means compliance with the aims and objectives of the Floodplain Development Manual.

As such, there are no additional measures contained within the Floodplain Development Manual that require discussion, beyond those contained within the DCP.

3.3 REQUIREMENTS OF THE LOCAL ENVIRONMENT PLAN

Under the Parramatta Local Environmental Plan (PLEP), Clause 6.3 states that Council have set a number of objectives required for development on land identified as "Flood Planning Area", and other land at or below the flood planning level (i.e. the subject site). **Table 3.3-1** describes each LEP clause and commentary on how the proposed development meets the requirements of the LEP.

Table 3.3-1 – Parramatta LEP Requirements

LEP Requirement	How the Proposal Can Address the Requirement
<p>Objective is to minimise the flood risk to life and property associated with the use of land,</p>	<p>The risk to life is minimised by utilising residential floor levels higher than the Probable Maximum Flood level. Commercial floor areas are no lower than the existing commercial floor levels.</p> <p>The risk to property damage is minimised by the use of flood compatible materials below the 1% AEP plus 500mm level across the site.</p>

Objective is to allow development on land that is compatible with the land's flood hazard, taking into account projected changes as a result of climate change,	The siting of commercial and residential land on land categorised as a Low Flood Risk Precinct is entirely consistent with DCP 2011 and PCC's LEP.
Objective is to avoid significant adverse impacts on flood behaviour and the environment.	The proposed development will have no measureable impact on flood behaviour, as it replaces existing built form on the site. It follows that there could be no significant or adverse impacts arising from the development.
Proposed development must be compatible with the flood hazard of the land, and	The suitability of particular types of development on land with varying flood hazard is determined in Council's DCP. For a Low Flood Risk Precinct, the proposed mixed use development is noted in the DCP as being a suitable land use.
Proposed development must be not likely to significantly adversely affect flood behaviour resulting in detrimental increases in the potential flood affectation of other development or properties, and	As the site is fully developed in the pre- and post-development scenarios, there will be no impacts on flood behaviour as a result of the proposed development.
Proposed development must incorporate appropriate measures to manage risk to life from flood, and	The risk to life is minimised by utilising residential floor levels higher than the Probable Maximum Flood level. Commercial floor areas are no lower than the existing commercial floor levels.
Proposed development must be not be likely to significantly adversely affect the environment or cause avoidable erosion, siltation, destruction of riparian vegetation or a reduction in the stability of river banks or watercourses, and	There are no aspects of the proposal, located within the CBD, that could adversely affect the environment or cause avoidable erosion, siltation, destruction of riparian vegetation or a reduction in the stability of river banks or watercourses.
Proposed development must be not likely to result in unsustainable social and economic costs to the community as a consequence of flooding.	The risk to property damage is minimised by the use of flood compatible materials below the 1% AEP plus 500mm level across the site.

It can be seen from **Table 3.3-1** that the proposed development can readily meet the objectives and other requirements of the LEP.

3.4 REQUIREMENTS OF DCP 2011 OBJECTIVES

PCC's DCP 2011 (Section 2.4.2.1) sets forth its objectives for all development on the floodplain. **Table 3.4-1** describes each objective, together with comments describing how the proposed development could meet the objective.

Table 3.4-1 – DCP 2011 Section 2.4.2.1 Objectives

DCP Objective	How the Proposal Addresses the Objective
To ensure the proponents of development and the community in general are aware of the potential flood hazard and consequent risk and liability associated with the use and development of flood liable land.	The proponents of development are fully aware of potential flood hazard and consequent risk associated with the use and development of land within the floodplain, as:

	<ol style="list-style-type: none"> 1. They have read and understood Section 2.4.2.1 of the DCP and this report. 2. They have thoroughly addressed the requirements of the DCP in their proposed design, exceeding the habitable floor level requirement and utilising flood compatible materials where required to do so. <p>The community in general are also fully aware of potential flood hazard and consequent risk associated with the use and development of land within the floodplain, as:</p> <ol style="list-style-type: none"> 1. PCC's DCP is freely available on PCC's website, together with a plethora of historic and current flood information. 2. There is an active floodplain management committee in the Upper Parramatta River Area. 3. The Upper Parramatta River Catchment Trust (UPRCT) is a highly visible body promoting flood information and monitoring via its website and publications.
<p>To manage flood liable land in an economically, environmentally and socially sustainable manner.</p>	<p>Development on the site, with the controls noted in this report (and as required by PCC's DCP) will result in the management of the land in economically, environmentally and socially sustainable manner.</p>
<p>To ensure that developments with high sensitivity to flood risk (e.g. critical public utilities) are sited and designed to provide reliable access and minimise risk from flooding.</p>	<p>The proposed development is not classified as one having a high sensitivity to flood risk under PCC's DCP 2011.</p>
<p>To allow development with a lower sensitivity to the flood hazard to be located within the floodplain, subject to appropriate design and siting controls and provided that the potential consequences that could still arise from flooding remain acceptable.</p>	<p>The development is noted in PCC's DCP as being the type of development that does have a lower sensitivity to flood hazard.</p> <p>The suitability of particular types of development on land with varying flood hazard is determined in Council's DCP. For a Low Flood Risk Precinct, the proposed mixed use development is noted in the DCP as being a suitable land use.</p> <p>The required siting controls are noted in this report.</p>
<p>To prevent any intensification of the development and use of High Flood Risk Precinct or floodway's, and wherever appropriate and feasible, allow for their conversion to natural waterway corridors.</p>	<p>The proposed development is not located within a High Flood Risk area, or a floodway.</p>
<p>To ensure that the proposed development does not expose existing development to increased risks associated with flooding.</p>	<p>As the site is fully developed in the pre- and post-development scenarios, there will be no impacts on flood behaviour as a result of the proposed development.</p>

To ensure building design and location address flood hazard and do not result in adverse flood impact and unreasonable impacts upon the amenity or ecology of an area.	The proposed building design will incorporate all of the required DCP design aspects, with the minor exception of some commercial floor space, which will utilise floor levels lower than the 1% AEP flood level, for the specific purpose of maintaining an existing heritage façade.
To minimise the risk to life by ensuring the provision of appropriate access from areas affected by flooding up to extreme events.	All residential areas will be located above the Probable Maximum Flood level, facilitating
To minimise the damage to property, including motor vehicles, arising from flooding.	Basement carpark entrance ramps (from the adjoining streets) cannot be set at the 1% AEP plus 500mm level. To better control the risks posed by the flood hazard, flood mitigation protection devices (floating booms etc.) can be readily incorporated into the design to protect basement carpark areas from inundation.
To incorporate the principles of Ecologically Sustainable Development (ESD).	Refer to the Planning Proposal.

It can be seen from **Table 3.4-1** that the proposed development can readily meet the objectives of the DCP.

3.5 REQUIREMENTS OF DCP 2011 DESIGN PRINCIPLES

PCC's DCP 2011 (Section 2.4.2.1) sets forth its design principles for all development on the floodplain. **Table 3.5-1** describes each design principle, together with comments describing how it can be demonstrated that the proposed development meets the design principle.

Table 3.5-1 – DCP 2011 Section 2.4.2.1 Design Principles

DCP Design Principles or Performance Criteria	How the Proposal Meets the Design Principle
New development should not result in any increased risk to human life.	The risk to life is minimised by utilising residential floor levels higher than the Probable Maximum Flood level. Commercial floor areas are no lower than the existing commercial floor levels.
The additional economic and social costs which may arise from damage to property from flooding should not be greater than that which can reasonably be managed by the property owner, property occupants and general community.	The risk to property damage is minimised by the use of flood compatible materials below the 1% AEP plus 500mm level across the site.
New development should only be permitted where effective warning time and reliable access is available for the evacuation of an area potentially affected by floods to an area free of risk from flooding. Evacuation should be consistent with any relevant flood evacuation strategy where in existence.	The Upper Parramatta River Floodplain Risk Management Study states that there is no effective warning time for the Parramatta CBD, and the flood environment is essentially a 'flash flood' scenario. It acknowledges that evacuation is not possible. The proposed development is commensurate with this constraint, facilitating safe 'shelter in place' areas on the site, above the PMF level.

Development should not adversely increase the potential flood affectation on other development or properties, either individually or in combination with similar developments(s) that are likely to occur within the same catchment.	As the site is fully developed in the pre- and post-development scenarios, there will be no impacts on flood behaviour as a result of the proposed development.
New developments must make allowances for motor vehicles to be relocated to an area with substantially less risk from flooding, within an effective warning time.	Basement carpark entrance ramps (from the adjoining streets) cannot be set at the 1% AEP plus 500mm level. To better control the risks posed by the flood hazard, flood mitigation protection devices (floating booms etc.) can be readily incorporated into the design to protect basement carpark areas from inundation.
New developments must provide an evacuation plan detailing procedures that would be in place for an emergency (such as warning systems, signage or evacuation drills).	An evacuation plan can be readily developed once the full form of the development is known.
Flood mitigation measures associated with new developments should not result in significant impacts upon the amenity of an area by way of unacceptable overshadowing of adjoining properties, privacy impacts (e.g. by unsympathetic house raising) or by being incompatible with the streetscape or character of the locality (including heritage).	No such measures are proposed in the Planning Proposal.
Proposals for raising structures must provide a report from a suitably qualified engineer demonstrating that the raised structure will not be at risk of failure from the forces of floodwaters.	The proposed development can be readily designed to withstand the forces of floodwaters.
Development is to be compatible with any relevant Floodplain Risk Management Plan, Flood Studies, or Sub-Catchment Management Plan.	The proposed development is entirely consistent with the Upper Parramatta River Floodplain Risk Management Study.
Development must not divert flood waters, nor interfere with floodwater storage or the natural function of waterways.	As the site is fully developed in the pre- and post-development scenarios, there will be no diversion of floodwaters nor any loss of floodplain storage.
Filling of land up to 1:100 Average Recurrence Interval (ARI) (or flood storage area if determined) is not permitted. Filling of and above 1:100 ARI up to the Probable Maximum Flood (PMF) (or in flood fringe) must not adversely impact upon flood behaviour.	No filling is proposed.
New development must consider the impact of flooding resulting from local overland flooding whether it is a result of Local Drainage or Major Drainage.	The new development has considered the impact of flooding resulting from local overland flooding whether it is a result of Local Drainage or Major Drainage.
Where hydraulic flood modelling is required, flow hazard categories should be identified and	No hydraulic modelling is required.

adequately addressed in the design of the development.	
Council strongly discourages basement car parks on properties within the floodplain. Where site conditions require a basement car park on a property within the floodplain, development applications must provide a detailed hydraulic flood study and design demonstrating that the proposed basement car park has been protected from all flooding up to and including the PMF event. An adequate emergency response and evacuation plan must also be provided where basement car parks are proposed in the floodplain.	Basement carpark entrance ramps (from the adjoining streets) cannot be set at the 1% AEP plus 500mm level. To better control the risks posed by the flood hazard, flood mitigation protection devices (floating booms etc.) can be readily incorporated into the design to protect basement carpark areas from inundation. An emergency response plan can be readily prepared at a later stage.

It can be seen from **Table 3.5-1** that the proposed development meets or exceeds PCC's assessment criteria.

3.6 REQUIREMENTS OF DCP 2011 PRESCRIPTIVE CONTROLS

PCC's DCP 2011 (Section 2.4.2.1) sets forth its prescriptive controls for all development on the floodplain. **Table 3.6-1** describes each prescriptive control, together with comments describing how it can be demonstrated that the proposed development meets those prescriptive controls. For the purposes of this report, in Table 2.7 of PCC's DCP, the development has been determined as '*Industrial or Commercial*' to determine the required prescriptive controls.

Table 3.6-1 – DCP 2011 Section 2.4.2.1 Prescriptive Controls

DCP Prescriptive Control	How the Proposal Meets the Prescriptive Control
<p><u>Floor Levels</u></p> <ul style="list-style-type: none"> • Habitable floor levels to be equal to or greater than the 100 year ARI flood level plus freeboard. • A restriction is to be placed on the title of the land, pursuant to S.88B of the Conveyancing Act, where the lowest habitable floor area is elevated more than 1.5m above finished ground level, confirming that the subfloor space is not to be enclosed. 	<p>All residential flood levels shall be located above the Probable Maximum Flood Level. Some commercial floor space will utilise floor levels lower than the 1% AEP flood level, for the specific purpose of maintaining an existing heritage façade.</p> <p>Further justification for this approach is provided below in Section 3.7.</p>
<p><u>Flood Affection</u></p> <ul style="list-style-type: none"> • The impact of the development on flooding elsewhere to be considered having regard to <ul style="list-style-type: none"> ○ loss of flood storage; ○ changes in flood levels, flows and velocities caused by alterations to flood flows; and ○ the cumulate impact of multiple potential developments in the vicinity. 	<p>As the site is fully developed in the pre- and post-development scenarios, there will be:</p> <ul style="list-style-type: none"> • No loss of floodplain storage as a result of the development. • No changes in flood levels, flows and velocities caused by alterations to flood flows • No cumulate impact of multiple potential developments in the vicinity.

<p><u>Parking and Driveway Access</u></p> <ul style="list-style-type: none"> • The minimum surface level of open spaces or carports shall be as high as practical, but no lower than 0.1m below the 100 year ARI flood level. In the case of garages, the minimum surface level shall be as high as practical, but no lower than the 100 year ARI flood level. • Garages capable of accommodating more than 3 motor vehicles on land zones for urban purposes, or enclosed car parking, must be protected from inundation by floods equal to or greater than the 100 year ARI flood. Ramp levels to be no lower than 0.5m above the 100 year ARI flood level. • The level of the driveway providing access between the road and parking spaces shall be no lower than 0.2m below the 100 year ARI flood level. • Enclosed car parking and car parking areas accommodating more than 3 vehicles, with a floor below the 100 year ARI flood level, shall have adequate warning systems, signage, exits and evacuation routes. 	<p>No such carparking is proposed.</p> <p>Basement carpark entrance ramps (from the adjoining streets) cannot be set at the 1% AEP plus 500mm level. To better control the risks posed by the flood hazard, flood mitigation protection devices (floating booms etc.) can be readily incorporated into the design to protect basement carpark areas from inundation.</p> <p>No such carparking is proposed.</p> <p>This can be readily incorporated into the design.</p>
<p><u>Evacuation</u></p> <ul style="list-style-type: none"> • Applicant is to demonstrate the development is consistent with any relevant flood evacuation strategy or similar plan. 	<p>The relevant local flood strategy, described in the Upper Parramatta River Floodplain Risk Management Plan is:</p> <p><i>This catchment responds very quickly to heavy rainfall, that is, the catchment experiences ‘flash flooding’. As such, the Bureau of Meteorology would be unable to provide a specific flood warning service to this catchment. Therefore, provision of a ‘formal’ flood warning system for the Upper Parramatta River catchment has not been considered further. However, an informal local formal warning system for the Parramatta central business district, using the Trust’s upstream stream level gauges, appears feasible, although it may operate too infrequently to be maintained. It is recommended that this option be considered during preparation of a Local Flood Plan in those local government areas where such a plan is warranted.</i></p> <p>The proposed development is consistent with this approach in a ‘flash flood’ environment.</p>

It can be seen from **Table 3.6-1** that the proposed development meets or exceeds PCC’s assessment criteria.

3.7 RECOMMENDED FINISHED FLOOR LEVELS

PCC's DCP (2011) defines a habitable floor, for a commercial or retail development, as an *area used for offices or to store valuable possessions susceptible to flood damage in the event of a flood*. In this regard, it is considered that all of the proposed development located at an existing street frontage would be classified as a habitable floor. In turn, this attracts a Finished Floor Level (FFL) of the 1% AEP flood level plus 500 mm. However, PCC have also stated that the existing Murray Brothers façade, listed as a heritage item on the LEP, be retained.

Figure 3.6-1 describes the existing site, combined with the impacts of adopting the PCC minimum FFL's around the perimeter of the subject site at the Murray Brothers building facade. Also noted on the figure is the step up from the existing pavement levels at the street frontage, should the recommended FFL's be adopted.

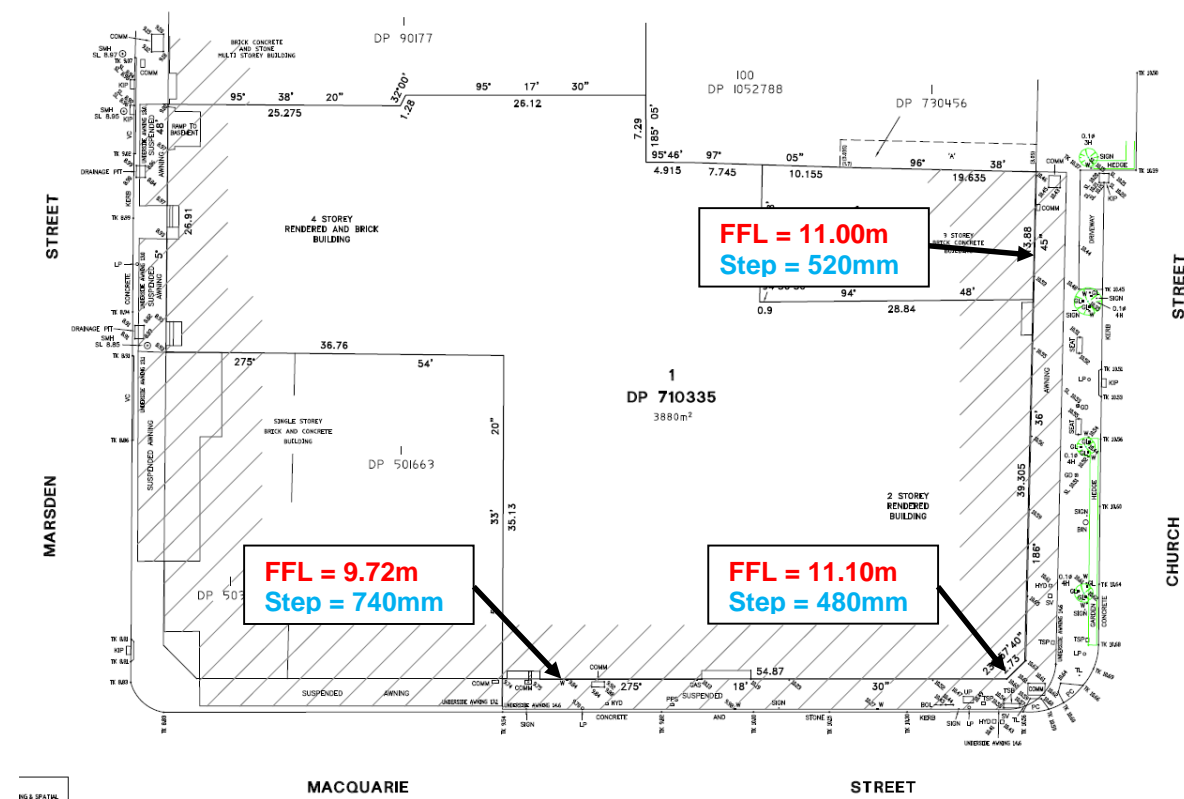


Figure 3.7-1 Minimum Finished Floor Levels

Note: Assessment only undertaken along the Murray Brothers building façade.

There is grounds for requesting a relaxation of PCC's required FFL's for the proposed development, as:

1. It would allow the existing Murray Brothers façade to be retained.
2. There is clear evidence that the cost of flood damages can be readily managed by the property owners. There are dozens of long-standing retail businesses already operating with FFL's at the same level as that proposed by the development. These businesses can readily cover the cost of any flood damages as evidenced by the ongoing retail presence in the area over a considerable period of time.
3. The proposed development could still provide significant improvement over the existing scenario. When evaluating such relaxations of DCP prescriptive controls, two factors are generally taken into account: the risk to property damage and the risk to life. To that end, we note:

- a. In terms of risk of property damage, the proposed development would utilise flood compatible materials as required under PCC's DCP.
- b. Additional flood-proofing could be added to the designs (via specific window/glazing treatments and entry doors to retail premises).
- c. In terms of risk to life, the proposed development will provide access to higher ground above the level of the PMF. Any occupants of the building can safely utilise the buildings facilities until such time as the flood recedes.

4 CONCLUSIONS AND RECOMMENDATIONS

Based on the information contained within this report, it can be concluded that:

- The subject site is located at the north western corner of the intersection of Church Street and Macquarie Street in the Parramatta CBD and is approximately 250m north of Parramatta Railway Station. The site address is 197 and 207 Church Street and 89 Marsden Street, Parramatta.
- The site has three street frontages (Church, Macquarie and Marsden Streets) and a site area of approximately 4,300 m². The site is fully developed with mixed use businesses.
- Holdmark Property Group is proposing to demolish the existing structures, and construct a mixed use development with basement car parking.
- The subject site is located on flood prone land in the Upper Parramatta River catchment, and within the scope of the Upper Parramatta River Flood Study. The subject site is classified in the Flood Study as wholly within a Low Flood Risk Precinct.
- The proposed alterations and additions is considered suitable under the NSW Planning Minister's Section 177 Directions.
- The proposed development meets all the requirements of the Parramatta LEP Clause 6.3.
- The proposed development is suitable when taking into account PCC's DCP objectives, design principles and prescriptive controls. The proposed development meets, and in most cases exceeds all the requirements of the DCP.
- In order for the heritage façade of the existing Murray Brothers building to remain, some commercial floor space will require its levels to be set lower than that recommended by the DCP for new development (but no lower than the existing commercial floor space on the site). Justification for this departure from the DCP is provided in this report.

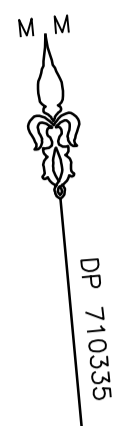
Based on the information contained within this report, it is recommended this report is included in the submission to PCC for the proposed development.

Prepared by:



Anthony Barthelmess
Dip. Eng, MEng, MIEAust.
Managing Director.

APPENDIX A – SITE SURVEY



MARSDEN STREET

MARSDEN STREET

CHURCH STREET

CHURCH STREET

MACQUARIE STREET

MACQUARIE STREET

- LEGEND**
- BIN GARBAGE BIN
 - BOL BOLLARD
 - COMM COMMUNICATION PIT
 - GAS GAS VALVE
 - GD GRATED DRAIN
 - HYD HYDRANT
 - KIP KERB INLET PIT
 - LP LIGHT POLE
 - PC PRAM CROSSING
 - PPS PARKING PAY STATION
 - SL SURFACE LEVEL
 - SMH SEWER MANHOLE
 - SV STOP VALVE
 - TK TOP OF KERB
 - TL TRAFFIC SIGNAL LIGHT
 - TSB TRAFFIC SIGNAL BOX
 - TSP TRAFFIC SIGNAL PIT
 - UP UNIDENTIFIED PIT
 - VC VEHICULAR CROSSING
 - W WATER VALVE
 - GL LIGHT IN GROUND

NOTES:

THIS DETAIL SURVEY IS NOT A "SURVEY" AS DEFINED BY THE SURVEYING & SPATIAL INFORMATION ACT 2002. IF ANY CONSTRUCTION IS PLANNED IT WOULD BE ADVISABLE TO CARRY OUT FURTHER SURVEY WORK TO DETERMINE THE BOUNDARY DIMENSIONS.

DIAMETER, HEIGHT & SPREAD OF TREES ARE APPROXIMATE ONLY.

NO BOUNDARY SURVEY HAS BEEN CARRIED OUT.

DETAIL ON THIS PLAN HAS BEEN LOCATED FOR PLOTTING PURPOSES ONLY.

SERVICES ETC. UNLESS NOTED HAVE NOT BEEN LOCATED.

SERVICES SHOWN ARE INDICATIVE ONLY. OTHER SERVICES MAY EXIST WHICH ARE NOT SHOWN. THEREFORE, FIELD CONFIRMATION OF THE EXACT POSITION SHOULD BE MADE PRIOR TO COMMENCEMENT OF ANY EXCAVATION.

ANY POINT OR FEATURE CRITICAL TO THE PREPARATION OF PLANS AND/OR CONSTRUCTION SHOULD BE ACCURATELY LOCATED PRIOR TO COMPLETION OF THOSE PLANS AND/OR COMMENCEMENT OF CONSTRUCTION.

DIMENSIONS AND BEARINGS FROM DP 710335.

AREA CALCULATED FROM THOSE BEARINGS AND DIMENSIONS.

ORIGIN OF LEVELS: SSM 45936 RL 10.679 (AHD) CLASS LB ORDER L2 11/3/2011

USE STATED DIMENSIONS. DO NOT SCALE.

NO COVENANTS AND/OR RESTRICTIONS HAVE BEEN INVESTIGATED BY H RAMSAY & CO.

	AREA
1 DP 710335	3880m ²
1 DP 233150	427.4m ²
TOTAL	4307m²

'A' RIGHT OF WAY APPURTENANT TO LOT 1 DP 233150 VIDE DP 233150

CAUTION

BOUNDARY DIMENSIONS HAVE BEEN COMPILED FROM PLAN INFORMATION OBTAINED FROM LPMA. ADJOINING BUILDINGS MAY ENCROACH UPON THE SUBJECT LAND.

IF ANY POINT NEAR A BOUNDARY IS CRITICAL TO DESIGN THIS BOUNDARY SHOULD BE SURVEYED PRIOR TO COMPLETION OF THOSE PLANS.

▲ SSM 45936
RL 10.679 (AHD)

THIS PLAN & THE INFORMATION CONTAINED HEREON REMAINS THE PROPERTY OF H RAMSAY & COMPANY AND MUST NOT BE COPIED IN WHOLE OR PART WITHOUT THE WRITTEN CONSENT OF H RAMSAY & COMPANY & IS NOT TO BE USED FOR ANY OTHER PURPOSE THAN FOR THAT WHICH IT HAS BEEN PREPARED. THIS PLAN HAS BEEN PREPARED FOR THE SOLE USE OF THE INSTRUCTING PARTY &/OR THEIR NOMINATED CLIENT.

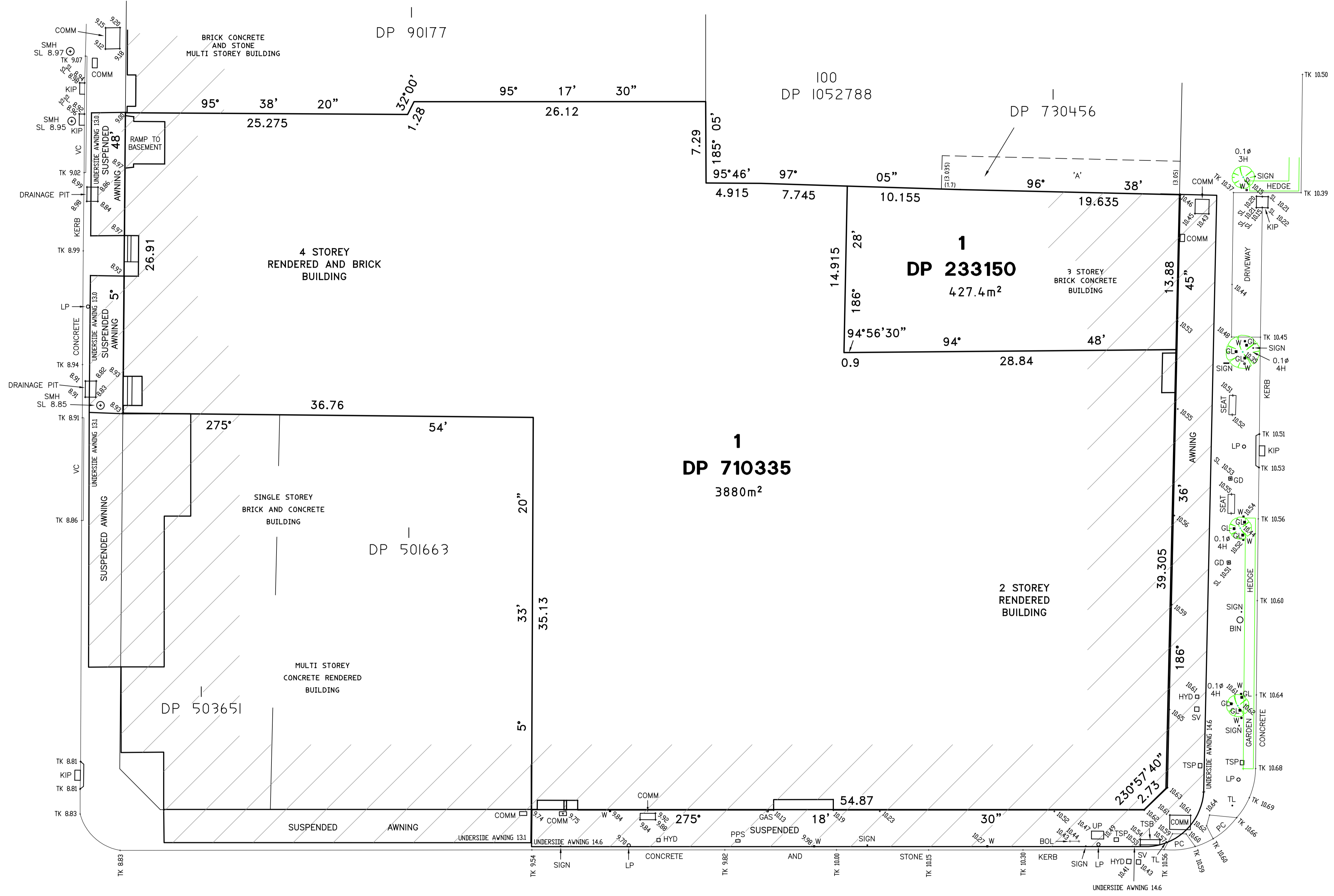
AMENDMENTS	
DATE	DESCRIPTION

L.G.A. PARRAMATTA	INSTRUCTED BY: JACK TAYLOR ARCHITECTS PTY LIMITED
LOCALITY: PARRAMATTA	RE: HOLDMARK PROPERTIES PTY LIMITED


H RAMSAY & CO.
 SURVEYORS EST. 1962
 H Ramsay & Company Pty Limited ACN 069 967 817
 "CARLINGFORD CENTRAL" SUITE 15, 241-245 PENNANT HILLS RD, CARLINGFORD NSW 2118
 P.O. BOX 9082 HARRIS PARK NSW 2150 PH: (02) 9635 5840 FAX: (02) 9806 0027
 EMAIL: surveyor@hramsays.com.au www.hramsays.com.au

PLAN SHOWING DETAIL AND LEVELS
OVER LOT 1 DP 710335
No 89 MARSDEN STREET, PARRAMATTA

SCALE	1:200@A1
DATUM	AHD
SURVEY	CC NM PA
DRAWN	PVB
DATE	15/3/2011
OUR REF	7368/09
SHEET 1 OF 1 SHEETS	



APPENDIX B – FLOOD CERTIFICATE



Flood Enquiry Application 2015 / 2016

Property Details

Address	House No: 197	<i>This form applies for up to three adjoining sites relating to the same development. A separate Flood Enquiry form and fee will be required for more than 3 or separate lots</i>	
	Street: CHURCH STREET		
	Suburb: PARRAMATTA	Postcode:	
	Are you the owner of this property?		<input type="checkbox"/> Yes

Applicant Details

Name	Family Name (or Company Name) HOLDMARK DEVELOPMENT		
	Given Name: C/- DFP PLANNING P/L.		
	OR Company Contact Person: ELLEN ROBERTSHAW (DFP)		
Contact Details	Address: PO BOX 230 PENNANT HILLS 1715		
	Home Phone: 99806933	Office Phone:	
	Mobile:	Fax: 99806912	
	Email: erobertshaw@dfpplanning.com.au	Date: 22/01/16	

How would you like this information to be provided to you (Please tick)

- Collection Posted Emailed Faxed

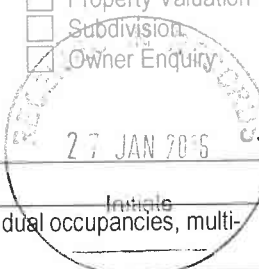
Reason for Enquiry (Please tick)

- Proposed re-development of property Alterations and additions to existing dwelling
 Purchase of property Property Valuation
 Flood drainage investigation Subdivision
 Change of use within an existing development Owner Enquiry
 Other (Please specify)



Property Type (Please tick)

Residential (single residential dwelling and/or granny flat)	<input type="checkbox"/> \$188.50
Development Duplex (includes other residential such as dual occupancies, multi-unit housing and residential flat building)	<input type="checkbox"/> \$257.70
Commercial (including industrial and mixed use)	<input checked="" type="checkbox"/> \$452.50



** GST not applicable from 1 July 2013**

Disclaimer: Flood levels and flood extent lines are based on current information held by Council. Council does not accept responsibility for the accuracy of this information. Any pipe sizes and location of pits and pipe lines should be confirmed by site investigation.

The flood levels shown on the back of this form are only an approximate guide and have been derived using the current computer simulated model. The information provided in this document is presented in good faith to assist the public in understanding Council's drainage requirements that apply within the Parramatta Local Government Area. It is the responsibility of each individual using this information to undertake their own checks and confirm this information prior to its use.

Parramatta City Council, its agents and employees are not liable (whether by reason of negligence, lack of care or otherwise) to any person for any damage or loss whatsoever which has occurred or may occur in relation to that person taking or not taking (as the case may be) action in respect of any representation, statement, or advice referred to above.

Customer Acknowledgement: I hereby acknowledge that I have read and understood the above Disclaimer:

Signature		Date	22/01/16
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Office Use Only - RC 682

Amount	Receipt No.	Date	Accepted By:
\$ 452.50	4578729	25/1/16	

Refer to back of this form for level information issued

Catchment Management Section:
316 Victoria Road, Rydalmere, NSW 2116

Email:
council@parracity.nsw.gov.au

Flood Enquiry Information Issued (To be completed by Council Officer)

Mainstream Flooding

Is this property affected by mainstream flooding? 197 Church St, Parramatta		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Flood Levels	Closest Cross Sections: <i>(Please refer to Flood Study):</i> Refer to Flood Map	
<input checked="" type="checkbox"/> 1:20 year ARI	m AHD	Comments: See Notes on Flood / Hazard Map See Flood Levels on Flood Map
<input checked="" type="checkbox"/> 1:100 Year ARI	m AHD	
<input checked="" type="checkbox"/> PMF	m AHD	
<input checked="" type="checkbox"/> Refer to flood maps provided for detailed flood levels.		
The above flood level information is obtained from the following flood study report::		
<ol style="list-style-type: none"> 1. Parramatta Drainage, 1990 (Sinclair Knight & Partners) 2. Upper Parramatta River Flood Study – Draft 8 (UPRCT) 		

Note: Flood inundation can be verified by detail survey to AHD undertaken by a Registered Surveyor.

Local Flooding

Is the property located within a Hatched Grey Area? <i>Properties located within a Hatched Grey Area are subjected to flooding from the local catchment.</i>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Is the property located within a Grey Area? <i>Properties located within a Grey Area are subjected to additional site drainage controls to manage flooding in the local catchment.</i>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Is the property likely to be affected by overland stormwater run-off from the local catchment? Note: <i>No site inspection conducted for this assessment. Based solely on the information supplied for this flood enquiry application.</i>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Note: <i>You are required to contact Council's Development Service Engineer for any details and requirements relating to development that is affected by local flooding.</i>	

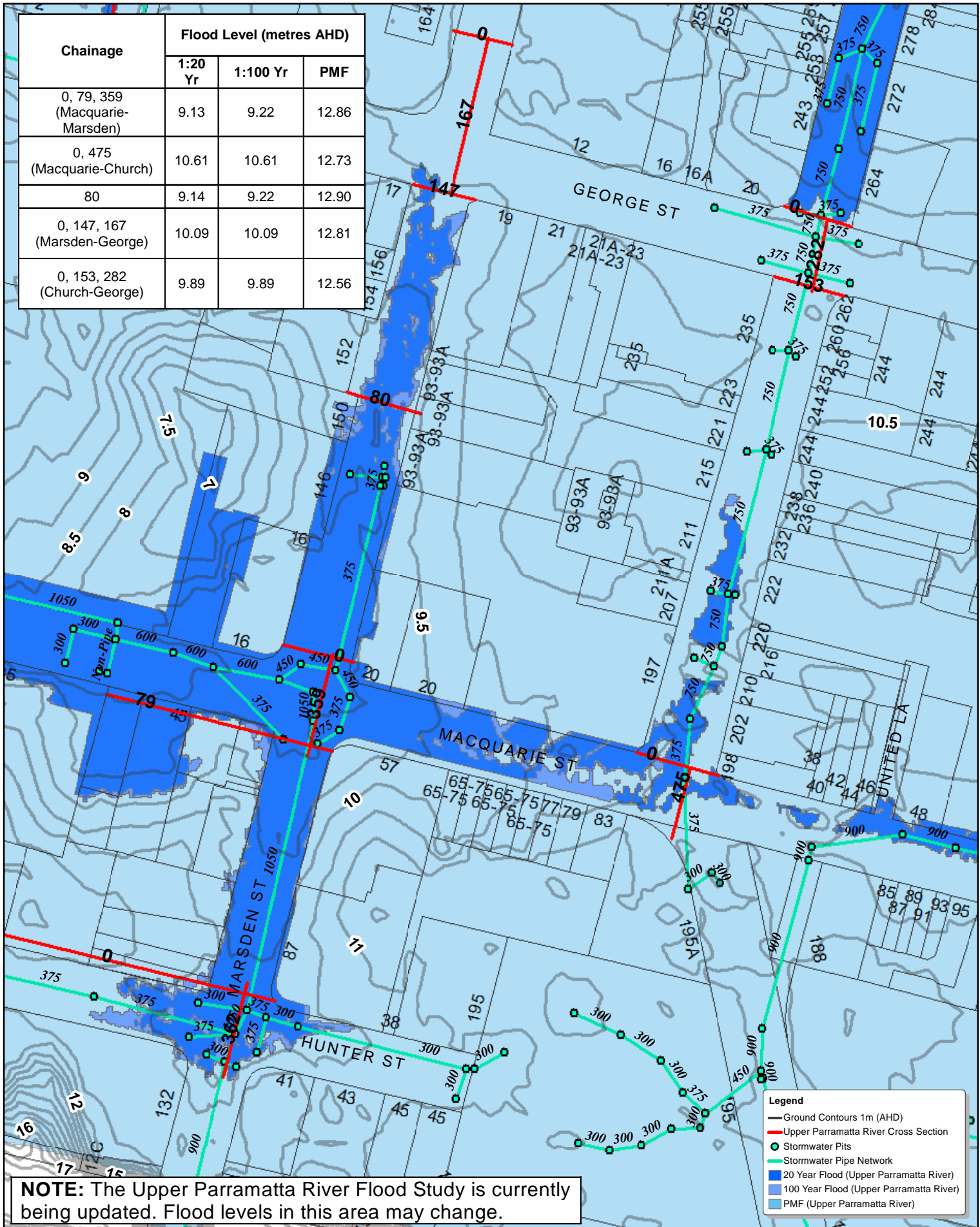
Additional Recommended Actions

<input checked="" type="checkbox"/>	The Applicant needs to discuss the proposal to re-develop this site with Council's Town Planner and Development Services Engineer.
<input checked="" type="checkbox"/>	The Applicant needs to contact Council's Town Planner and organise a pre-lodgement meeting to discuss any proposal to redevelop this property.
<input checked="" type="checkbox"/>	The Applicant needs to refer to Council's Local Floodplain Risk Management policy for details relating to developing a land affected by flooding.

Definitions: *(As per NSW Floodplain Development Manual dated April 2005)*

1. **AHD** – a common national surface level datum approximately corresponding to mean sea level.
2. **ARI** – the long term average number of years between the occurrences of a flood as big as or larger than, the selected event.
3. **PMF** – is the largest flood that could conceivably occur at a particular location, usually estimated from probable maximum precipitation.
4. **AEP** – Annual Exceedance Probability is the chance of a flood of a given or larger size occurring in any one year, usually expressed as a percentage.

Chainage	Flood Level (metres AHD)		
	1:20 Yr	1:100 Yr	PMF
0, 79, 359 (Macquarie-Marsden)	9.13	9.22	12.86
0, 475 (Macquarie-Church)	10.61	10.61	12.73
80	9.14	9.22	12.90
0, 147, 167 (Marsden-George)	10.09	10.09	12.81
0, 153, 282 (Church-George)	9.89	9.89	12.56



NOTE: The Upper Parramatta River Flood Study is currently being updated. Flood levels in this area may change.

- Legend**
- Ground Contours 1m (AHD)
 - Upper Parramatta River Cross Section
 - Stormwater Pits
 - Stormwater Pipe Network
 - 20 Year Flood (Upper Parramatta River)
 - 100 Year Flood (Upper Parramatta River)
 - PMF (Upper Parramatta River)



Parramatta City Council Flood Map

N
1:1,500

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9/02/2016

NOTE: The Upper Parramatta River Flood Study is currently being updated. Hydraulic hazard extents in this area may change.



Legend

- Upper Parramatta River Cross Section
- Stormwater Pits
- Stormwater Pipe Network
- High Hazard (Upper Parramatta River)
- Medium Hazard (Upper Parramatta River)
- Low Hazard (Upper Parramatta River)

Parramatta City Council Flood Hazard Map

N
1:1,500



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