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Flood Assessment

Prepared For:
TCON Construction Pty Ltd

For Proposed Development at

No. 400-404 Cabramatta Rd, 2-18 Orange Rd &
No. 6 Links Ave, Cabramatta

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1.0 AIM

The purpose of this report is to undertake a detailed flood analysis for the proposed development at No. 400-404 Cabramatta Rd, 2-18 Orange Rd & No. 6 Links Ave, Cabramatta. (Refer to Figure 1 for site location).

To adequately analyse the potential for flood affectation on the subject site, a hydrological drain model is analysed for various storms (Refer to Figures 12 & 13 for model and results).

This report was prepared in accordance with Fairfield City Council requirements and the NSW Government Department of Planning's 'Floodplain Development Manual'.

2.0 INTRODUCTION

We refer to Fairfield City Council's letter dated 10th June, 2016; the Fairfield Overland Flood Study (2005) provided basic information relating to overland flow paths and its conclusion was the subject site is not flood affected (See Figure 15 to 17 for Fairfield Council Letter dated 10th June, 2016).

As stated in the council's letter there is no detailed overland flood study being undertaken for the catchment area, therefore ANA Civil Pty Ltd was commissioned to undertake a detailed flood analysis for the proposed development at No. 400-404 Cabramatta Rd, 2-18 Orange Rd & No. 6 Links Ave, Cabramatta.



3.0 DESCRIPTION OF PROPOSED BUILDING

The site is situated at the corner of Orange Grove Rd and Cabramatta Rd West in the suburb of Cabramatta. As per the proposed building layout (refer to Figure 3- Proposed Development Layout), the total ground floor area is 28,557 square meters.

The proposal consists of four to eight storey development including ground floor non-residential tenancies that has a total area of 1200 square meters, and 327 (2 bedroom) & 18 (1 bedroom) residential units above.

4.0 METHOD

A contour map of the area was taken from council records (See Figure 4) showing the existing 450mm stormwater pipeline which travels from east to west. This pipe captures flows from Links Ave via the two kerb inlet pits shown in Figure 7. An existing 300mm pipeline captures flows from the cul-de-sac via the butterfly grate shown in Figure 5 and directs them to the existing 450mm pipe mentioned above.

Thus, the site is not notated to be flooded as it is not impacted by the overland flow from the adjacent properties; therefore this site is not classified as any of the following:

- (a) a flood storage area,
- (b) a floodway area,
- (c) a flow path,
- (d) a high hazard area,
- (e) a high risk area.



5.0 ANALYSIS & FINDINGS

Using the contour map provided by Fairfield City Council and the site survey plan; the catchment area was found to be approximately 3.40ha (as shown in Figure 11). The hydrological analysis of the catchment was carried out and using DRAINS software we calculated a peak 1:100 year overland flow rate of $1.07\text{m}^3/\text{s}$.

See attached DRAINS model results (Refer to Figure 12 & 13). Note: A 50% blockage factor was assumed for all pipes.

At this stage, in its pre-developed stage, the property at above address is affected by the following:

- Overland flows on the eastern boundary from properties on Smiths St (No. 1 to No. 17) [Total flow of .236 m³/sec 1:100 ARI catchment A1].
- Limited overland flows on the western boundary from properties on Links Ave (No. 2 & 4 Links Ave). [Total flow of .084 m³/sec 1:100 ARI catchment A4].
- In the development stage, above flows will be collected in a pipe (flows up to 1:20 ARI) and swale/channel systems (any flows above 1:20 up to 1:100 ARI).

As shown on drawing *2017118 H01 by ANA Civil*, the proposed 375mm pipe on the western boundary (assumed to be running at minimum 1%) will have the capacity of 0.253 m³/sec running at full capacity thus adequate to carry all run off from upstream without inundating the site.



In addition to the above, a 1.5m wide x 0.2m deep garden edge on that western boundary will have the capacity of 2.5m³/sec running at 1% to ensure the property remains overland flow proof prior to the western properties connecting to the easement.

As detailed on drawing *2017118 H01 by ANA Civil*, similar scenario applies on the eastern boundary of the site with a 150mm pipe running at 1% accompanied by a 1.5x0.2m swale.

The provisions above sets the site free of any overland flow passing through the development and allows for any future upstream neighbouring development.

6.0 RECOMMENDATIONS

The existing natural ground levels at the boundaries should not be raised in order that overland flow is accepted, channelled and piped as per section 5 above.



7.0 CONCLUSION

We hereby certify that the proposed development at No. 400-404 Cabramatta Rd, 2-18 Orange Rd & No. 6 Links Ave, Cabramatta is not flooded and it will meet the requirements of Fairfield City Council and the Department of Planning's 'Floodplain Development Manual'.

We hope this certificate meets your requirements. Should you require any help or further explanations, please do not hesitate to contact us.

Yours faithfully,

M. Zaioor

B.S Civil Eng'g (A.U.B).

M.S.Structural Eng'g (UNSW).

M.I.E.(Aust),CPEng.



1.0 ATTACHMENTS

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Figure 1 - Site Location

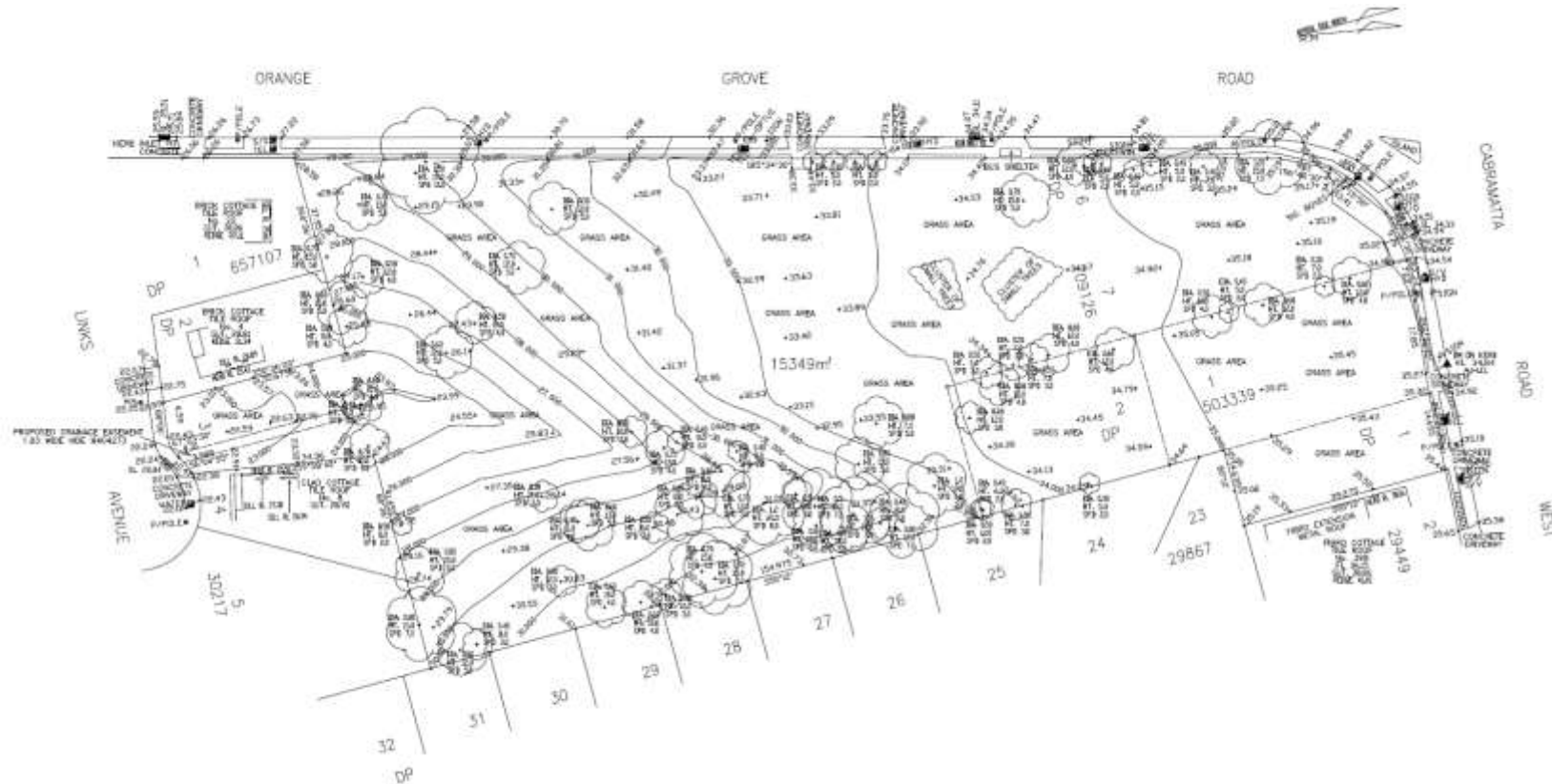


Figure 2 – Site Plan



Figure 3 – Proposed Development Layout

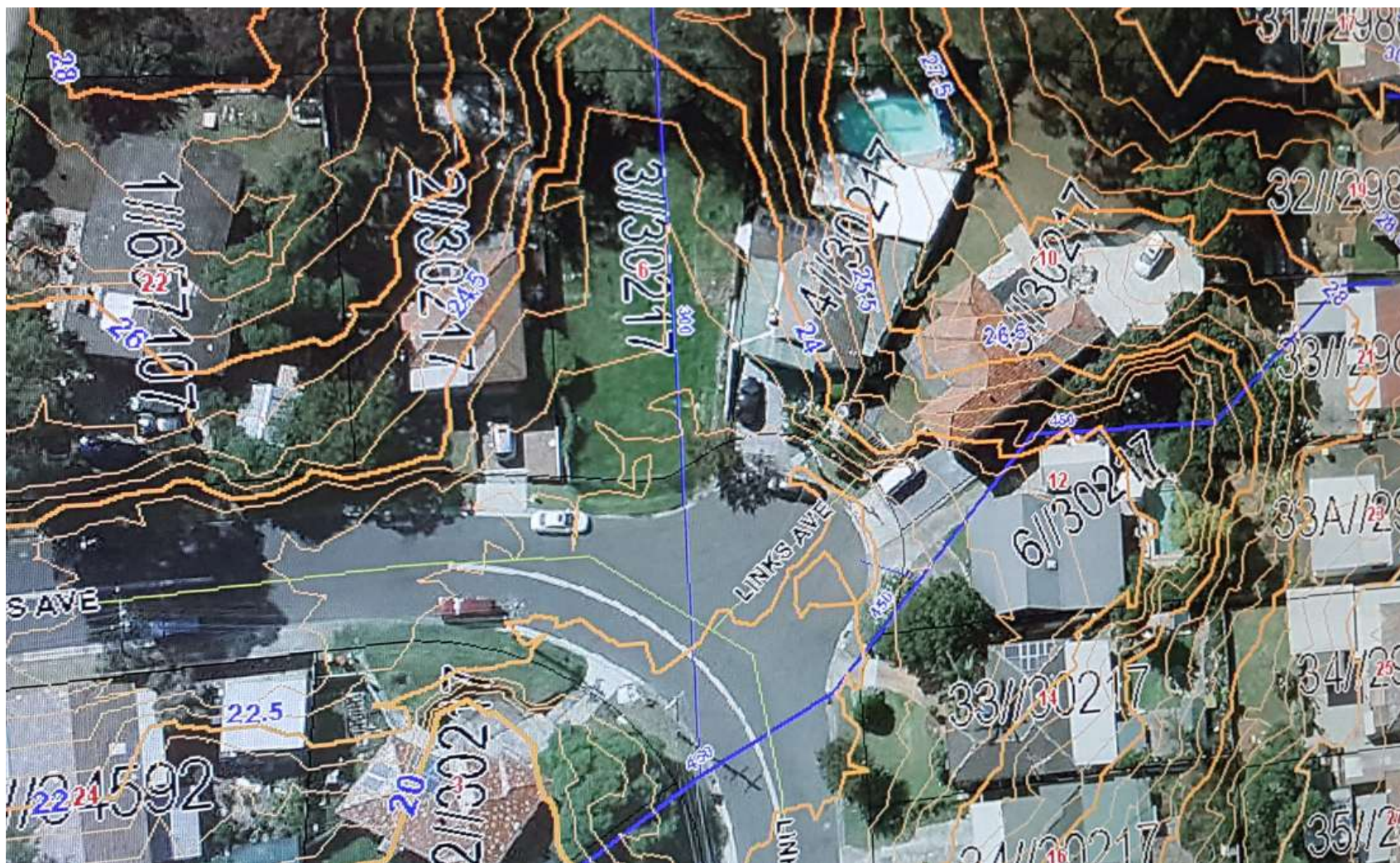


Figure 4 - Contour Map



Figure 5 – Existing butterfly grate on Links Ave (Sourced: 06/04/2017)



Figure 6 – Existing kerb & gutter along Links Ave (Sourced: 06/04/2017)



Figure 7 – Existing kerb inlet pits on Links Ave (Sourced: 06/04/2017)



Figure 8 – Existing kerb & gutter on Links Ave (Sourced: 06/04/2017)



Figure 9 – Existing kerb & gutter along Links Ave (Sourced: 06/04/2017)



Figure 10 – Existing kerb & gutter along Links Ave (Sourced: 06/04/2017)

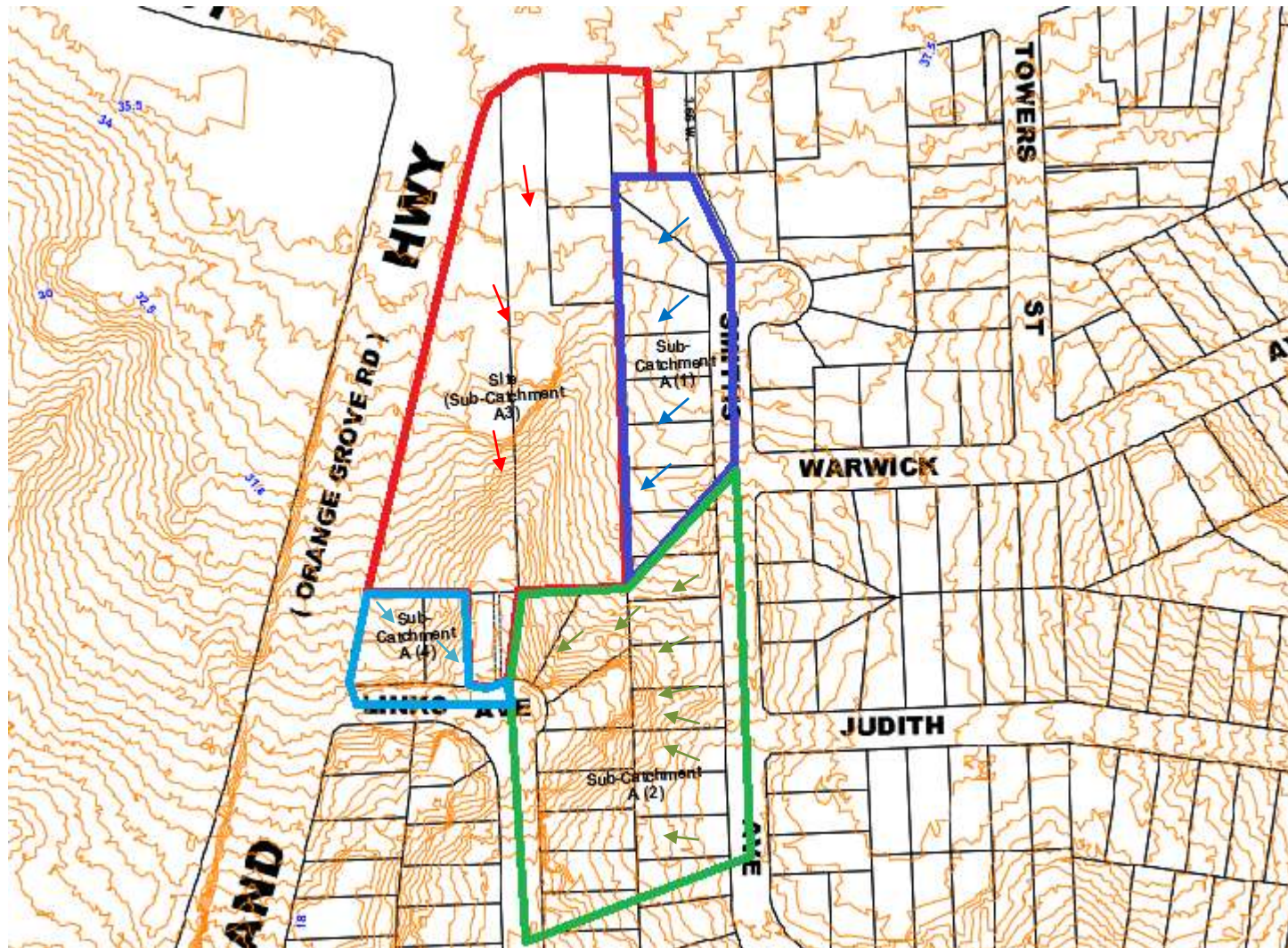


Figure 11– Catchment Area (Sub-catchments A1, A2, A3 & A4)

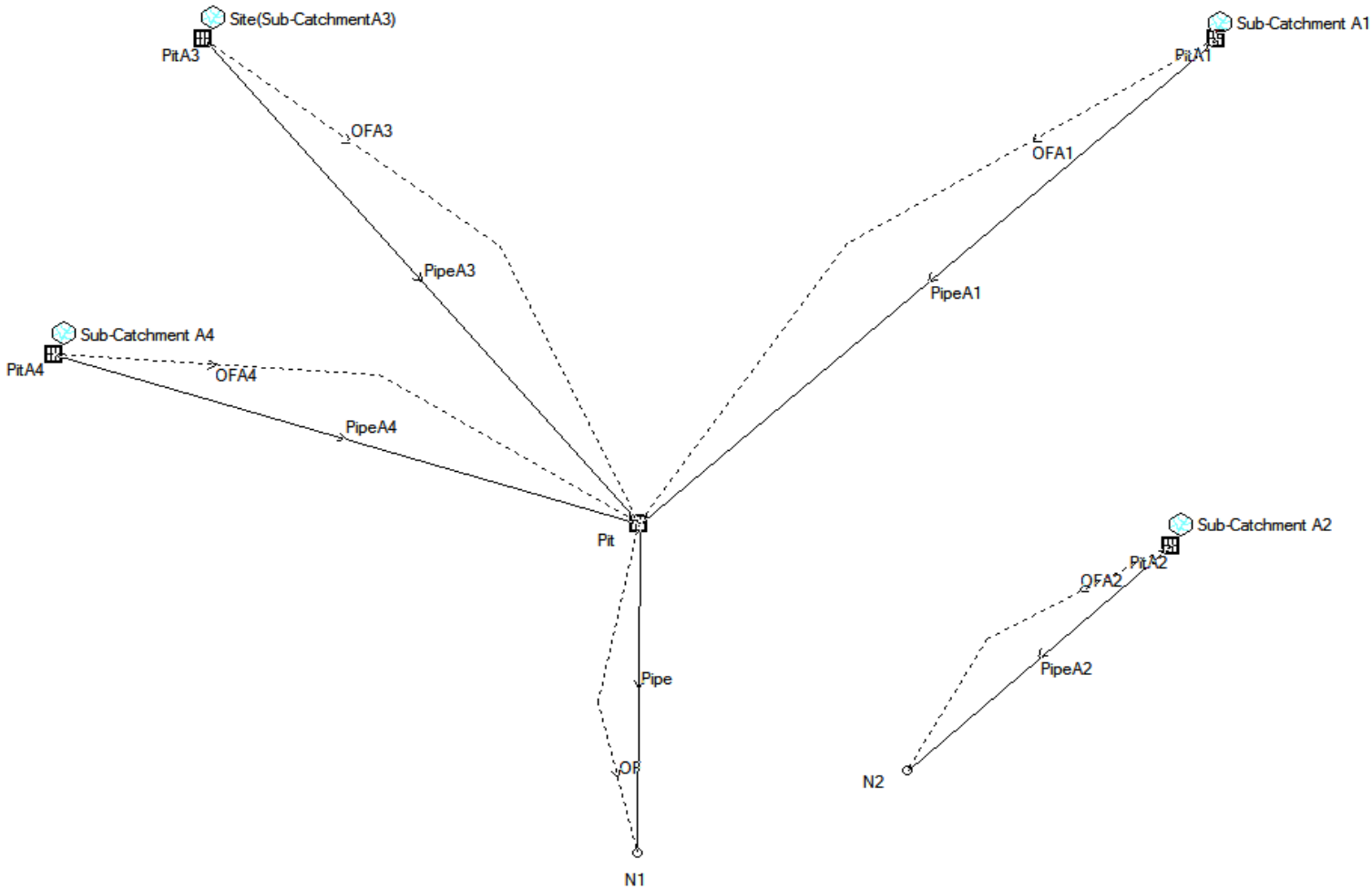


Figure 12 – Drains Model

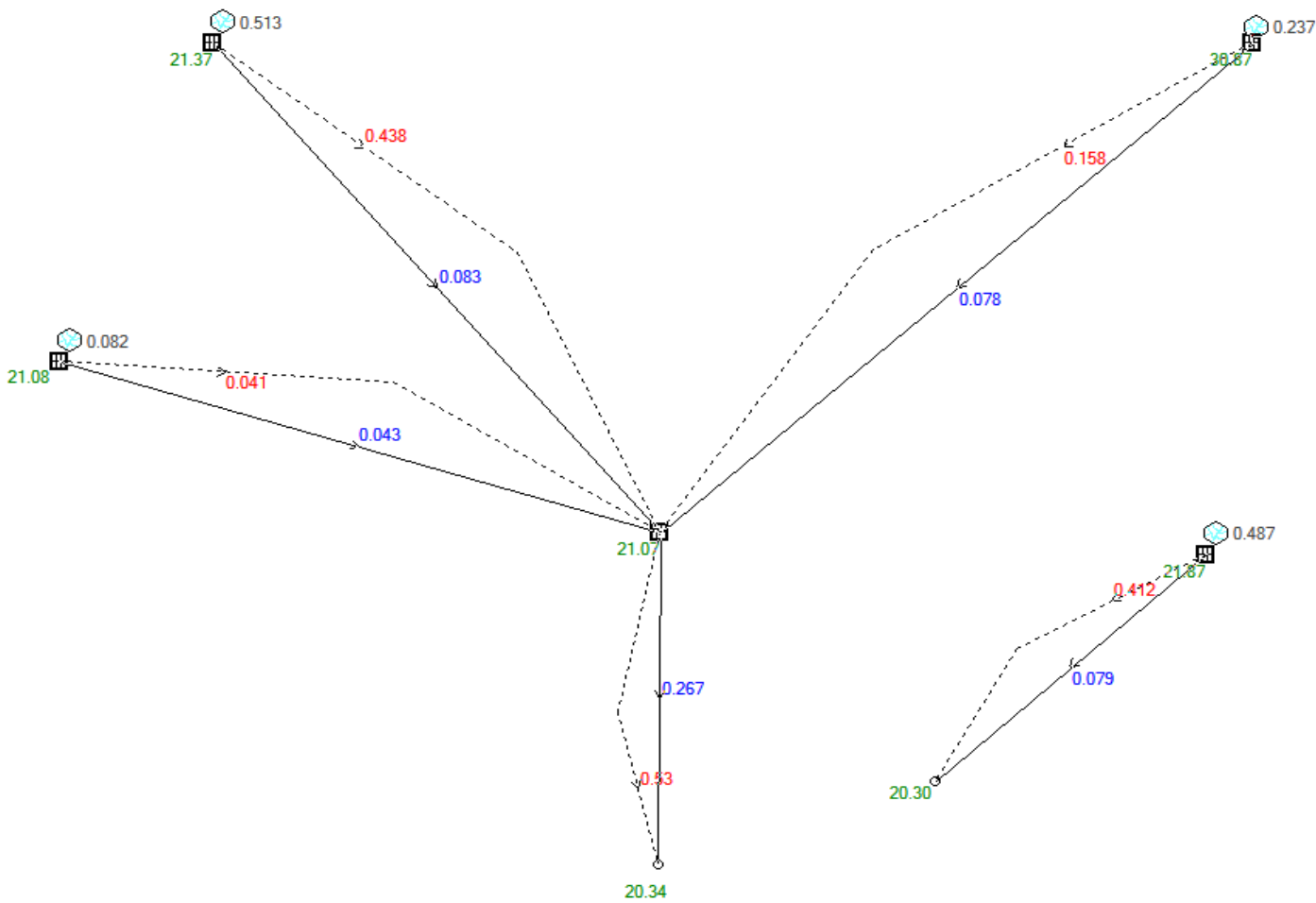


Figure 13 – Drains Results



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10 June 2016

Mr Ahmed Taleb
TCON Constructions Pty Ltd
127 Water Street
Cabramatta West NSW 2166

cc: Jim Murray

Dear Mr Taleb,

PLANNING PROPOSAL – 400-404 CABRAMATTA ROAD WEST, 2-18 ORANGE GROVE ROAD & 6 LINKS AVENUE, CABRAMATTA

Dear Mr Taleb,

The following comments are provided following on from our meeting held at Council's administration centre on 26 May 2016.

Fairfield Residential Development Strategy

The Fairfield Residential Development Strategy (FRDS) is the strategic framework that examines areas of the Fairfield Local Government Area (LGA) east of the Cumberland Highway where additional residential density can be accommodated and underpins the residential zones contained within the Fairfield Local Environmental Plan (FLEP) 2013.

This FRDS generally takes a centres based approach where criteria areas such as areas in close proximity to an established town centres, availability of public transport as areas where higher forms of residential development can be accommodated.

The subject site and the general locality have not been identified in the FRDS as areas suitable for higher forms of residential development.

It is acknowledged that part of the submitted proposal relies on housing delivery as justification for the increase in density sought for the site. The subject site also has access to a regular public transport. However, these criteria alone cannot be relied upon as justification given the zone and densities sought on the subject site.

Status of the 10 Orange Grove Road, Warwick Farm Planning Proposal

It is noted that the proposal includes proximity of the subject site to the 10 Orange Grove, Warwick Farm otherwise known as the Orange Grove Megacentre to the south as justification for higher form of density on the subject site. It is also noted that a planning proposal is currently being processed by Liverpool City Council to allow an additional permitted use of 'shops' up to a maximum gross floor area of 21,000sqm.

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The outcome of this proposal has the potential to affect the planning framework relating to the adjoining residential zones located in the Fairfield LGA.

Given the above, the status of the Orange Grove proposal currently being processed by Liverpool Council to allow an additional permitted use of 'shops' to the already existing additional permitted uses of 'retail' and its outcome will impact on the potential suitability of the locality that includes the subject site for higher forms of residential development.

The additional use of 'shops' at the Orange Grove Megacentre will essentially contain facilities such as those defined as 'Sub Regional (Town) Centre' under the Fairfield City Centres Policy 2015.

At the time of writing this letter a Gateway Determination had not been issued by the Department of Planning for the Orange Grove proposal.

In order for Council Officers to take into account the Orange Grove Megacentre and the facilities that it is likely to provide similar to those of a 'Town Centre', that particular Planning Proposal will have needed to be substantially progressed through the rezoning process.

At a minimum, the Orange Grove Proposal will only be considered by Council officers in the event Liverpool City Council formally adopts the Planning Proposal to allow the additional permitted use of 'shops' on the site following on from public exhibition process and its subsequent submission to the Department of Planning and Infrastructure (DP&I) for finalisation.

For greater certainty, the subject Planning Proposal would not proceed until the amendment to the Liverpool LEP is formally amended (Gazetted) to allow 'shops' on the Orange Grove site.

Notwithstanding the comments provided above, Council requires the following additional information in order to be able to continue processing the application. It is important to note that provision of the following information does not imply that the proposal will be supported in its current form.

Additional Flood Information

The flood analysis that accompanied the planning proposal has not adequately analysed the potential for flood affectation on the subject site.

The Fairfield Overland Flood Study (2005) provided basic information relating to overland flow paths. This study shows an overland flow path directly to Cabramatta Creek originating from the subject site.

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Figure 14– Fairfield Council Letter dated 10th June, 2016 (1)



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The flood analysis provided for the site has not undertaken any analysis, and it's conclusion that the site is not flood affected has ignored the site survey and aerial photography.

Due to no detailed overland flood study being undertaken for the catchment area encompassing the subject site a detailed flood analysis (including flood modelling) is required in order for Council to adequately address this aspect of the proposal.

Please note the findings of this detailed study may impact on the building envelopes proposed as part of this proposal. The flood analysis should also review the provisions of the Chapter 11 - Flood Risk Management of the Fairfield City Wide Development Control Plan (DCP) 2013 to inform the design building envelopes proposed for the subject site at this early stage.

Proposed R1 General Residential Zoning

As discussed in the meeting, Council officers are unlikely to support an R1 General Residential Zone on the subject site. The application of this zone in the FLEP 2013 applies to the Bonnyrigg Redevelopment Site 'New Leaf' which is underpinned by an overall Masterplan that guides the built forms over the redevelopment site.

The residential uses sought under this proposal as permissible under the R4 Residential Flat Building zone. It is acknowledged that should the proposal proceed under the R4 zone, 'Dual Occupancies' will be prohibited.

The planning proposal should be amended accordingly.

Additional Permitted Uses of Business Premises and Office Premises

An assessment of the documentation submitted has concluded that a case for the additional permitted uses of for a maximum 1200sqm of 'business premises' and 'office premises' has not been made and in this regard Council Officers provide the following comments:

The Fairfield City Centres Policy 2015 applies to planning proposals that provide for or relate to retail/commercial development regardless of the scale of the project.

It is acknowledged that the corner of Cabramatta Road and Cumberland Hwy is inappropriate to locate residential dwellings on the ground floor and that providing non residential uses on the ground floor will result in a better outcome by activating this frontage.

The land use tables of the R4 High Density Residential and R1 General Residential currently applicable under the FLEP 2013 provide for the following non-residential land uses that can be utilised to activate this frontage such as a 'medical centre' and 'neighbourhood shop'.

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Additional economic advice prepared by a suitably qualified consultant will be required to support the 1200sqm of additional permitted uses of 'business premises' and 'office premises' on the subject site. This advice is required to give effect to the Fairfield City Centres Policy 2015 and clearly demonstrate the need for these uses in the locality.

Alternatively, the planning proposal should be amended to omit the additional permitted uses of 'business premises' and 'office premises'.

Built Forms

As discussed in the meeting, discussion around built forms is dependent on the outcome of the Orange Grove proposal at which point the built forms provided under the current proposal will be further reviewed.

However, the following preliminary comments are provided.

- The flood modelling that is required to be undertaken for the subject site may necessitate amendments to the built forms as submitted as part of the proposal.
- The FRDS generally provides for a transition between the residential zones as follows, R4 High Density Residential transitions into R3 Medium Density Residential which in turn transitions to R2 Low Density Residential.

Council does not currently have a framework that looks at the future zoning of that locality, therefore in lieu of any established framework, the built forms submitted as part of this proposal (adjoining neighbouring properties) will have to take into account the transition methodology referred to above.

- The maximum height available in the R4 High Density Residential Zone (located around existing centres) within the Fairfield Local Government Area is 20 (6 storeys) metres which is the currently the maximum height across all residential zones (excluding those within town centres).

Consideration of any maximum height and floor space ratio controls for the subject site will likely reflect its location in relation to town centres and other established R4 High Density Residential zones across the Fairfield LGA.

- Preparation of a Site Specific Development Control Plan (to be incorporated into Chapter 7 of the Fairfield City Wide Development Control Plan) may be required to ensure the orderly development of the site and manage any potential impacts on the adjoining dwellings.

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Figure 15 – Fairfield Council Letter dated 10th June, 2016 (2)



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- It is council officer's preference that the removal of existing trees should be minimised where possible in order to maximise the visual screening of any built form when viewed from the adjoining low density dwellings. As discussed during our meeting, progressing with this matter prior to the outcome of the Orange Grove proposal being known is likely to result in the proposal not being supported by council officers.
- Notwithstanding, the outcome of the Orange Grove proposal should it be formally adopted does not imply that this proposal will be supported by council officers but rather it will have implications to the future planning of the adjoining residential zones located in the Fairfield LGA that may require a review of the FRDS for the locality.
- Given the above, the proposal is unlikely to be supported until Council reviews the FRDS to take into account the Orange Grove Megacentre should the Liverpool LEP be formally amended to permit 'shops'.

Should you wish for council officers to proceed with processing of the planning proposal additional flooding information (including modelling) and economic advice is required for the proposed additional permitted uses of 'business premises' and 'office premises' is required.

The timing of a report to Council is subject to Council officers being able to make an assessment of the submitted additional information (including peer reviews that may be required such as in the case of economic advice). In addition, a report to Council may also be delayed as the result of the Local Government Elections which are scheduled to for September 2016.

If you have any questions regarding this correspondence please do not hesitate to contact me on 9725 0228.

Yours faithfully,

Julio Assuncao
SENIOR LAND USE PLANNER

Figure 16 – Fairfield Council Letter dated 10th June, 2016 (3)