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# ENGINEERING ASSESSMENT

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**To: Kelly McNicol – Coordinator Land Use Planning & Compliance**

**From: Mathew Vitucci – Traffic Engineer**

**File: DA 190/2012**

**Date: 28 May 2013**

**Re: PROPOSED THREE (3) LOT TORRENS TITLE SUBDIVISION AND FOUR (4) STOREY SERVICED APARTMENTS AND TWO (2) RETAIL PREMISES - LOT 34 DP 884345 – 55-67 RAILWAY STREET, GRIFFITH.**

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Kelly,

This Engineering Assessment relates to the above development and addresses the following issues:

**Clause 26 of the GLEP 2002 – Flood liable land.**

*(3) Consent must not be granted to development of any flood liable land unless the consent authority has considered:*

*(a) a survey identifying the level of the land relative to the 1 in 100 year flood level,*

- Aerial Laser Survey (ALS) of the Griffith CBD area was conducted as part of the Griffith Floodplain Risk Management Study & Plan 2011 (Worley Parsons). The subject allotment was included in this survey and as such information was extrapolated from this documentation.

*(b) the likelihood of loss of life or property from flooding,*

- The subject allotment is not identified as flood liable land as per the *Griffith Floodplain Risk Management Study & Plan 2011* (Worley Parsons). However the allotment may still be flooded due to local drainage conditions. The loss of life to the subject allotment is unlikely as there is no flood indication for a 1 in 100 year storm event as specified in the *Griffith Floodplain Risk Management Study 2011* (Worley Parsons).

ADVISORY NOTE: The Griffith Floodplain Risk Management Study & Plan 2011 (Worley Parsons) categorised the subject site as 'Low Hazard' for the 'Probable Maximum Flooding' event.

*(c) the likelihood of increase demand for flood mitigation measures and emergency services,*

- Griffith Floodplain Risk Management Study & Plan 2011 (Worley Parsons) indicates that the subject allotment is not flood liable land for the 1 in 100 year flood.

The subject site is located within the CBD catchment identified in *Council's Onsite Detention Policy*. The subject site is currently vacant; the proposed development involves a three (3) lot Torrens Title Subdivision and the construction of serviced apartments, two (2) retail premises and associated parking facilities. The proposed development will create a significant increase in the impervious area of the subject site.

As such, the proposed development will be required to incorporate onsite detention to ensure that stormwater runoff is limited to 65L/s/ha from the subject site. This is to ensure the additional stormwater runoff from the site as a result of the development does not create an additional impact on the existing Council owned street drainage system or on downstream allotments/catchment areas.

(d) *any impediments to the operation of floodway systems in times of flood,*

- The subject allotment is not an impediment to any floodway. The subject allotment is not located in a floodway where significant volumes of water flow during floods.

(e) *the effect of proposed development on adjoining land in times of flood,*

- The proposed design for the development will create an increased discharge from a greater impervious area as the subject site is currently vacant. The development will involve a three (3) lot Torrens Title Subdivision and the construction of serviced apartments, two (2) retail premises and the sealing of vehicular parking and manoeuvring areas, significantly increasing the site's impervious area.

The subject site is located within the CBD catchment identified in *Council's Onsite Detention Policy*. Conditions shall be imposed to ensure that the proposed stormwater design incorporates onsite detention. The proposed development will be required incorporate onsite detention to ensure that stormwater runoff is limited to 65L/s/ha from the subject site. This will ensure that the stormwater runoff from the development will not adversely affect adjoining land in times of flood.

Stormwater control measures are to be implemented to ensure stormwater does not cross property boundaries.

(f) *limits on the intensity of development of urban flood liable land,*

- The development will involve a three (3) lot Torrens Title Subdivision and the construction of serviced apartments, two (2) retail premises and the sealing of vehicular parking and manoeuvring areas.

The development is not considered to be over intensification of the site. The nature of the development allows for detention of stormwater to be incorporated in the design therefore minimising the impact on the downstream drainage system.

The proposed development is required to provide Onsite Stormwater Detention. The onsite detention measures are to be designed to ensure that stormwater discharge from the proposed development does not exceed 65L/s/ha.

(g) *the provision of services and facilities appropriate to the flood liability of the land,*

- Griffith Floodplain Risk Management Study & Plan 2011 (Worley Parsons) indicates that the subject allotment is not flood liable land for the 1 in 100 year flood. However, a condition shall be imposed that the floor level for any future buildings be constructed at 410mm above the existing natural ground level to protect person & property in localised flooding events.

(h) *the effect of the proposed development on the watertable of that land or of land in its immediate vicinity.*

- There will be minimal effect on the watertable as the development will not add to infiltration of ground waters.

**Clause 51 of the GLEP 2002 – Development in Highway Service Business Zone and along arterial roads**

The subject allotment is bounded by Ulong Street, Railway Street and Kooyoo Street. Ulong Street is classified as a “Link road” as specified on *Council’s Road Hierarchy Plan*. Railway Street is classified as a “Collector road” as specified on *Council’s Road Hierarchy Plan*. Kooyoo Street is classified as a “Residential Access road” as specified on *Council’s Road Hierarchy Plan*. As such, Clause 51 of the GLEP 2002 does not apply to this development.

**Clause 57 of the GLEP 2002 - Availability of essential services**

(2) *Consent must not be granted to the carrying out of development on any land unless;*

(a) *a potable water supply and facilities for the removal or disposal of sewage and drainage water are available to that land, or*

- A Council owned 125mm diameter, uPVC potable water main exists along the Railway Street frontage of the subject allotment.
- A Council owned 150mm diameter, vitreous gravity sewer main exists along Railway Street to the east of the subject allotment. A sewer manhole exists in the south-eastern corner of the subject allotment, providing connection to the sewer main.

A Council owned 150mm diameter, vitreous gravity sewer main exists along Railway Street to the west of the subject allotment. A sewer manhole exists in the north-western corner of the subject allotment, providing connection to the sewer main.

- Council’s street drainage system exists along Railway Street to service the proposed development. Also, interallotment drainage exists along both the eastern and western boundaries of the subject allotment to service the Temora-Roto Railway reserve.

(b) *arrangements satisfactory to the Council have been made for the provision of that supply and those facilities, if the proposed use of the land will, in the opinion of the consent authority, generate a need for such a supply or for those facilities.*

- The site of the proposed development, Lot 34 DP 884345, is not currently connected to Council's reticulated potable water system.

The proposed development includes the construction of a four (4) storey building, accommodating forty (40) serviced apartments, and two (2) buildings for retail use. The proposed development will significantly increase the demand on the existing Council owned potable water main in Railway Street. The applicant shall determine the impact the proposed development will have on Council's reticulated potable water supply system.

Hydraulic calculations from a suitably qualified Hydraulic Engineer are to be submitted to Council for approval, prior to the lodgement of a Construction Certificate application. Calculations must demonstrate that additional tenements resulting from the development will maintain the minimum required pressure and flow rate through the Council's existing water main infrastructure.

Should the calculations prove that Council's existing water main infrastructure is not suitable for the proposed development, then upgrade and amplification of Council's water main infrastructure is to be conducted at the applicant's expense to meet the demand of the proposed development. The design of all new mains and other associated components normally associated with water main installations are to conform to the standards prescribed in *Council's Engineering Guidelines – Subdivisions and Development Standards December 2008* and the *Water Reticulation Code of Australia (WSA 03-2002)*

The applicant is to provide each proposed allotment with a connection to Council's water main prior to the lodgement of an Occupation Certificate application. The connection to Council's water main must be applied for separately. Each individual tenant within the structures will utilise the one service as part of a body corporate arrangement. Where the connection is 25mm or greater to serve the needs of the development, the application shall be supported with hydraulic calculations prepared by an appropriate consultant, including reference to a water pressure and flow rate test of the adjacent mains.

- The subject allotment, Lot 34 DP 884345, is currently connected to Council's gravity sewerage system. However, the existing sewer connection for the proposed development is required to be upgraded.

The proposed development includes the construction of a four (4) storey building, accommodating forty (40) serviced apartments, and two (2) buildings for retail use. The proposed development will significantly increase the demand on Council's gravity sewer system in the area. The applicant shall determine the impact the proposed development will have on Council's gravity sewerage system.

Information on the proposed sewerage system for the existing and proposed development including calculated peak demands generated from the entire development shall be supplied to Council. Details of the proposed sewerage system including approval from Council's Water and Sewer Department permitting the calculated flows to connect to Council's Sewerage system are to be submitted to Council for approval prior to the lodgement of a Construction Certificate application.

Separate sewer services with separate sewer main junctions are required for each lot in a Torrens Title Subdivision. Sewer connections are to be designed in accordance with Council's *Engineering Guidelines - Subdivisions and Development Standards December 2008* and submitted to Council for approval prior to the lodgement of a Subdivision Certificate application.

The applicant has proposed to extend Council's sewer main to service proposed Lot B, this is to service the proposed three (3) lot Torrens Title subdivision. The sewer main located in the north-western corner of the subject site is proposed to be extended along the northern boundary through proposed Lot A to proposed Lot B.

The design for pipelines, as well as manholes and other associated components normally associated with sewerage main installations are to conform to the standards prescribed in Council's *Engineering Guidelines-Subdivisions and Development Standards December 2008* and the *Sewerage Code of Australia (WSA 03-2002)*. Details and designs are to be submitted to Council for approval prior to the lodgement of a Construction Certificate (Civil Works) application.

Separate application is to be made to Council's Engineering Department for alteration to Council's Sewer Main.

All existing/proposed manholes are to be kept free of obstructions at all times.

An easement shall be established pursuant to Section 88B of the Conveyancing Act over Council's sewer main located within proposed Lot A. Matters to be addressed in the instrument should include the width and location of the easement. This is for the purpose of identifying and protecting the sewerage system.

- Currently drainage for the subject site is directed to the Inter-allotment drainage system along the south-western boundary of the subject allotment for disposal.

The subject site is located within the CBD catchment identified in *Council's Onsite Detention Policy*. Conditions shall be imposed to ensure that the proposed stormwater design incorporates onsite detention. The proposed development will be required incorporate onsite detention to ensure that stormwater runoff is limited to 65L/s/ha from the subject site. This will ensure that the stormwater runoff from the development will not adversely affect adjoining land in times of flood.

All stormwater run off shall be directed to Council's street system for disposal. Stormwater run off shall not be permitted to flow over the property boundaries onto the adjoining properties unless legally created easements in accordance with Section 88B of the Conveyancing Act are created. Details of the method of disposal, including pits, pipes and the like in accordance with *Council's Engineering Guidelines - Subdivisions and Development Standards December 2008* are to be submitted to Council for approval prior to the lodgement of a Construction Certificate application.

The stormwater drainage requirements on the development will be reflected in the consent conditions.

### **State Environmental Planning Policy (Infrastructure) 2007**

The *State Environmental Planning Policy (Infrastructure) 2007* specifies that this Development Application requires a referral to the Roads and Maritime Services (RMS). Council received the referral from the RMS on Friday 17 May 2013.

The RMS recommendations applicable to the development have been included in this Engineering Referral. The recommendations received from the RMS are included as '**Attachment A**' of this assessment.

### **Section 64 Contributions**

Due to the additional demand created by this development, charges pursuant to Section 64 of the Local Government Act 1993 and the Water Management Act 2000, are required to be paid to Council. The Development Assessment Planner is to ensure that the current charges are applied to the conditions of consent.

The permanent transfer of water shall also be required and should be imposed as a condition of consent.

### **Compliance with Council's Engineering Guidelines - Subdivisions and Development Standards December 2008**

Consent Approval Conditions will ensure the development complies with *Council's Engineering Guidelines - Subdivisions and Development Standards December 2008* prior to the lodgement of a Construction Certificate (Civil Works), Subdivision Certificate and Occupation Certificate application.

### **Compliance with AS 2890: 2004.**

The proposed development is to comply with the requirements of AS 2890.

Through the conditions of consent the development will be able to comply with the requirements of AS 2890: 2004, Part 1: 'Off-street car parking' and Council's Development Control Plan 20 (DCP20) - 'Off-Street Parking Policy'. The conditions of consent were justified by the following:

The consultant (Koby Development Consultants) has proposed in the Statement of Environmental Effects to accommodate one hundred and forty (140) car-parking spaces, which includes six (6) disabled car-parking spaces and nine (9) motorcycle parking spaces, onsite.

All parking spaces are required to be line marked in accordance with AS 2890.1:2004 and AS 2890.6:2009. Council's Development Control Plan 20 specifies car park dimensions to be 2.6m wide x 5.5m long (excluding disabled parking spaces), this slightly exceeds the Australian Standard and will be conditioned accordingly.

All car parking and vehicular manoeuvring areas are to be constructed of concrete or bitumen sealed prior to the issue of an Occupation Certificate. The car parking and vehicular manoeuvring areas shall be maintained to Council's satisfaction for the duration of the development.

Turning templates in accordance with AS 2890.1:2004 “Off-street car parking” have been utilised to ensure that the manoeuvrability throughout the site for standard passenger vehicles entering and exiting the site are accommodated. All standard passenger vehicles are able to enter and leave the site in a forward direction in accordance with AS2890.

The applicant is proposing that the largest size vehicle to enter the site will be a 19-metre semi-trailer vehicle as specified in Austroads *Design Vehicles and Turning Path Templates* (2006).

The applicant originally proposed that heavy vehicles accessing the development would utilise the proposed access to the development off Kooyoo Street or the western access to the development off Railway Street, depending on the vehicles destination. The proposed access points and manoeuvring of heavy vehicles through the site was not suitable, based upon the submitted turning path diagram, Drawing No. TP-10. The proposed layout required vehicles to jump the kerb accessing the development and cross over several parking spaces while manoeuvring through the site. The applicant was requested to revise the layout of the design based upon comments provided by Council's Engineers.

The revised plans require heavy vehicles accessing the development to enter the site via Ulong Street and leave via Kooyoo Street. The proposed layout requires approval from the landowners of Lot 33 DP 884345 and Lot 40 DP 884506 for the establishment of a right of carriageway over the lot to provide access to the development from Ulong Street.

Griffith City Council is the owner of Lot 33 DP 884345 and Lot 40 DP 884506. A report was presented to the Ordinary Meeting of Council on Tuesday 12 March 2013 regarding the approval of a right of carriageway over the site to provide access between the proposed development and Ulong Street. Council approved the right of carriageway over Lot 33 DP 884345 and Lot 40 DP 884506 in favour of Lot 34 DP 884345 subject to:

- the developer confirming that additional \$45,000 monetary compensation be made, being half the total compensation estimated by the Council appointed Valuer;
- the reciprocal right of carriageway over Lot 34 DP 884345 benefitting both Lot 33 DP 884345 and Lot 40 DP 884506;
- the roadways that will be constructed on Lot 33 DP 884345 and to the north of Lot 40 DP 884506 be designed by the developer to cater for future use of those properties as public car parks;
- detailed design of the roadways and adjoining intersections meets Council's engineering standards;
- agreement is reached over maintenance of the proposed roads; and
- all costs to create and register the Right of Carriageway be borne by the developer.

The conditions Council has placed on the approval of the proposed right of carriageway form part of an agreement between two private land owners, in this case Griffith City Council and the applicant. Therefore these conditions do not form part of the conditions of consent for the proposed development, as this is a private agreement. In order to maintain Council's interests several relevant conditions have been included in the conditions of consent to ensure the right of carriageway is obtained and that the proposed accessways meet Council's requirements.

Turning path diagrams demonstrating that the proposed accessways off Ulong Street and Kooyoo Street are suitable for the manoeuvring of 19-metre semi-trailer vehicles are to be submitted to Council for approval. The diagrams shall justify the width of the proposed accessways and tapers at the connection point to either road carriageway.

The requirements for the development to comply with AS2890 will be reflected in the consent conditions.

### **Access, Traffic and Transport**

Existing driveway – No formal driveways exist on the subject allotment.

Informal access to the subject allotment is currently gained from Kooyoo Street. The informal access point is located where the developments heavy vehicle egress point is proposed.

Proposed driveway – The applicant is proposing to construct two (2) six and a half (6.5) metre wide driveways off Railway Street to access the development. The proposed accessways shall be constructed in accordance with Council's *Engineering Guidelines - Subdivisions and Development Standards December 2008 (Part 2 - Section 2)*.

A right of carriageway over each of the proposed lots is to be created for the manoeuvring of vehicles in accordance with Section 88B of the Conveyancing Act. Matters to be addressed in the instrument should include the width and location of the right of carriageways. This is for the purpose of identifying and protecting the vehicular access-ways. The right of carriageway shall be submitted to Council for approval prior to the lodgement of a Subdivision Certificate application.

The applicant originally proposed that heavy vehicles accessing the development would utilise the proposed access to the development off Kooyoo Street or the western access to the development off Railway Street, depending on the vehicles destination. The proposed access points and manoeuvring of heavy vehicles through the site was not suitable, based upon the submitted turning path diagram, Drawing No. TP-10. The proposed layout required vehicles to jump the kerb accessing the development and cross over several parking spaces while manoeuvring through the site. The applicant was requested to revise the layout of the design based upon comments provided by Council's Engineers.

The revised plans require heavy vehicles accessing the development to enter the site via Ulong Street and leave via Kooyoo Street. The proposed layout requires approval from the landowners of Lot 33 DP 884345 and Lot 40 DP 884506 for the establishment of a right of carriageway over the lot to provide access to the development from Ulong Street and Kooyoo Street.

Griffith City Council is the owner of Lot 33 DP 884345 and Lot 40 DP 884506. A report was presented to the Ordinary Meeting of Council on Tuesday 12 March 2013 regarding the approval of a right of carriageway over the site to provide access between the proposed development and Ulong Street. Council approved the right of carriageway over Lot 33 DP 884345 and Lot 40 DP 884506 in favour of Lot 34 DP 884345 subject to:

- the developer confirming that additional \$45,000 monetary compensation be made, being half the total compensation estimated by the Council appointed Valuer;
- the reciprocal right of carriageway over Lot 34 DP 884345 benefitting both Lot 33 DP 884345 and Lot 40 DP 884506;
- the roadways that will be constructed on Lot 33 DP 884345 and to the north of Lot 40 DP 884506 be designed by the developer to cater for future use of those properties as public car parks;
- detailed design of the roadways and adjoining intersections meets Council's engineering standards;



- agreement is reached over maintenance of the proposed roads; and
- all costs to create and register the Right of Carriageway be borne by the developer.

The conditions Council has placed on the approval of the proposed right of carriageway form part of an agreement between two private land owners, in this case Griffith City Council and the applicant. Therefore these conditions do not form part of the conditions of consent for the proposed development, as this is a private agreement. In order to maintain Council's interests several relevant conditions have been included in the conditions of consent to ensure the right of carriageway is obtained and that the proposed accessways meet Council's requirements.

The heavy vehicle access off Ulong Street is to be restricted to left turn only. The restriction shall prevent vehicles entering the site from the northbound lane of Ulong Street. The right turn movement into the site will interfere with the traffic flow of Ulong Street and the performance of the traffic control signals at the intersection of Ulong Street and Wakaden Street, this is due to the proximity of the proposed access to the northbound lanes hold line at the traffic control signals and the high traffic volumes of Ulong Street.

The existing concrete traffic median along Ulong Street is to be extended to the intersection of Ulong Street and Railway Street to restrict right turning movements into the development from Ulong Street. The median is to be constructed prior to the lodgement of an Occupation Certificate application. Detailed engineering design drawings for the median shall be submitted to Council for approval prior to the lodgement of a Construction Certificate (Civil Works) application. The plans shall include designs and specifications for all proposed works in accordance with *Council's Engineering Guidelines - Subdivisions and Development Standards 2008* and RMS guidelines.

Turning path diagrams demonstrating that the proposed accessways off Ulong Street and Kooyoo Street are suitable for the manoeuvring of 19-metre semi-trailer vehicles are to be submitted to Council for approval. The diagrams shall be submitted to Council prior to the lodgement of a Construction Certificate (Civil Works) application and are required to justify the width of the proposed accessways and tapers at the connection point to either road carriageway.

Council's access requirements for the development will be reflected in the consent conditions.

Existing road network – The subject allotment is located off Railway Street. Railway Street is a two (2) lane, two (2) way bitumen sealed road, with kerb and gutter located along both sides of the road. Railway Street is classified as a "Collector road" as specified on *Council's Road Hierarchy Plan*.

Council conducted a traffic count of Railway Street, between Ulong Street and Kooyoo Street in April 2008. The average daily traffic count for that period was 2648 vehicles per day. Of the 2648 vehicles per day, 2542 were light vehicles, 101 were medium to heavy rigid vehicles and 5 were articulated vehicles. The average AM peak was 280 vehicles per hour and generally occurred between 10:30am-12:00pm, the peak count was 358 vehicles. The average PM peak was 278 vehicles per hour and generally occurred between 2:30pm-5:00pm, the peak count was 413 vehicles.

The applicant is proposing the removal of the existing on-street parking on both sides of Railway Street for the full frontage of the development. The removal of this parking will increase the visibility of the proposed development and create the safe sight distances required for the proposed accessways to the development. The subject allotment is approximately two hundred (200) metres long; the installation of a 'No Stopping' zone

along Railway Street will result in the loss of thirty-three (33) parking spaces upon each side of the road.

The removal of the on-street parking along Railway Street for the full frontage of the development will result in the loss of sixty-six (66) parking spaces from the area. The Griffith community already believes that there is a lack of parking available in Griffith's CBD and the loss of sixty-six (66) spaces from Railway Street would not be viewed favourably unless alternate parking were to become available.

A parking survey was conducted by Council's Traffic Engineer between 12 March 2013 and 15 March 2013 revealed parking along Railway Street is well utilised during business hours, especially between 11:30am and 2:00pm. The survey also included the Railway Street carpark adjacent to the Police Station and the informal parking area located off Railway Street and Tranter Place. The survey determined that:

- The occupancy rate of the parallel parking in Railway Street is quite high, between 50-75%, mainly between 11:30am and 2:00pm.
- The Railway Street carpark adjacent to the police station occupancy ranged from thirty (30) to fifty (50) vehicles, peaking between 11:30am and 2:30pm. The Railway Street carpark is an eighty (80) space carpark.
- The Railway Street and Tranter Place informal carpark is currently underutilised, with the facility rarely reaching above 50% of its capacity. This carpark is able to accommodate approximately one hundred and twenty (120) vehicles comfortably.
- In addition to these areas there are long term parking areas in Yambil Street and Olympic Street that rarely reach capacity.

Therefore, there is adequate parking in Griffith's CBD to accommodate for the removal of the parking along the frontage of the proposed development on Railway Street.

Council staff presented the applicants proposal along with the above information and several alternate options to Griffith's Transport Management Committee on Tuesday 19 March 2013. The options presented to the Committee included:

- Option 1 – The installation of a No Stopping zone along both sides of Railway Street for the full frontage of the development;
- Option 2 – The installation of a No Stopping Zone along the northern side of Railway Street for the full frontage of the development;
- Option 3 – The installation of a No Stopping zone for one hundred and twenty (120) metres along both sides of Railway Street;
- Option 4 – The installation of a No Stopping zone for one hundred and twenty (120) metres along the northern side of Railway Street; and
- Option 5 – The current parking arrangements along Railway Street remain.

The Committee recommended the installation of a No Stopping zone along the northern side of Railway Street for the full frontage of development, as per Option 2. The proposed parking restrictions are to be installed prior to the lodgement of an Occupation Certificate.

The heavy vehicle access off Ulong Street is to be restricted to left turn only. The restriction shall prevent vehicles entering the site from the northbound lane of Ulong Street. The right turn movement into the site is being prevented as the movement will interfere with the traffic flow of Ulong Street and the performance of the traffic control signals at the intersection of Ulong Street and Wakaden Street, due to the proximity of the proposed access to the northbound lanes hold line at the traffic control signals and the high traffic volumes of Ulong Street.

The existing concrete traffic median along Ulong Street is to be extended south to the Railway Street/Ulong Street roundabout to restrict right turning movements into the development from Ulong Street. The median is to be constructed prior to the lodgement of an Occupation Certificate application. Detailed engineering design drawings for the median shall be submitted to Council for approval prior to the lodgement of a Construction Certificate (Civil Works) application. The plans shall include designs and specifications for all proposed works in accordance with *Council's Engineering Guidelines - Subdivisions and Development Standards 2008* and RMS guidelines.

Council's requirements for the road network surrounding the development will be reflected in the consent conditions.

Type of traffic to the site – The subject site is currently vacant, there is limited traffic associated with the site.

The applicant has indicated in the Statement of Environmental Effects that the types of traffic associated with the proposed development will generally consist of standard passenger vehicles. The applicant is proposing that the largest size vehicle to enter the site will be a 19-metre semi-trailer vehicle, as specified in Austroads *Design Vehicles and Turning Path Templates* (2006), for delivery purposes.

Increase in traffic to the site – The subject allotment is currently vacant and generates little traffic.

The *RMS's Guide to Traffic Generating Developments* specifies the following estimation of traffic generation likely to be associated with the proposed development.

#### **Retail Shopping Centres –**

Evening peak hour vehicle trips = 12.5 vehicles per 100m<sup>2</sup> Gross Leasable Floor Area (GLFA).

The retail components of the proposed development have a gross floor area of 1,370m<sup>2</sup> and 1,230m<sup>2</sup> respectively. Therefore based upon the figures provided by the applicant and the *RMS's Guide to Traffic Generating Developments* the proposed retail components of the development will generate **325 vehicles per hour in peak periods**.

#### **Serviced Apartments –**

There is no specific rate for serviced apartments given in the *RMS's Guide to Traffic Generating Developments*. Serviced apartments fit into the Casual Accommodation category, the only rates given as part of this section are for a Motel. The rates for a motel area, evening peak hour vehicle trips = 0.4 vehicles per unit. While the proposed development is similar to a motel, the traffic generated by the development is expected to be greater than 0.4 vehicles per unit in the evening peak hour period. Therefore, based upon the *RMS's Guide to Traffic Generating Developments*, Council has extrapolated that 1 vehicle per unit will be generated during the evening peak period as the traffic generation rate of the serviced apartments.

Evening peak hour vehicle trips = 1 vehicle per unit

The proposed development includes forty (40) serviced apartments. Therefore based upon the figures provided by the applicant and extrapolation from the *RMS's Guide to Traffic Generating Developments* the proposed serviced apartments component of the development will generate **40 vehicles per hour in peak periods**.

Therefore the entire proposed development will generate approximately **365 vehicles per hour in peak periods** based upon of the *RMS's Guide to Traffic Generating Developments*.

The applicant has provided a Traffic Report conducted by Better Transport Futures. The report assessed the potential impacts of the proposed development on the surrounding road network. The report takes into consideration Council's traffic requirements and the RMS's Guide to Traffic Generating Developments.

The report stated that the retail section of the proposed development would regularly generate approximately **325 vehicle movements per hour in peak periods** based on the standard rates provided by the RMS. This is viewed as the worst-case scenario as traffic generated by the site could be reduced due to the shared trips to Banna Avenue and the lower rates associated with development in NSW. Based upon this Better Transport Futures allowed a reduction of 30%, decreasing the traffic generated by the proposed retail development to **228 vehicle movements per hour in peak periods**.

The report stated that the serviced apartments of the proposed development would regularly generate approximately 1 vehicle per unit based on the standard rates for hotel use. Therefore, the proposed serviced apartments will generate **40 vehicles per hour in peak periods**.

Therefore, the proposed development will generate **268 vehicles per hour in peak periods** based upon Better Transport Futures Traffic Report.

The nature of the road network surrounding the development means that the majority of traffic generated by the site will increase the traffic along Railway Street, Ulong Street and to a lesser degree Kooyoo Street.

Ulong Street is a four lane two-way road between Wakaden Street and Banna Avenue with an approximate AADT of 10,000 vehicles per day and an average PM peak of approximately 950 vehicles per hour. Traffic control signals are present at the intersection of Ulong Street and Wakaden Street, Ulong Street intersection with Railway Street and Banna Avenue are serviced by roundabouts. The additional traffic will not adversely affect the capacity or performance of these intersections. The extension of the existing centre median in Ulong Street from the railway to the intersection of Railway Street and Ulong Street will ensure that right turn movements into the site off Ulong Street are prevented and traffic flows along Ulong Street are not adversely impacted.

Railway Street is a two lane two-way road, with parking lanes on either side of the road between Ulong Street and Kooyoo Street. Council conducted a traffic count of along Railway Street in April 2008, based on these counts Railway Street had an approximate AADT of 2,700 vehicles per day and an average PM peak of approximately 280 vehicles per hour. Railway Street's intersection with Ulong Street and Kooyoo Street are serviced by roundabouts. The additional traffic will not adversely affect the capacity or performance of these intersections. A 'No Stopping' restriction will be installed along the northern side of Railway Street for the full frontage of the development. The removal of this parking will increase the visibility of the proposed development, create the safe sight distances required for the proposed accessways to the development and reduce the impact the development has on traffic flows along Railway Street.

Kooyoo Street is a two lane two-way road, with parking lanes on either side of the road between Ulong Street and the Railway Station. Council conducted a traffic count of along Kooyoo Street in August 2010, based on these counts Railway Street had an approximate AADT of 200 vehicles per day and an average PM peak of approximately 350 vehicles per hour. The intersection of Kooyoo Street and Railway Street is serviced by a relatively new roundabout. Due to the location of accessways into the development and the nature and layout of the surrounding road network, the traffic generated by the development will cause a minimal increase to the traffic along Kooyoo Street.

Taking into consideration the estimated traffic generation, the surrounding road network and the developments proposed traffic management measures to be constructed as part of this development, the development is not considered to impact on the surrounding road network where the efficiency and/or function of the road network are compromised.

Loading/Unloading – All loading/unloading is to be conducted onsite.

The applicant is proposing that the largest size vehicle to enter the site will be a 19-metre semi-trailer vehicle as specified in Austroads *Design Vehicles and Turning Path Templates* (2006).

Heavy vehicles accessing the development are required to enter the site via Ulong Street and leave via Kooyoo Street. The proposed layout requires approval from the landowners of Lot 33 DP 884345 and Lot 40 DP 884506 for the establishment of a right of carriageway over the lot to provide access to the development from Ulong Street. Council approved the right of carriageway over Lot 33 DP 884345 and Lot 40 DP 884506 in favour of Lot 34 DP 884345 at the Ordinary Meeting of Council on Tuesday 12 March 2013.

Pedestrians – Griffith's *Pedestrian and Mobility Plan* does not require the construction of a concrete footpath along the Railway Street frontage of the proposed development.

Pedestrian traffic generated by the proposed development is expected to be significant. This is due to the site's close proximity to Griffith's Central Business District, mainly Banna Avenue the city's main shopping strip. Sufficient pedestrian access from Griffith's CBD to the site is to be provided as part of the proposed development.

There is currently no provision for pedestrians travelling the northern side of Railway Street. Griffith's *Pedestrian and Mobility Plan* does not require a path to be constructed along the Railway Street frontage of the proposed development. However, the proposed development is likely to generate a significant number of pedestrian movements along Railway Street. Therefore Council will require the applicant to install a 2.5 metre wide shared path along the developments Railway Street frontage prior to the lodgement of an Occupation Certificate application.

The proposed development is expected to generate a significant amount of pedestrian traffic; combined with the estimated traffic volume increase along Railway Street the development will generate enough traffic to meet the RMS' warrants for a raised marked pedestrian crossing on Railway Street. The minimum requirements for a pedestrian crossing are that in three (3) separate one (1) hour periods on a typical day at least five hundred (500) vehicles are to have passed and thirty (30) pedestrians are to have crossed in the vicinity. The product of the number of vehicles and the pedestrians is required to be greater than sixty thousand (60,000) for a location to meet the requirements for a pedestrian crossing.

Based upon the current traffic counts of Railway Street and the traffic report provided by Better Transport Futures, traffic along Railway Street will be able to meet these warrants. Therefore, a raised pedestrian crossing (zebra) is to be installed on Railway Street in a suitable location prior to the lodgement of an Occupation Certificate application. This is to provide a safe crossing point across Railway Street for pedestrians accessing the development. The proposed raised pedestrian crossing (zebra) on Railway Street is to be constructed in accordance with *Australian Standards AS1742.10:2009 – Pedestrian Control and Protection*, *RMS Australian Standard Supplements – Australian Standard – AS 1742 Manual of Uniform Traffic Control Devices: Part 10*, *Austroads Guide to Road Design Part 4 – Intersections and Crossings - General* and *Austroads Guide to Traffic Management Part 8 – Local Area Traffic Management*.

The applicant is required to obtain Local Traffic Committee concurrence for the positioning of proposed raised pedestrian crossing (zebra) along Railway Street. Therefore, a formal written application, including details and designs, to Griffith's Local Traffic Committee for concurrence is to be submitted to Council's Traffic Engineer, prior to the lodgement of a Construction Certificate (Civil Works) application.

Council's requirements for pedestrian access surrounding the development will be reflected in the consent conditions.

### **Utilities**

Water – The site of the proposed development, Lot 34 DP 884345, is not currently connected to Council's reticulated potable water system.

The proposed development includes the construction of a four (4) storey building, accommodating forty (40) serviced apartments, and two (2) buildings for retail use. The proposed development will significantly increase the demand on the existing Council owned potable water main in Railway Street. The applicant shall determine the impact the proposed development will have on Council's reticulated potable water supply system.

Hydraulic calculations from a suitably qualified Hydraulic Engineer are to be submitted to Council for approval, prior to the lodgement of a Construction Certificate application. Calculations must demonstrate that additional tenements resulting from the development will maintain the minimum required pressure and flow rate through the Council's existing water main infrastructure.

Should the calculations prove that Council's existing water main infrastructure is not suitable for the proposed development, then upgrade and amplification of Council's water main infrastructure is to be conducted at the applicant's expense to meet the demand of the proposed development. The design of all new mains and other associated components normally associated with water main installations are to conform to the standards prescribed in *Council's Engineering Guidelines – Subdivisions and Development Standards December 2008* and the *Water Reticulation Code of Australia (WSA 03-2002)*

The applicant is to provide each proposed allotment with a connection to Council's water main prior to the lodgement of an Occupation Certificate application. The connection to Council's water main must be applied for separately. Each individual tenant within the structures will utilise the one service as part of a body corporate arrangement. Where the connection is 25mm or greater to serve the needs of the development, the application shall be supported with hydraulic calculations prepared by an appropriate consultant, including reference to a water pressure and flow rate test of the adjacent mains.

Sewerage – The subject allotment, Lot 34 DP 884345, is currently connected to Council's gravity sewerage system. However, the existing sewer connection for the proposed development is required to be upgraded.

The proposed development includes the construction of a four (4) storey building, accommodating forty (40) serviced apartments, and two (2) buildings for retail use. The proposed development will significantly increase the demand on Council's gravity sewer system in the area. The applicant shall determine the impact the proposed development will have on Council's gravity sewerage system.

Information on the proposed sewerage system for the existing and proposed development including calculated peak demands generated from the entire development

shall be supplied to Council. Details of the proposed sewerage system including approval from Council's Water and Sewer Department permitting the calculated flows to connect to Council's Sewerage system are to be submitted to Council for approval prior to the lodgement of a Construction Certificate application.

Separate sewer services with separate sewer main junctions are required for each lot in a Torrens Title Subdivision. Sewer connections are to be designed in accordance with Council's *Engineering Guidelines - Subdivisions and Development Standards December 2008* and submitted to Council for approval prior to the lodgement of a Subdivision Certificate application.

The applicant has proposed to extend Council's sewer main to service proposed Lot B, this is to service the proposed three (3) lot Torrens Title subdivision. The sewer main located in the north-western corner of the subject site is proposed to be extended along the northern boundary through proposed Lot A to proposed Lot B.

The design for pipelines, as well as manholes and other associated components normally associated with sewerage main installations are to conform to the standards prescribed in Council's *Engineering Guidelines- Subdivisions and Development Standards December 2008* and the *Sewerage Code of Australia (WSA 03-2002)*. Details and designs are to be submitted to Council for approval prior to the lodgement of a Construction Certificate (Civil Works) application.

Separate application is to be made to Council's Engineering Department for alteration to Council's Sewer Main.

All existing/proposed manholes are to be kept free of obstructions at all times.

An easement shall be established pursuant to Section 88B of the Conveyancing Act over Council's sewer main located within proposed Lot A. Matters to be addressed in the instrument should include the width and location of the easement. This is for the purpose of identifying and protecting the sewerage system.

Drainage – Currently drainage for the subject site is directed to the Inter-allotment drainage system along the south-western boundary of the subject allotment for disposal.

The subject site is located within the CBD catchment identified in *Council's Onsite Detention Policy*. Conditions shall be imposed to ensure that the proposed stormwater design incorporates onsite detention. The proposed development will be required incorporate onsite detention to ensure that stormwater runoff is limited to 65L/s/ha from the subject site. This will ensure that the stormwater runoff from the development will not adversely affect adjoining land in times of flood.

All stormwater run off shall be directed to Council's street system for disposal. Stormwater run off shall not be permitted to flow over the property boundaries onto the adjoining properties unless legally created easements in accordance with Section 88B of the Conveyancing Act are created. Details of the method of disposal, including pits, pipes and the like in accordance with *Council's Engineering Guidelines - Subdivisions and Development Standards December 2008* are to be submitted to Council for approval prior to the lodgement of a Construction Certificate application.

The stormwater drainage requirements on the development will be reflected in the consent conditions.

Electricity – Each proposed allotment is to be provided with electricity. The applicant is to make their own arrangements for connection to this system. Written confirmation from

the service provider for the proposed development is to be submitted to Council prior to the lodgement of a Subdivision Certificate application.

Gas – Each proposed allotment is to be provided with gas. The applicant is to make their own arrangements for connection to this system. Written confirmation from the service provider for the proposed development is to be submitted to Council prior to the lodgement of a Subdivision Certificate application.

Telecommunications – Each proposed allotment is to be provided with telecommunications. The applicant is to make their own arrangements for connection to this system. Written confirmation from the service provider for the proposed development is to be submitted to Council prior to the lodgement of a Subdivision Certificate application.

**The following engineering conditions apply to the development above:**

**GENERAL**

- (1) All civil construction works such as; the installation of sewer main infrastructure, stormwater infrastructure, driveways, pedestrian facilities, carparking and vehicular manoeuvring areas associated with the development are to be in accordance with *Council's Engineering Guidelines – Subdivisions and Development Standards December 2008*. All requests for inspections are to be made to Council's Customer Service Department.

Apart from these inspections various tests are to be conducted in conjunction with the works. Test guidelines and type of tests required are identified in *Council's Engineering Guidelines - Subdivisions and Development Standards December 2008*.

- (2) An application for a **Construction Certificate for Civil Works** shall be submitted to Council and approved for the sewer main infrastructure, stormwater infrastructure works and the construction of driveways, pedestrian facilities, carparking and vehicular manoeuvring areas. Detailed engineering design plans shall be submitted and approved by Council **prior to any Civil Works commencing**. Such plans shall include designs and specifications for all proposed works as required for approval by Council. The requirement must conform to *Council's Engineering Guidelines – Subdivisions and Development Standards* and the *Sewerage Code of Australia (WSA 03-2002)*.
- (3) C9001 - If any damage is occasioned to Council property, particularly concrete kerbing and guttering and foot paving during building construction, the cost of repairs will be recoverable. It is therefore requested that any damage which is obvious before construction be immediately notified to Council to avoid later conflict.
- (4) C9002 - Effective dust/noise/erosion control measures are to be maintained during construction to maintain public safety/ amenity.
- (5) C9015 X - The applicant is to be responsible for all amplification, extension and adequate provision for connection to services at their own expense. The work is to be in accordance with Council's *Engineering Guidelines - Subdivisions and Development Standards December 2008* and relevant authorities' specifications.



- (6) C9005 X - Control measures are to be utilised to prevent soil erosion and silt entering the drainage systems. **Prior to the lodgement of a Construction Certificate application** details of the proposed measures utilising the principles outlined in following document, *Soils and Construction - Managing Urban Stormwater by Landcom (Blue Book)*, are to be submitted for Council approval and implemented before, during and after development works.
- (7) A Construction Management Plan is to be submitted to Council and approved prior to the **lodgement of a Construction Certificate application**. This is to ensure that suitable provision is available on site for all vehicles associated with the construction of the development to alleviate any need to park within, load/unload from, the surrounding public road network. Appropriate signage and fencing is to be installed and maintained to effect this requirement.
- (8) C9084 X - The applicant is required to pay for all inspections carried out by Council's Engineers. Payment must be paid for eight (8) inspections as per Council's current *Revenue Policy* **prior to the lodgement of a Construction Certificate application**. Any adjustments to the total amount must be paid in full **prior to the lodgement of an Occupation Certificate application**.
- (9) C9083 X - All civil construction works shall be inspected by Council Officers or Council Nominee during normal office hours as specified in *Council's Engineering Guidelines - Subdivisions and Development Standards (Part 1 - Section 4)*. All requests for inspection are to be made to Council's Customer Service Department.

Apart from these inspections various tests are to be conducted in conjunction with the works. Test guidelines and type of tests required are identified in *Council's Engineering Guidelines - Subdivisions and Development Standards (Part 7)*.

- (10) C9082 x - Arrangements are to be made to provide a twelve (12) month maintenance period for civil works relating to Council's infrastructure. It is the applicant's responsibility to notify the relevant departments regarding the commencement and finish of the maintenance period and adequate arrangements are to be made regarding any relevant inspections required.

A five percent (5%) bond of the total cost of works is to be submitted to Council for the works that need maintenance **prior to the lodgement of an Occupation Certificate application**.

- (11) I9008 X - Works As Executed plans for approved civil works are to be submitted to Council upon completion of the development **prior to the lodgement of an Occupation Certificate application**. Works As Executed plans are to be in accordance with *Council's Engineering Guidelines – Subdivisions and Development Standards*.
- (12) **Prior to the lodgement of a Subdivision Certificate application**, services are not permitted to cross property boundaries unless legally created easements in accordance with Section 88B of the Conveyancing Act are created. The location and widths of the easements are to be specified in the instrument for the purpose of protecting and identifying the services.
- (13) I9005 X - The development must be provided with telephone services to each proposed allotment. Documentary evidence from Telstra is to be submitted to Council, **prior to the lodgement of a Subdivision Certificate application**,

confirming that satisfactory arrangements have been made for the provision of a telephone service.

- (14) I9006 X - The development must be provided with power to service each proposed allotment. Documentary evidence from Country Energy is to be submitted to Council, **prior to the lodgement of a Subdivision Certificate application**, confirming that satisfactory arrangements have been made for the provision of an adequate electricity supply.
- (15) I9007 X - The development must be provided with natural gas to service each proposed allotment. Documentary evidence from AGL is to be submitted to Council, **prior to the lodgement of a Subdivision Certificate application**, confirming that satisfactory arrangements have been made for the provision of a natural gas service.
- (16) Any landscaping, fencing or signage to be provided within the site or along the boundary with any adjoining road reserve (including laneways) is to be designed and maintained to provide safe sight distance to pedestrians for motorists entering and exiting the site to minimise conflict in accordance with AS2890.1:2004.
- (17) A traffic control plan is to be submitted to Council satisfying the provisions of Australian Standard 1742.3, for acceptance **prior to the commencement of work**. Strict compliance to the traffic control plan is to be maintained throughout the duration of the construction work.

## **ROADS**

- (1) **Prior to the lodgement of an Occupation Certificate application** a 'No Stopping' zone is to be installed along the northern side of Railway Street for the full frontage of the proposed development. Restrictions are to be implemented by making formal written application to Council's Traffic Engineer. All costs for the above mentioned works shall be borne by the applicant.
- (2) The existing concrete traffic median along Ulong Street is to be extended to the intersection of Ulong Street and Railway Street. The median shall restrict right turning movements into the development from Ulong Street. Detailed engineering design drawings for the median shall be submitted to Council for approval **prior to the lodgement of a Construction Certificate (Civil Works) application**. Such plans shall include designs and specifications for all proposed works as required for approval by Council. The requirements must conform to *Council's Engineering Guidelines - Subdivisions and Development Standards 2008* and RMS guidelines.
- (3) **Prior to the lodgement of an Occupation Certificate application** the existing concrete traffic median along Ulong Street is to be extended to the intersection of Ulong Street and Railway Street. The median shall restrict right turning movements into the development from Ulong Street.

## **ACCESS**

- (1) Driveway construction is subject to *Council's Engineering Guidelines - Subdivisions and Development Standards December 2008*. The finished level of the driveway at the property boundary shall be 130mm above the top of kerb. Upon completion of the formwork and string lines for the driveway, the applicant shall arrange for Council's Surveyors to inspect these works **prior**

**to the pouring of concrete for the driveway.** In the event that this level is unachievable, documentary evidence, including a detailed design is to be submitted and approved by Council **prior to the commencement of driveway construction application.**

Failure to construct to the given levels or without Council approval will render the owner liable for any necessary reconstruction costs to alter work not in conformity with such levels.

- (2) Turning paths to justify suitable tapers connecting to the road carriageway to accommodate 19-metre semi-trailer vehicles for the proposed accessways off Ulong Street and Kooyoo Street are to be submitted to Council for approval **prior to the lodgement of a Construction Certificate (Civil Works) application.** This is to justify the width of the proposed accessways and the tapers at the connection point to the road carriageway.
- (3) C9116 X - **Prior to the lodgement of an Occupation Certificate application,** the proposed accessways off Railway Street are to be constructed in accordance with *Council's Engineering Guidelines - Subdivisions and Development Standards December 2008 (Part 2 - Section 2)*, over the full width of the footway to provide effective sealed access to the site and a nuisance-free surface over Council's footway.
- (4) The vehicular accessways to be constructed off Railway Street are to be constructed with the ingress and egress lanes separated by a raised splitter island. Design drawings for the islands shall be submitted to Council for approval **prior to the lodgement of a Construction Certificate (Civil Works) application.** Such plans shall include designs and specifications for all proposed works as required for approval by Council. The requirements must conform to *Council's Engineering Guidelines - Subdivisions and Development Standards 2008* and RMS guidelines.
- (5) **Prior to the lodgement of an Occupation Certificate application** the vehicular accessways to be constructed off Railway Street are to be constructed with the ingress and egress lanes separated by a raised splitter island. The splitter islands shall be constructed so that they do not protrude onto the carriageway of Railway Street. Details of the splitter island are to be submitted to Council for approval prior to the commencement of works of the accessways.
- (6) C9116 X - **Prior to the lodgement of an Occupation Certificate application,** the proposed accessway off Ulong Street is to be constructed in accordance with *Council's Engineering Guidelines - Subdivisions and Development Standards December 2008 (Part 2 - Section 2)*, over the full width of the footway to provide effective all-weather access to the site and a nuisance-free surface over Council's footway.

The proposed accessway off Ulong Street will include the construction of a sealed roadway over Lot 33 DP 884345 to provide access to the subject allotment. The proposed roadway is to be designed and constructed to cater for the future development of Lot 33 DP 884345. The roadway over Lot 33 DP 884345 is to be maintained by the developer of Lot 34 DP 884345 for the lifetime of the development.

- (7) C9116 X - **Prior to the lodgement of an Occupation Certificate application,** the proposed accessway off Kooyoo Street is to be constructed in accordance with *Council's Engineering Guidelines - Subdivisions and*

*Development Standards December 2008 (Part 2 - Section 2)*, over the full width of the footway to provide effective all-weather access to the site and a nuisance-free surface over Council's footway.

The proposed accessway off Kooyoo Street will include the construction of a sealed roadway north of Lot 40 DP 884506 to provide access from the subject allotment. The proposed roadway is to be designed and constructed to cater for the future development of Lot 40 DP 884506. The roadway over Lot 40 DP 884506 is to be maintained by the developer of Lot 34 DP 884345 for the lifetime of the development.

- (8) All vehicles are required to enter and leave the development in a forward direction to ensure traffic/pedestrian safety.
- (9) C9113 - All vehicular loading and unloading is to be carried out within the site to prevent interference with the use of the public road by vehicles and pedestrians.
- (10) C9130 X - Vehicles accessing the development are to be limited to a 19-metre semi-trailer as specified in Austroads *Design Vehicles and Turning Path Templates* (2006).
- (11) Heavy vehicles are required to enter the site via Ulong Street and leave the site via Kooyoo Street. Heavy vehicles shall include heavy rigid vehicles and all vehicles of greater size as specified in AS 2890.2 – *Off Street Commercial Parking Facilities* (2002).
- (12) All heavy vehicles shall only be permitted to enter the development via the accessway located off Ulong Street and exit via the accessway located off Kooyoo Street. Heavy vehicles shall include heavy rigid vehicles and all vehicles of greater size as specified in AS 2890.2 – *Off Street Commercial Parking Facilities* (2002).

Entry & Exit signs and associated linemarking/directional arrows are to be installed in accordance with AS2890. Signage and associated linemarking/directional arrows are to be installed to clearly advise motorists of the entry and exit driveways. All signage and linemarking/directional arrows are to be installed to Council's satisfaction **prior to the lodgement of an Occupation Certificate application**. All costs associated with these works are to be borne by the applicant. The signs and linemarking/directional arrows are to be maintained for the life of the development.

- (13) Vehicles accessing the development from Ulong Street are restricted to a left turn movement.
- (14) **Prior to the lodgement of a Subdivision Certificate application** right of carriageways are to be created in accordance with Section 88B of the Conveyancing Act where vehicles cross property boundaries. Matters to be addressed in the instrument are to include the width and location of the right of carriageways. This is for the purpose of identifying and protecting the vehicular access-ways. The instrument shall include the maintenance of the internal roadways to be constructed in the right of carriageways for the lifetime of the development.
- (15) C9126 - **Prior to lodgement of an Occupation Certificate application**, entry and exit signs shall be erected at the applicant's expense within the property for all proposed accessways in a position clearly visible from the

surrounding road network. The type and location of the signage are to be to the satisfaction of Council.

- (16) C9126 X - **Prior to lodgement of an Occupation Certificate application**, 'Heavy Vehicle Access Only' signage shall be erected at the accessways off Ulong Street and Kooyoo Street, at the applicant's expense. The signage shall be clearly visible from the road way and within the carpark for the development. The signage is required to identify the one-way movement of heavy vehicles through the site and restrict light vehicles from utilising the heavy vehicle accessways.
- (17) C9126 X - **Prior to lodgement of an Occupation Certificate application**, 'No Entry' signage shall be erected at the exit points of the accessways off Ulong Street and Kooyoo Street at the applicant's expense. The signage shall be clearly visible from the road way and within the carpark for the development. The signage is required to identify the one-way movement of heavy vehicles through the site and restrict light vehicles from utilising the heavy vehicle accessways.

## **PEDESTRIANS**

- (1) **Prior to the lodgement of an Occupation Certificate application** the applicant shall construct a 2.5 metre wide, shared concrete footpath along Railway Street for the full frontage of the subject allotment. Footpath construction is to comply with Council's *Engineering Guidelines – Subdivisions and Development Standards December 2008*.
- (2) A raised pedestrian crossing (zebra) is to be installed on Railway Street in a suitable location, to provide a safe crossing point for pedestrians accessing the development. A formal written application, including details and designs, to Griffith's Local Traffic Committee for concurrence is to be submitted to Council's Traffic Engineer, **prior to the lodgement of a Construction Certificate (Civil Works) application**.

The proposed raised pedestrian crossing (zebra) on Railway Street is to be designed in accordance with *Australian Standards AS1742.10:2009 – Pedestrian Control and Protection, RMS Australian Standard Supplements – Australian Standard – AS 1742 Manual of Uniform Traffic Control Devices: Part 10, Austroads Guide to Road Design Part 4 – Intersections and Crossings - General and Austroads Guide to Traffic Management Part 8 – Local Area Traffic Management*.

- (3) **Prior to the lodgement of an Occupation Certificate application**, a raised pedestrian crossing (zebra) is to be installed on Railway Street in a suitable location to provide a safe crossing point for pedestrians accessing the development.

The proposed raised pedestrian crossing (zebra) on Railway Street is to be constructed in accordance with *Australian Standards AS1742.10:2009 – Pedestrian Control and Protection, RMS Australian Standard Supplements – Australian Standard – AS 1742 Manual of Uniform Traffic Control Devices: Part 10, Austroads Guide to Road Design Part 4 – Intersections and Crossings - General and Austroads Guide to Traffic Management Part 8 – Local Area Traffic Management*.

## **PARKING**

- (1) C9111 X - **Prior to the lodgement of an Occupation Certificate application** provision of .....(*planner to fill in*)..... off-street parking spaces each of dimensions 2.6 metres x 5.5 metres in accordance with Council's *Development Control Plan (DCP) 20 – Parking (2011)*, including .....(*planner to fill in*)..... car parking space in accordance with Australian Standard 2890.6:2009 for disabled persons to serve the proposed development. Parking bays are to be clearly identified by pavement markings. Spaces adjacent to walls or other obstructions, which may affect door openings or vehicle manoeuvring, are to be widened by an additional 300mm on the side of the obstruction(s).

In respect of parking for disabled persons, approval does not guarantee compliance with the Disability Discrimination Act and the developer should investigate their liability under the Act. The applicant's attention is drawn to the Australian Standard AS 2890.6:2009 in respect of acceptable standards of design and requirements.

- (2) Parking bays, line marking and directional lines must be implemented substantially in accordance with the approved plans and *Australian Standard 2890.1:2004*. Parking bays, line marking and directional lines are to be maintained by the owner of the site for the lifetime of the development and are to be installed **prior to the lodgement of an Occupation Certificate application**.
- (3) C9108 X - **Prior to the lodgement of an Occupation Certificate application** all car parking and vehicular manoeuvring areas associated with the development are to be constructed of concrete or bitumen sealed and maintained to Council's satisfaction.
- (4) **Prior to the lodgement of an Occupation Certificate application** provision for the parking of bicycles on site in accordance with AS 2890.3-1993 "Bicycle parking facilities" is to be provided.
- (5) Internal vehicular manoeuvring aisles, parking areas and loading bays shall be maintained clear of obstruction and used exclusively for the purposes of vehicle access, parking and loading and unloading respectively. Under no circumstances shall these areas be used for the storage of goods or waste receptacles or any other purpose.
- (6) All lighting for the illumination of carpark and pedestrian areas shall comply with AS1158 – "Lighting for roads and public spaces" and AS4282 – "Control of Obtrusive Effects of Outdoor Lighting". Details demonstrating compliance with these requirements are to be submitted to Council for approval **prior to the lodgement of a Construction Certificate (Civil Works) application**.

## **DRAINAGE**

- (1) C9021 X - All stormwater run off shall be directed to Council's street system for disposal. Stormwater run off shall not be permitted to flow over property boundaries onto the adjoining properties unless legally created easements in accordance with Section 88B of the Conveyancing Act are created. Detailed design drawings and hydraulic calculations for the proposed drainage design are to comply with *Council's Engineering Guidelines – Subdivision and Development Standards December 2008* and are to be submitted to Council

for approval **prior to the lodgement of a Construction Certificate application.**

- (2) C9020 - Where required, kerb outlets for stormwater to be saw cut with suitably approved kerb adaptors to be installed using 20 MPa concrete.
- (3) Stormwater detention is to be created onsite for the critical storm event. The maximum developed discharge is to be 65 litres per second per hectare for the proposed development as approved by this Development Application. Design and details in accordance with *Council's Engineering Guidelines – Subdivision and Development Standards December 2008* are to be submitted to Council for approval **prior to the lodgement of a Construction Certificate application.**
- (4) A qualified Civil Engineer with experience in Hydraulic Analysis shall design and certify the Onsite Detention System, which shall be maintained for the life of the project. The consultant must sign off all drawings and calculations and provide details of Professional Indemnity insurance.

Design and details in accordance with *Council's Engineering Guidelines – Subdivision and Development Standards December 2008* are to be submitted to Council for approval **prior to the lodgement of a Construction Certificate application.**

- (5) The onsite detention, associated floodways and flow paths are to be protected by a Section 88E covenant in favour of Griffith City Council. The Instrument is to be submitted to Council for approval, **prior to the lodgement of an Occupation Certificate application.**

## **WATER**

- (1) C9007 X - **Prior to the lodgement of an Occupation Certificate application** individual water meters are to be provided to each proposed allotment. The connection to Council's water main must be applied for separately. Where the connection is 25mm or greater to serve the needs of the development, the application shall be supported with hydraulic calculations prepared by an appropriate consultant, including reference to a water pressure and flow rate test of the adjacent mains.
- (2) The applicant is to submit to Council for approval, hydraulic calculations from a suitably qualified Hydraulic Engineer **prior to the lodgement of a Construction Certificate application.** Calculations must demonstrate that additional tenements resulting from the development will maintain the minimum required pressure and flow rate through Council's existing water main infrastructure.

Should the calculations prove that Council's existing water main infrastructure is not suitable for the proposed development, then upgrade and amplification of Council's water main infrastructure is to be conducted at the applicant's expense to meet the demand of the proposed development. The design of all new mains and other associated components normally associated with water main installations are to conform to the standards prescribed in *Council's Engineering Guidelines – Subdivisions and Development Standards December 2008* and the *Water Reticulation Code of Australia (WSA 03-2002)*.

## **SEWER**

- (1) The applicant must supply information on the proposed sewerage system for the existing and proposed development including calculated peak demands generated from the entire development. Details of the proposed sewerage system including approval from Council's Water and Sewer Section permitting the calculated flows to connect to Council's Sewerage system are to be submitted to Council for approval **prior to the lodgement of a Construction Certificate application.**
- (2) **Prior to the lodgement of a Subdivision Certificate application** Council's existing gravity sewer system is to be extended to service proposed Lot B. All works shall be in accordance with the specifications outlined in *Council's Engineering Guidelines – Subdivision and Development Standards 2008* and the *Sewerage Code of Australia (WSA 03-2002)*.
- (3) The design for pipelines, as well as manholes and other associated components normally associated with sewerage main installations are to conform to the standards prescribed in Council's *Engineering Guidelines-Subdivisions and Development Standards December 2008* and the *Sewerage Code of Australia (WSA 03-2002)*. Details and designs are to be submitted to Council for approval **prior to the lodgement of a Construction Certificate (Civil Works) application.**
- (4) C9066 X - The applicant should be aware that as a **Torrens Title Subdivision** is proposed, then separate sewer services with separate sewer main junctions shall be required. If separate services can not be provided to developments, development approval is unlikely to be given.

The allotment owner shall be responsible for the; maintenance, repair, replacement and upgrading of all private internal sewer lines.

Sewer connections are to be designed in accordance with Council's *Engineering Guidelines - Subdivisions and Development Standards December 2008* and submitted to Council for approval **prior to the lodgement of a Construction Certificate application.** Separate application is to be made to Council's Engineering Department for alteration to Council's Sewer Main.

- (5) C9079 X - Application is to be made to Council's Engineering Department by the appointed licensed plumber **prior to the commencement of work** on Council's sewer main.
- (6) All existing/proposed sewer manholes must be kept free of any obstructions so that their positioning and maintenance are easily obtainable.
- (7) **Prior to the lodgement of a Subdivision Certificate application** a three (3) metre easement shall be established pursuant to Section 88B of the Conveyancing Act for the drainage of sewage from the proposed allotments as a burden on all downstream allotments. The 88B instrument shall identify Council as a benefited authority. Matters to be addressed in the instrument should include the width and location of the easement. This is for the purpose of identifying and protecting the sewerage system.



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**FLOOR LEVELS**

- (1) C9029 X - Floor levels are subject to Council's *Flood Plain Management Policy*. The floor levels of habitable rooms for new buildings associated with the proposed development shall not be less than 410mm above the surrounding ground level. In the event that this level is unachievable, documentary evidence, including a detailed design is to be submitted and approved by Council.

**MATHEW VITUCCI**  
**TRAFFIC ENGINEER**