

67-75 LORDS ROAD LEICHHARDT

PLANNING PROPOSAL

FLOOD RISK IMPACT ASSESSMENT

Mark Tooker

Director

December 2023

1. INTRODUCTION

At its meeting on 17 August 2023, the Sydney Eastern City Planning Panel determined that the Planning Proposal for the Lords Road site had both strategic and site specific merit, but recommended that before submitting the proposal for a Gateway determination, the Planning Proposal must be revised to address the following:

- *Prepare a flood study consistent with the Flood Risk Management Guideline, 30 June 2023, and address Ministerial Direction 4.1 Flooding.*

At the request of the Inner West Council, initially we assessed the flood behaviour on the site using the IWC's existing SOBEK flood modelling and site characteristics and concluded that any flood impacts could be resolved by providing compensatory flood storage within the development without the need for flood modelling prior to Gateway.

Since the Panel's previous meeting and recommendation, the Inner West Council has prepared a Flood Impact Risk Assessment prepared for parts of the PRCUTS area, including the Taverners Hill Precinct which includes our Lords Rd site. That assessment (dated September 2023) of the development of numerous residential towers within the flood planning area concludes that there are no significant adverse flood level impacts on adjacent properties and that the development conforms to the requirements of the Flood Risk Management Manual 2023 and the Ministerial Directions Section 4.1 Flooding.

A pre and post development flood study has been undertaken by Water Technology (WT) using a new TUFLOW flood model. The flood study assumes that there will be no built form on 75 Lords Road and that it has been prepared in accordance with the reference scheme. We note that the reference scheme incorporates the outcomes of the flood study as recommended by the Panel.

The Water Technology's Flood Impact and Risk Assessment Report dated December 2023 addresses all the requirements (including all the same subject headings and data requirements) of the NSW government Flood impact and risk assessment – Flood risk management guideline LU01 June 2023 including the requirements of Appendix A Tables 5 and 6.

This report provides an overall summary of the WT results as well as addressing how the development manages the flood risk and complies with the Ministerial Directions Section 4.1 Flooding.

2. BACKGROUND

Tooker and Associates prepared a flood impact report which was submitted with the Planning Proposal in 2022. This was a detailed report that was based on Council's flood data from its SOBEK model. Based on the flood behaviour, it was evident that with providing compensatory storage, within the basement of the proposed development, there would be no significant adverse flooding effect on any surrounding land.

We assessed the flood behaviour on the site using the IWC's existing flood modelling and site characteristics and concluded that any flooding effect on any surrounding land could be resolved by providing compensatory flood storage within the development without the need for flood modelling

prior to Gateway. The indicative plans prepared by SJB Urban Design included the required compensatory flood volume to be accommodated in the carpark basement.

The report concluded that the Proposal complied with all the relevant policies for residential development on the floodplain and including the NSW government Flood Risk Management Manual 2023, NSW Ministerial Directions Section 4.1 Flooding, 2022, Flood Risk Management Guideline LU01 as well as provision related to flooding in the Leichhardt LEP 2013 and DCP 2013 and Leichhardt Floodplain Risk Management Study and Plan 2017.

Council's flood engineer Joe Bertacco advised that modelling was required to demonstrate that there is no impact on the PMF level that is used for evacuation, that the size of the proposed compensatory storage is adequate to ensure no adverse flood impact on the 100 year and PMF flood level, and that there are not likely to be adverse flooding impacts on the surrounding area.

3. THE SITE

The site is located in Lords Road, Leichhardt which is within the Inner West LGA.

The site consists of two lots being Lot 1 DP 940543 and Lot 1 DP 550608 with a total area of approximately 10,617m². The western boundary of the site is adjacent to the former freight line embankment which separates the area from the Hawthorne Canal which is located on the western side of this embankment. The area along the site western boundary has existing ground levels varying from RL 2.44m AHD at the drainage inlet pit near the southern end of this boundary rising to RL 4m AHD at the northern end. There is an earth embankment along the northern boundary which has an average crest level at RL 5.2m AHD at the western end. These ground levels are above the 100yr ARI flood level on the site. The drainage inlet pit drains to a drainage pipe running under the embankment to the Canal.

The eastern part of the site has significantly higher existing ground levels varying from RL 5m AHD to RL 8.5m AHD. The majority of this area is above RL 6.9m AHD which is the PMF flood level on the site and as such, this area is flood free.

Lords Road (along the southern boundary) and the local catchment drains to the pedestrian access tunnel under the former freight rail embankment and to a point adjacent to the south western corner of the subject site. There is a stormwater pipe drainage system in Lords Road which is piped under the embankment to the Canal. Overland flows in excess of the Lords Road pipe capacity would overtop the kerb and drain to the canal via a pedestrian tunnel provided through the embankment. This 3m wide by 3m high tunnel is located adjacent to the south western corner of the site.

4. THE PROPOSAL

The planning proposal would facilitate the redevelopment of the site for a mixed use residential development located on a basement building platform at the Flood Planning Level. This level is 0.5m above the 100yr ARI flood level on the site. A minimum of 5% of residential floor space would be provided as affordable housing in perpetuity through a Community Housing Provider.

The 75 Lords Road lot along the western boundary is proposed as public open space consistent with the PRCUTS.

It is important to note that the potential flood risks have been ameliorated in the proposed development by providing substantive setbacks from boundaries and between the buildings to accommodate overland flows on the site and also due to the provision of compensatory flood storage, a flood refuge onsite and evacuation on foot or vehicle to flood free land above the PMF flood level to enable effective management of the flood risk to all occupants in the development.

5. FLOOD MODELLING

To address the Panel's recommendation of August 2023 based on the Council's request for modelling pre and post 100yr ARI and PMF flood levels, a new flood model has been constructed from scratch using the TUFLOW model. TUFLOW, is a state of the art, industry standard flood modelling program recognised as giving consistent results and capable of modelling the most up to date rainfall data and the requirements of the Flood Risk Management Manual 2023.

Water Technology (water, coastal and environmental consultants) are flood experts, who are among the world's best, and work for government to solve local water and flooding issues. They have been employed to prepare a TUFLOW flood model to assess the Council's requirement for pre and post flood behaviour on the site. This model will adopt a more realistic flood behaviour for the given site characteristics.

This new model has been built and run in accordance with the Flood Risk Management Manual 2023 to ensure that it is consistent with the State government's latest flooding policies and guidelines. It has been applied to assess the Council's requirements for pre and post-flood behaviour on the site. Significantly, this model portrays a more realistic flood behaviour based on the site's characteristics compared to the SOBEC model prepared by the Council. This relates to the site topography, flood control structures, and the drainage layout.

This model is industry standard and proven to give good results and criteria are all in accordance with the Flood Manual 2023 and the most up to date ARR rainfall data. In particular, the model includes:

- a. pipe drainage on site which has been surveyed along with the latest industry standard LIDAR ground surface levels;
- b. it incorporates the latest rainfall data; and
- c. Importantly, the post development layout incorporates wide overland flow paths around the buildings, so that no ponding and artificially increased flood levels would not occur as with existing conditions with continuous building structures across the site.

6. FLOOD MODELLING RESULTS

Water Technology have modelled the pre and post flood conditions. These results indicate that the proposed development would have minor adverse impacts on flooding outside the site but with compensatory storage, there are no significant adverse flood level impacts outside the site.

The flood level afflux plots at Figures 1 and 2 show the post development flood level afflux for the 100yr ARI floods with and without compensatory storage. Figures 3 and 4 show the pre and post development flood level afflux for the PMF flood. It is demonstrated in Figures 2 and 4 that there is no significant flood level afflux in the 100yr ARI or PMF floods in the post development case outside

the subject site. In fact, there are improvements to the PMF flood levels outside the site. The volume of compensatory storage required in the development would be 1200m³ located in the basement in the northern western corner as shown on the development plans for the reference scheme (refer Figure 5). The results of the flood modelling of all the floods required in the LU01 guideline (Table 6) are included in the WT report.

This confirms that the flooding on the site is flood storage and flood fringe. It also confirms that there would be no change in the flood hazard with development of the site.

A full description of the flood modelling results is contained in the WT report.

7. PLANNING AND POLICY FRAMEWORK – FLOOD RISK MANAGEMENT

The WT flood risk assessment has been undertaken in accordance with all of the new NSW government flood guidelines contained within the Flood Risk Management Manual 2023, Ministerial directions Section 4.1 (2022), Draft Shelter in Place guidelines, Flood Inquiry Findings, Considering flooding in Landuse Planning (2021) and the Inner West LEP 2022. This section describes in more detail how the development complies with the NSW government flood risk guidelines.

7.1 *NSW Government Flood Policy*

The *NSW Government's Flood Prone Land Policy 2005* and *Flood Risk Management Manual June 2023* support the wise and rational development of flood prone land. The policy acknowledges that flood prone land is a valuable resource that should not be sterilized by unnecessarily precluding its development and that development should be treated on its merits rather than through the application of rigid and prescriptive criteria.

The aim of the Policy and the Manual is to appropriately manage the risk to personal safety and damages from floods. The way in which the proposed development conforms to these aims and objectives is discussed below.

7.2 *Flood Risk Management Manual June 2023*

The primary objective of this policy is to reduce the impacts of flooding and flood liability on communities and individual owners and occupiers and to reduce private and public losses from floods.

The Manual deals with the responsibilities of state and local governments as well as developers as setout in ten principles of flood risk management. The principles are listed below and text is provided in the relevant principles as to how the proposed development conforms to these principles.

Principle 1 – Establish sustainable governance arrangements.

The State has Floodplain Risk Management (FRM) and Emergency Management (EM) systems in place which will be improved by the implementation of the requirements in the Manual. The proposed development complies with the LGA and State FRM and EM flood requirements.

Principle 2 – Think and plan strategically.

The FRM information and controls in place in the LGA have been improved by our site-specific flood modelling so that we well understand the flood behaviour and risks on the site.

Principle 3 – Be consultative.

The Inner West Council has consulted widely with the community in the FRM processes and also in the local area as a result of this and many other Planning Proposals and DAs for the Leichhardt area.

Principle 4 – Make flood information available.

The Inner West Council has provided FRM information for the local and wider areas affected by flooding in the Leichhardt area and the developer has provided to Council, FRM specific to the site to demonstrate that the proposed development conforms with the Manual.

Principle 5 – Understand flood behaviour and constraints.

Flood modelling has been undertaken specifically for the subject site by Water Technology so that there is a detailed understanding of the flood behaviour and constraints for the full range of floods from the 20-year ARI to the PMF flood. The building platform proposed provides an area of low flood hazard for the development. The building platform will be at RL 4.6m AHD which is the flood planning level (FPL) for the site. All the proposed habitable floors in the proposed development are at or above the FPL.

Principle 6 – Understand flood risk and how it may change.

Extensive flood modelling was undertaken by WT for the pre and post development conditions to show that the proposed development would not have a significant adverse impact on the flood behaviour on adjacent sites. There will also be sufficient infrastructure and flood evacuation management to minimize risk to life and flood damages. This is a significant improvement compared to the existing conditions which has inundation and flood damages for floods more regular than the 100yr ARI flood and has no flood evacuation measures.

Principle 7 – Consider variability and uncertainty.

Uncertainties in flood behaviour have been minimized by the use of very experienced flood practitioners Water Technology who developed a fit for purpose flood model which was calibrated and validated considering historical flood information.

A freeboard of 0.5m above the 100yr ARI flood level has been adopted to provide a Flood Planning Level (FPL) for the minimum habitable floor levels in the development as per the Flood Development Manual 2023. This FPL is the 100yr ARI flood plus 0.5m freeboard which is Council's minimum level for habitable floors. The FPL for the proposed development is RL 4.6m AHD. The proposed development has a minimum habitable floor level at RL 4.6m AHD. The majority of residential floor levels will be above the PMF level and therefore will be flood free. These minimum floor levels are more than acceptable compared to that required by the state and local governments.

This freeboard of 0.5m adopted for the FPL and lowest habitable floor level will readily accommodate flood level increases due to the worst case climate change (RCP 8.5) and any uncertainties in flood behaviour (refer to the WT report).

Principle 8 – Maintain natural flood functions.

The proposed development maintains the natural flood functions on the site by providing adequate building setbacks from boundaries and between the buildings which allows for improved overland flood flows on the site. The development will also remove areas which presently trap flood waters and cause unnecessary trapped flooding areas. Given that there are no significant changes to flood levels in the pre and post conditions, the development therefore does not change the flood hazards or functions on the site or outside the site. On the site, the majority flood function will remain to be flood storage and flood fringe.

Principle 9 – Manage flood risk effectively.

The proposed development has adopted the recommended minimum habitable floor level at the FPL and the majority of the apartments are above the PMF level and are flood free. The driveway entry to the basement carpark is above the PMF flood level and as such, is protected from all floods. Both pedestrian and vehicular access to and from the site is available to Lords Rd above the PMF level. The building platform below the FPL will be constructed of flood compatible materials which will minimize the flood damages. These measures will allow very effective management of the flood risks.

A Flood Emergency Flood Plan (FERP) and a Flood Safe Plan will be prepared for the DA submission. The FERP will be implemented by the retail and strata managers as flood wardens in a similar fashion to Fire Risk Management. This Plan will minimize the risks to people's lives in all floods.

The FERP has two main flood evacuation strategies which consists of shelter in place and evacuation on foot and in vehicles. The primary evacuation will be shelter in place but if for some reason evacuation is needed, then a pedestrian and vehicular evacuation will be implemented. Most of the Leichhardt area is subject to shelter in place requirements because the flood response times are fast with limited time to engage an evacuation to a regional flood refuge along roads already severely flooded.

The NSW Government Draft Shelter in Place guidelines recommend shelter in place emergency responses in floods for areas subject to flash flooding for which there is insufficient time to evacuate a site to a regional flood refuge and the duration of flooding blocking road access is less than 6 hours. The duration of flooding on the site will be less than 2.5 hours. These strategies have been accepted by Council in the approval of developments in Leichhardt. The FERP requires regular review of the FERP and training of flood wardens and staff in all aspects of flood risk management. This will be managed by the retail and strata managers.

A flood refuge area is provided in the development above the PMF flood level (flood free) with an area of 467m² with access to amenities and water. This would readily cater for the limited retail and residential areas which would have to evacuate in a PMF flood.

There would be automatic alarms, both visual and audio, which would be activated when flood levels reached RL 3.8m AHD on site. Flood wardens would activate the evacuation of workers, shoppers and

residents on the FPL floor levels at RL 4.6m AHD to the flood refuge. The majority of the apartments would not need to be evacuated because they would have flood free accommodation.

The site has ground and building levels above the PMF flood level in the south eastern corner of the site. This would provide flood free access to Lords Rd in all floods. This part of the site would be available on foot to all people in the development through the buildings and under cover if evacuation on foot was required. Vehicles could also access Lords Rd via the driveway which provides access to Lords Rd above the PMF flood level.

The FERP would be developed to cater for the flood evacuation of all people. It would provide effective management of the flood risk to people's lives for all floods. This would include shelter in place for the majority of residents, and relocation of a small number of residents and retail persons to the flood refuge onsite. If a medical condition arose requiring evacuation, this would also be available by car or on foot.

The proposed development will be constructed of flood compatible materials below the FPL. This will minimise the risk to flood damages on the site.

Principle 10 – Continually improve management of flood risk.

The FERP will be regularly upgraded as required by the retail and strata managers as result of lessons learnt in floods or changes to flood regulations. The FERP requires regular training and can be upgraded if this training identifies better ways of doing the flood evacuations or when new technologies are available to assist with evacuation. Flood warning systems may improve over time which provide more relevant information to make flood evacuations more efficient and these improvements could be incorporated in the FERP as required.

7.3 Ministerial Directions under Section 9.1 EP&A Act

Section 4.1 *Flooding* of the Ministerial Directions under Section 9.1 EP&A Act were updated on 20 February 2023.

All the habitable floor levels in the development are located at or above the Flood Planning Level (FPL) which is 500mm above the 100 yr ARI flood level. The FPL is at RL 4.6m AHD and forms the building platform for the ground floor retail and residential apartments. The majority of the apartments are above the Probable Maximum Flood (PMF) level and as such, are flood free.

Justification is given below which ensures that the proposed development conforms to the State and Council flood policies such that the risks to personal safety and flood damages are appropriately managed and even managed beyond the requirements of these policies.

The objectives of the planning of flood prone land are outlined in the Section 4.1 Flooding Clauses (1) to (5). The development would conform to these clauses as discussed below.

Direction 4.1 Requirements	Outcome
(1) A planning proposal must include provisions that give effect to and are consistent with: (a) the NSW Flood Prone Land Policy, (b) the principles of the Floodplain Development Manual 2005, (c) the Considering flooding in land use planning guideline 2021, and (d) any adopted flood study and/or floodplain risk management plan prepared in accordance with the principles of the Floodplain Development Manual 2005 and adopted by the relevant council.	The proposed development does conform to these documents/policies in that it minimizes the potential flood risk to personal safety and property damages. The habitable floor areas are located at or above the Flood Planning Level (FPL) and within the low flood risk area as per the Council DCP which is compatible with retail and residential development. The majority of the apartments are at flood free levels. It also complies with the Flood Risk Management Manual 2023.
(2) A planning proposal must not rezone land within the flood planning area from Recreation, Rural, Special Purpose or Conservation Zones to a Residential, Employment, Mixed Use, W4 Working Waterfront or Special Purpose Zones.	This planning proposal conforms to this requirement as the existing site is zoned for industrial use.
(3) A planning proposal must not contain provisions that apply to the flood planning area which: (a) permit development in floodway areas, (b) permit development that will result in significant flood impacts to other properties, (c) permit development for the purposes of residential accommodation in high hazard areas, (d) permit a significant increase in the development and/or dwelling density of that land, (e) permit development for the purpose of centre-based childcare facilities, hostels, boarding houses, group homes, hospitals, residential care facilities, respite day care centres and seniors housing in areas where the occupants of the development cannot effectively evacuate, (f) permit development to be carried out without development consent except for the purposes of exempt development or agriculture. Dams, drainage canals, levees, still require development consent, (g) are likely to result in a significantly increased requirement for government spending on emergency management services, flood mitigation and emergency response measures, which can include but are not limited to the provision of road infrastructure, flood mitigation infrastructure and utilities, or	The development would not be located within a Floodway. The building platform will be elevated up to the FPL and would be located in an area of Flood Storage and Flood Fringe. Flood modelling by Water Technology has demonstrated that the development would not have significant adverse flood impacts on other properties. The proposed development does not include habitable floors in a high flood hazard area. They will be located at or above the FPL with the majority of apartments located above the PMF flood level and would be flood free. This requirement relates to land below the FPL and hence is not relevant to the proposed development. The building platform is at or above the FPL and the majority

(h) permit hazardous industries or hazardous storage establishments where hazardous materials cannot be effectively contained during the occurrence of a flood event.	of the residential development is above the PMF level and flood free. The development does not propose any sensitive uses of the site for which occupants cannot effectively evacuate. The proposed development does not impose significant increases in government spending of flood management. The development has been specifically designed to manage the flood risk and will have a detailed Flood Emergency Response Plan to manage any flood evacuation required for the site. All the commercially habitable floor levels are above the FPL. No hazardous materials will be stored at lower levels.
(4) A planning proposal must not contain provisions that apply to areas between the flood planning area and probable maximum flood to which Special Flood Considerations apply 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 dwelling density of that land, (d) permit the development of centre-based childcare facilities, hostels, boarding houses, group homes, hospitals, residential care facilities, respite day care centres and seniors housing in areas where the occupants of the development cannot effectively evacuate, (e) are likely to affect the safe occupation of and efficient evacuation of the lot, or (f) are likely to result in a significantly increased requirement for government spending on emergency management services, and flood mitigation and emergency response measures, which can include but not limited to road infrastructure, flood mitigation infrastructure and utilities.	There are no uses within the proposed development that apply to the Special Flood Considerations.
(5) For the purposes of preparing a planning proposal, the flood planning area must be consistent with the principles of the Floodplain Development Manual 2005 or	This specific planning proposal relates to development which is above the Flood Planning Level (FPL) but

as otherwise determined by a Floodplain Risk Management Study or Plan adopted by the relevant council.	technically (in part) within the Flood Planning Area (FPA). This unusual situation arises because, while the planning proposal would enable development partly within the mapped FPA, the resulting residential development is in airspace which is entirely above the FPL. The anomaly arises due to the definition of <i>flood planning area</i> which is not 'switched off' above the FPL (ie it is not defined vertically), and which does not contemplate development occurring only above the FPL. The residential development enabled by this planning proposal would be located at or above the FPL. Hence the flood risk management (FRM) approach which is adopted and recommended by the NSW Flood Risk Management Manual (2023) would suggest that the particular circumstances of this planning proposal should inform the required assessment. It is noted that the NSW Flood Risk Management Manual 2023 has superseded the former NSW Floodplain Development Manual (2005). The proposed development therefore conforms with requirements for flooding in the Section 9.1 Ministerial Directions which commenced on 20 February 2023.
Consistency A planning proposal may be inconsistent with this direction only if the planning proposal authority can satisfy the Planning Secretary (or their nominee) that: (a) the planning proposal is in accordance with a floodplain risk management study or plan adopted by the relevant council in accordance with the principles and guidelines of the Floodplain Development Manual 2005, or (b) where there is no council adopted floodplain risk management study or plan, the planning proposal is	The proposal is consistent with this Ministerial direction and does not need to rely upon this consistency clause.

consistent with the flood study adopted by the council prepared in accordance with the principles of the Floodplain Development Manual 2005 or (c) the planning proposal is supported by a flood and risk impact assessment accepted by the relevant planning authority and is prepared in accordance with the principles of the Floodplain Development Manual 2005 and consistent with the relevant planning authorities' requirements, or (d) the provisions of the planning proposal that are inconsistent are of minor significance as determined by the relevant planning authority.	
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7.4 Flood Risk Management Guideline LU01

The site is located within the Leichhardt catchment and there has been extensive modelling of this catchment by the IWCouncil. Council is aware of the flood behaviour on the site through their studies. Council undertook a flood study of the catchment in 2010 and then updated the flood detail in the Leichhardt Flood Study in 2015 and the Floodplain Risk Management Plan (FRMP) in 2017. The IWC provided a flood certificate with details of the flood behaviour on the site in October 2018 which detailed the flood levels for the 1%AEP and PMF floods along with flood hazards. The 1%AEP flood is the flood standard to set floor levels to manage flood damages and the PMF is related to flood response to manage risk to life. The IWC noted in the FRMP that the site was subject to flash flooding and the flood response for sites in the catchment was to shelter in place. Council was also aware that the site flood categories were flood storage and flood fringe. The existing flood behaviour on the site is well documented.

The IWC wanted to model the proposed development to ensure there were no significant adverse flood impacts on adjacent properties for the flood standard (1%AEP) and the flood evacuation risk (PMF). We have demonstrated that our response all along has been appropriate in that compensatory flood storage in the development would overcome any adverse impacts on flood levels outside the site. As such, there is no change in the flood behaviour on the site other than to lose a small quantity of flood storage. Flood depths, hazards and risks will remain unchanged.

Uncertainties in flood behaviour due to the modelling or climate change can be accommodated in the 500mm freeboard added to the 1%AEP flood level to provide appropriate habitable floor levels at and above the Flood Planning Level (FPL). Most of the apartments will be located above the PMF level and there is a flood refuge area in the building with amenities and water for the small number of retail and residential floors at the FPL. The site ground level and basement driveway entrance will be above the PMF level at the south eastern corner of the site. If required, flood evacuation can occur by foot and vehicle from the site. So, the development can adequately address the risks to flood damage and risk to life.

A detailed flood impact and risk assessment has been undertaken by WT and reported in their report dated 22 December 2023. This report explicitly uses the same headings as required in Appendix A

Table 5 and has provided all the information required in Table 6 of this same guideline by the NSW government Flood impact and risk assessment – Flood risk management guideline LU01 June 2023.

This report addresses the flood related requirements of the Flood Risk Management Manual 2023 and the Ministerial directions related to flooding. The WT report has addressed all the flood issues required by the LU01 guideline Table 5 and provides the comprehensive data required in Table 6 of the same guideline. As such, we have addressed all the issues raised in the flood guidelines which have come from the Manual and the Ministerial Directions.

8. CONCLUSIONS

Pre and post development flood modelling was carried out by Water Technology in accordance with the Council's requirements and with consideration of flood risk management as detailed in the Flood Risk Management Manual 2023 and the Flood impact and risk assessment – Flood risk management guideline LU01 June 2023.

The results of the modelling also demonstrate that the proposal is consistent with the Ministerial Direction 4.1 – Flooding in all respects.

Overall, the current flood modelling demonstrates that the development on the site can proceed in accordance with the planning proposal with no significant adverse flood effects on neighbouring properties, with a requirement for only minimal compensatory flood storage.

FIGURES

FIGURE 1

LEGEND

Site boundary

Flood level afflux (m)

≤ -0.05

-0.05 - -0.04

-0.04 - -0.03

-0.03 - -0.02

-0.02 - -0.01

-0.01 - 0.01

0.01 - 0.02

0.02 - 0.03

0.03 - 0.04

0.04 - 0.05

0.05 - 0.10

0.10 - 0.20

> 0.20

Was Wet Now Dry

Was Dry Now Wet



Projection: GDA2020 / MGA Zone 56

Produced By: Water Technology Pty Ltd

Imagery Source: NSW Six Maps

0 10 20 30 40 50 m

67-75 Lords Road Leichhardt NSW
Preliminary 1% AEP Flood Impacts - Developed site
with no compensatory flood storage



FIGURE 2

LEGEND

Site boundary

Flood level afflux (m)

≤ -0.05

-0.05 - -0.04

-0.04 - -0.03

-0.03 - -0.02

-0.02 - -0.01

-0.01 - 0.01

0.01 - 0.02

0.02 - 0.03

0.03 - 0.04

0.04 - 0.05

0.05 - 0.10

0.10 - 0.20

> 0.20

Was Wet Now Dry

Was Dry Now Wet



Projection: GDA2020 / MGA Zone 56

Produced By: Water Technology Pty Ltd

Imagery Source: NSW Six Maps

0 10 20 30 40 50 m

67-75 Lords Road Leichhardt NSW
Preliminary 1% AEP Flood Impacts - Developed site
with compensatory flood storage



FIGURE 3

LEGEND

Site boundary

Flood level afflux (m)

≤ -0.05

-0.05 - -0.04

-0.04 - -0.03

-0.03 - -0.02

-0.02 - -0.01

-0.01 - 0.01

0.01 - 0.02

0.02 - 0.03

0.03 - 0.04

0.04 - 0.05

0.05 - 0.10

0.10 - 0.20

> 0.20

Was Wet Now Dry

Was Dry Now Wet



FIGURE 4

LEGEND

Site boundary

Flood level afflux (m)

≤ -0.05

-0.05 - -0.04

-0.04 - -0.03

-0.03 - -0.02

-0.02 - -0.01

-0.01 - 0.01

0.01 - 0.02

0.02 - 0.03

0.03 - 0.04

0.04 - 0.05

0.05 - 0.10

0.10 - 0.20

> 0.20

Was Wet Now Dry

Was Dry Now Wet

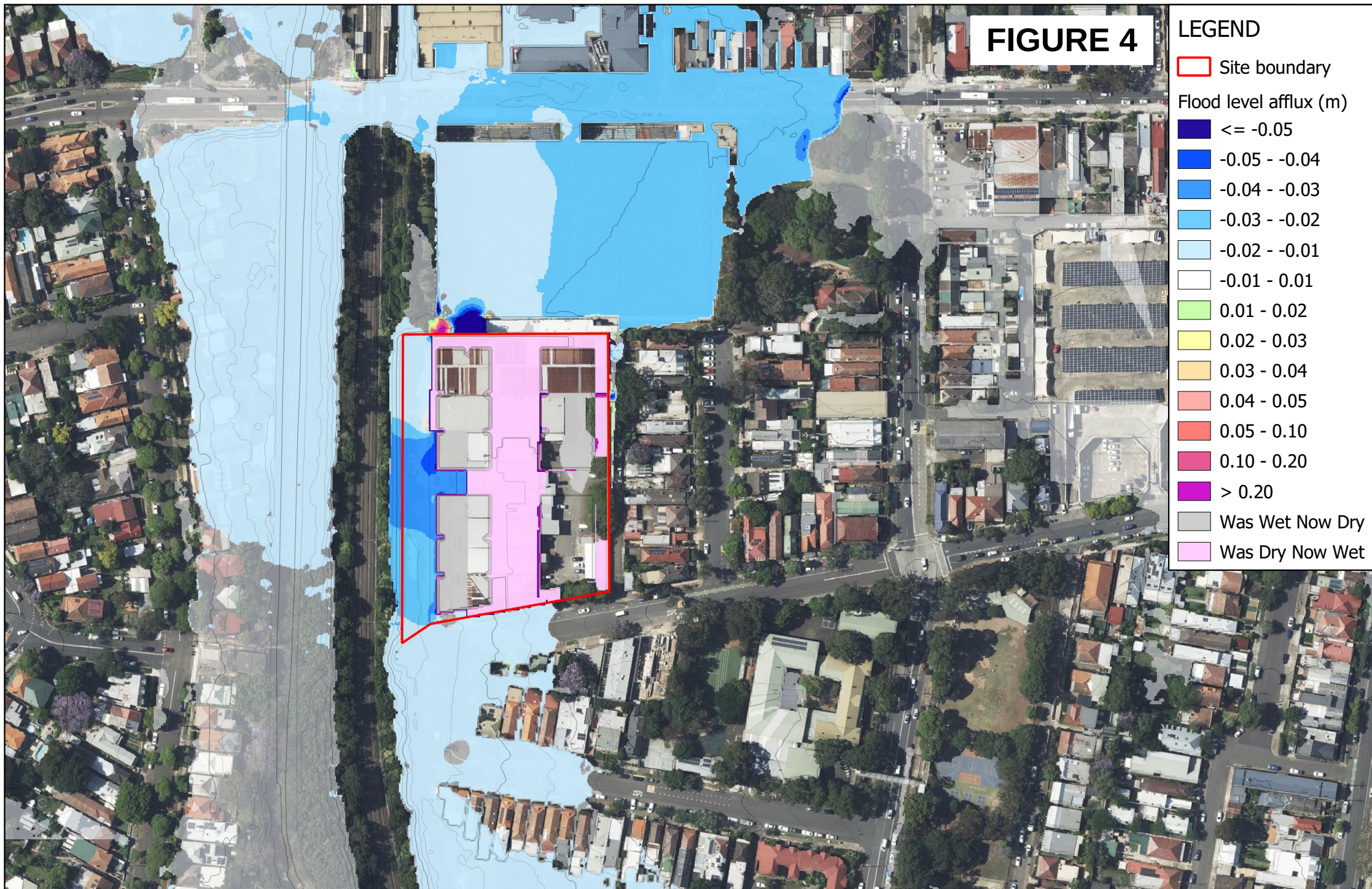


FIGURE 5

