Development Engineering Formal Referral Response

Application Information	
Referral Officer	Lara Fiscalini
Officer	Mark Pisani
Council Reference	IREF22/00739
Address	1-9 Doonside Street, Richmond
Application No.	PPE22/0103
Proposal	Referral - Internal – Development Engineering
Comments Sought	Victoria Gardens expansion

Council's Engineering Referral team provides the following information which is based on the information provided by Statutory Planning referenced above.

Comments and Recommendations

Drawings and Documents Reviewed

	Drawing No. or Document	Revision	Dated
Cox Architecture	TP-10-01 *Survey Title Plan - As supplied by Veris*	2	28 March 2022
	TP-11-01 *Proposed Context Plan*	2	28 March 2022
	TP-11-02 *Proposed Site Plan*	2	28 March 2022
	TP-13-01 *Staging Plan – Basement 02*	2	28 March 2022
	TP-13-02 *Staging Plan – Basement 01*	2	28 March 2022
	TP-13-03 *Staging Plan – Ground Floor & Mezzanine Plan*	2	28 March 2022
	TP-13-04 *Staging Plan – Level 01*	2	28 March 2022
	TP-13-05 *Staging Plan – Level 01 & Mezzanine*	2	28 March 2022
	TP-13-06 *Staging Plan – Level 02*	2	28 March 2022
	TP-21-01 *Basement 2 Plan*	2	28 March 2022
	TP-21-02 *Basement 1 Plan*	2	28 March 2022
	TP-21-03 *Ground Floor& Mezzanine Plan*	2	28 March 2022
	TP-21-04 *Level 1 Plan*	2	28 March 2022

	TP-21-05 *Level 1 Mezzanine Plan* TP-21-06 *Level 2 Plan* TP-30-01 *Overall Elevations* TP-30-02 *Overall Elevations* TP-30-03 *Overall Elevations (Internal)* TP-30-04 *Overall Elevations (Internal)* TP-30-05 *Overall Elevations (Internal)* TP-30-10 *South Elevation-Zone A* TP-30-10 *South Elevation-Zone B* TP-30-13 *North Elevation-Zone B* TP-30-14 *East Elevation* TP-30-15 *West Elevation* TP-30-16 *South Elevation – Internal Looking North* TP-30-17 *North Elevation – Internal Looking South* TP-30-18 *East Elevation – Internal Looking East – 1* TP-30-19 *East Elevation – Internal Looking West – 2* TP-30-20 *West Elevation – Internal Looking East – 3* TP-30-21 *West Elevation – Internal Looking West – 4* TP-40-01 *Section A-A* TP-40-02 *Section B-B* TP-40-03 *Section C-C* TP-40-04 *Section D-D* TP-40-05 *Section E-E – Zone A* TP-40-06 *Section E-E – Zone B*	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	28 March 2022 28 March 2022
Stantec	Transport Impact Assessment Transport Review	B	13 April 2022 12 April 2022
Arcadia	Landscape Town Planning Package	6	8 April 2022

CAR PARKING PROVISION

Proposed Development

Under the provisions of Clause 52.06-5 of the Yarra Planning Scheme and Schedule 2 to the Comprehensive Development Zone, the development's parking requirements are as follows:

Proposed Use	Quantity/ Size	Clause 52.06 Requirement*	CDZ1 Requirement	No. of Spaces Allocated
One-Bedroom Dwelling	456	853	1,258	484
Two-Bedroom Dwelling	369			
Three-Bedroom Dwelling	14			
Office	3,485 m^2	104	87	34
Shop	5,185 m^2	299	233	0
Food and Drink	1,914 m^2		144	
Hotel (Pub)**	1,446 m^2		50	
	Total	**1,256 spaces**	**1,772 spaces**	**518 spaces**

***** Since the site is located within the Principal Public Transport Network Area, the parking rates in Column B of Clause 52.06-5 now apply.

****** Since CDZ1 does not have a parking rate for the pub, Stantec has adopted the rate used in Clause 52.06-5 to determine the parking requirement for this use.

To reduce the number of car parking spaces, the method used determine the appropriateness of the car parking provision under Clause 52.06 could be adopted.

Car Parking Demand Assessment

In reducing the number of parking spaces required for the proposed development, the Car Parking Demand Assessment would assess the following:

Parking Demand Consideration	Details
Parking Demand for the Dwellings	The residential dwellings would be provided with on-site parking at a rate of 0.577 spaces per dwelling (484 spaces for the 839 dwellings). Stantec has identified that the approved development at Lots 9 and 10 of Victoria Gardens, the on-site parking for the dwellings was approved at a rate of 1.0 space per dwelling. Prospective residents would know up-front whether the dwellings contain on-site parking. As with many large scale developments we have reviewed, a proportion of dwellings are not provided with any on-site parking. The provision of 0.577 spaces per dwelling is considered appropriate in this instance, as the development has very good links to public transport services, bicycle infrastructure and proximity to shops, supermarkets, businesses and essential facilities.
Parking Demand for the Office Use	The office would be provided with on-site parking at a rate of 0.98 spaces per 100 square metres of

	floor area. Office developments throughout the municipality have been approved by Council with reduced rates. A few examples include: ▪ 60-88 Cremorne Street, Cremorne – 0.72 spaces/100 m^2 ▪ 51 Langridge Street, Collingwood – 0.54 spaces/100 m^2 ▪ 2-16 Northumberland Street, Collingwood – 0.89 spaces/100 m^2 The proposed office parking rate of 0.98 spaces per 100 square metres of floor area is considered appropriate as the site has very good access to public transport and seeks to encourage use of more sustainable forms of transport.
Parking Demand for the Shop, Food and Drink and Hotel (Pub) Uses	A retail parking demand rate of 3.0 spaces per 100 square metres of floor area has been adopted by Stantec, based on a previously approved rate. The on-site parking occupancy of the Victoria Gardens car park back in 2019 suggests that there would be sufficient capacity to accommodate the retail parking demand (256 spaces) within the existing car park.
Availability of Public Transport in the Locality of the Land	The following public transport services can be accessed to and from the site by foot: ▪ Victoria Street trams – 300 metre walk ▪ Bridge Road trams – 600 metre walk
Multi-purpose Trips within the Area	Customers and clients to the development could combine their visit by engaging in other activities or business within the overall Victoria Gardens shopping centre.
Convenience of Pedestrian and Cyclist Access	The site is very well positioned in terms of pedestrian access to public transport nodes, shops, supermarkets, places of employment and education and other essential facilities. The site also has good connectivity to the on- and off-road bicycle network.

Appropriateness of Providing Fewer Spaces than the Likely Parking Demand

For the subject site, the following considerations are as follows:

Consideration	Details
Relevant Local Policy or Incorporated Document	The proposed development is considered to be in line with the objectives contained in Council's *Strategic Transport Statement*. The site is ideally located with regard to sustainable transport alternatives and the reduced provision of on-site car parking would potentially discourage private motor vehicle ownership and use.

Adequacy of Car Parking

From a traffic engineering perspective, the reduction in parking for the residential, office and retail uses is considered appropriate in the context of the development and the surrounding area. The on-site parking rates are fairly consistent with those approved/adopted for many large scale developments within Yarra.

The Engineering Referral team has no objection to the reduction in the car parking requirement for this site.

TRAFFIC IMPACT

Trip Generation

The trip generation for the site adopted by Stantec is as follows:

Proposed Use	Adopted Traffic Generation Rate	AM Peak Hour	PM Peak Hour	Saturday Peak Hour
Residential	0.16 trips per space in each peak hour	77	77	77
Office	0.44 trips per space in each AM peak hour 0.36 trips per space in each PM peak hour	15	12	-
Retail	0.46 trips/100 m^2 in each AM peak hour 1.6 trips/100 m^2 in each AM peak hour 2.6 trips/100 m^2 in each Saturday peak hour	39	137	222
	Total	**131 trips**	**226 trips**	**299 trips**

The traffic generated by the residential and office components would be access the site via David Street and Doonside Street. The traffic generated by retail parking demand would use the existing shopping centre car park.

Trip Generation from Developments of the Surrounding Area

Stantec has tabulated the trip generations from recently approved developments within the surrounding area. The rates adopted by Stantec to estimate the trip generation for the developments are somewhat lower than the rates we would have adopted. For example the development at 171 Buckingham Street was approved with a peak hour trip generation of 49 trips per peak hour (as opposed to 36 trips per hour). Overall, the traffic volumes provided by Stantec give an indicative snapshot of trips generated by the surrounding developments.

The trip generations provided by Stantec did not include the land at 81 Burnley Street, the former 'Harry the Hirer' site. Whilst a development proposal has not been formally lodged with Council for that site, an estimated trip generation from this land could have been factored into Stantec's summation of trip generations.

Intersection Analysis

To assess the traffic impact of the surrounding intersections, Stantec had used traffic volume data from 2016, which would now be considered outdated (please see Traffic unit's comments below). The SIDRA analysis of the surrounding intersections needs to be revisited by sourcing more recent traffic volume data.

Additional Comment from Council's Traffic

Council's Traffic unit (Karen Wong, Acting Coordinator Traffic) has also reviewed the proposal and provides the following comment:

Item	Traffic Unit's Comment
Existing Volume Data	The existing volumes (2016) should be validated with more recent surveys to account for current conditions. Especially since there would be changes after COVID.
River Boulevard	The proposed traffic generation proposed is pushing River Boulevard beyond 3,000 vehicles per day. Is the current signal phasing adequate? Please provide for modelling of that intersection.
Doonside Street/Burnley Street Intersection	Similarly Doonside and Burnley is likely to be signalised due to the various development in the area. Please ensure they include the proposed for Harry the Hirer. I have attached the draft signal layout [a separate pdf file which is to be read in conjunction with this item]. Note that it is likely to change.
Delivery and Waste Collection Movements	More information of delivery and waste collection movement. What are the expected truck sizes and demonstrate if current and potential future settings (include the signalisation of Doonside and Burnley) can accommodate the anticipated movements.
Pedestrian Crossing – Doonside Street	Details of the proposed pedestrian crossing will need to be provided as parking on the south side of Doonside Street will likely to be removed. Also any lighting requirement will need to be considered as part of this development (DoT approval required).

DEVELOPMENT LAYOUT DESIGN

Layout Design Assessment

Item	Assessment
Access Arrangements	
Development Entrance – Basement Ramp West Side of David Street	The development entrance has a carriageway width of 6.5 metres with additional 300 mm wide kerbs, which satisfies the Australian/New Zealand Standard AS/NZS 2890.1:2004.
Development Entrance – Ramp to Level 1 Car Park West Side of David Street	The entrance leading up to Level 1 Car Park has a carriageway width of 5.8 metres with additional 300 mm wide kerbs, which satisfies AS/NZS 2890.1:2004.
Visibility	A pedestrian sight triangle has not been superimposed for the basement car park entrance. A pedestrian sight triangle has not been provided at the exit lane for the entrance to the Level 1 car park of Building 6.
Headroom Clearance	Not dimensioned on the drawings.
Internal Ramped Accessways	The ramped accessway between Basement 1 and Basement 2 have clear individual lane widths of 3.25 metres which satisfy AS/NZS 2890/1:2004. The internal ramped accessway within the car park of Building 6 has a carriageway width of 5.8 metres with 300 mm wide additional kerbs, which satisfy AS/NZS 2890.1:2004.
Car Parking Modules	
At-grade Parking Spaces	The dimensions of the parking spaces (2.6 to 3.0 metres by 4.9 metres) satisfy *Design standard 2: Car parking spaces* of Clause 52.06-9.
Tandem Parking Sets	The 10.3 metre lengths of the tandem parking sets satisfy *Design standard 2*.
Accessible Parking Space	Accessible parking spaces have not been provided
Aisles	The aisle widths range from 5.7 to 7.875 metres, which satisfy *Table 2: Minimum dimensions of car parking spaces and accessways* of Clause 52.06-9.
Column Depths and Setbacks	Columns are positioned outside of parking space clearance envelopes as required by *Diagram 1 Clearance to car parking spaces* in Clause 52.06-9.
Clearances to Walls	Spaces adjacent to walls have been provided with 300 mm clearances, which satisfy *Design standard 2.*
Gradients	
Ramp Grade for the first 5.0 metres inside the Property	Entrance to Basement Ramp: The ramp profile from the west alignment of David Street comprises a flat section of 2.5 metres followed by a ramp grade of 1 in 20 extending for 6.8 metres. Entrance to Car Park of Building 6: The ramp profile for the first 5.0 metres inside property is flat.

	The ramp grades within the first 5.0 metres for both access points satisfy *Design standard 3: Gradients*.
Ramp Grades and Changes of Grade	The ramp grades and changes of grade satisfy *Table 3 Ramp Gradients* of Clause 52.06-9.
Swept Path Assessment	
Vehicle Entry and Exit Movements Entrances off David Street V162221-AT07-01*****	The swept path diagrams for a B99 deign vehicle and an oncoming B85 design vehicle entering and exiting the two entrances off David Street are considered satisfactory.
Medium Rigid Vehicle Ingress and Egress Retail Loading Dock V162221-AT07-02 V162221-AT07-03	The swept path diagrams for an 8.8 metre long medium rigid vehicle entering and exiting the development via David street and manoeuvring into and out of the retail loading dock are considered satisfactory.
Small Rigid Vehicle Ingress and Egress Retail Loading Dock V162221-AT07-04 V162221-AT07-05	The swept path diagrams for 6.4 metre long small rigid vehicle entering and exiting the development via David street and manoeuvring into and out of the retail loading dock are considered satisfactory.
Vehicle Passing Movements Basement 1 V162221-AT05-01	The vehicle passing movements of a B99 design vehicle and an oncoming B85 design vehicle at the top of the internal ramp in Basement 1 are considered satisfactory.
Vehicle Passing Movements Basement 2 V162221-AT06-01	The vehicle passing movements of a B99 design vehicle and an oncoming B85 design vehicle within Basement 2 are considered satisfactory.
Truck Manoeuvrability Retail and Residential Loading Docks Basement 2 V162221-AT03-01 to V162221-AT03-13	The swept path diagrams for a small rigid vehicle, a medium rigid vehicle and a 10.8 metre long hooklift vehicle access and egressing the retail and residential loading docks in Basement 2 are considered satisfactory.
Other Items	
Loading Arrangements	The areas set aside for the loading docks in Basement 2 and the retail loading bay adjacent to the main accessway (near the David Street entrance) are considered satisfactory.
Vehicle Crossing Ground Clearance	A vehicle crossing ground clearance check is to be undertaken for each newly constructed vehicle crossing by the applicant's designer to confirm that a B99 design vehicle can enter and exit the property without scraping out (Please see under '*Engineering Advice for Design Items to be Addressed by the Applicant*' section).

***** Stantec swept path diagram drawing number.

Engineering Advice for Design Items to be Addressed by the Applicant

Item	Details
Visibility – Entrances off David Street	A pedestrian sight triangle measuring 2.0 metres by 2.5 metres is to be superimposed for the exit lane of the basement car park entrance. Since no pedestrian sight triangle has been provided for the exit lane at the entrance to Level 1 car park of Building 6, a convex mirror is to be installed.
Headroom Clearance	The headroom clearances at the development entrances off David Street have not been dimensioned on the drawings.
Accessible Parking Spaces	The applicant is to confirm whether accessible parking spaces are required for the development (particularly for the office users).
Vehicle Crossing Ground Clearance	To assist the applicant, a *Vehicle Crossing Information Sheet* has been appended to this memo. The ground clearance check (for each new vehicle crossing) requires the applicant to obtain a number of spot levels which include the reduced level 2.0 metres inside the property, the property boundary level, the bottom of kerb (invert) level, the edge of the channel level and a few levels on the road pavement – in this case, David Street. These levels are to be shown on cross sectional drawings with dimensions, together with the B99 design vehicle ground clearance template demonstrating access and exit movements. Providing the ground clearance checks early in the design phase can also determine whether further modification works are required, such as lowering the finished floor level inside the property or making any adjustments to Council's footpaths or road infrastructure.

INFRASTRUCTURE ITEMS AND CONSTRUCTION ACTIVITIES

Item	Details
General	
Impact on Council Road Assets during Construction	The construction of the new buildings, the provision of underground utilities and construction traffic servicing and transporting materials to the site will impact on Council assets. Trenching and areas of excavation for underground services invariably deteriorates the condition and integrity of footpaths, kerb and channel, laneways and road pavements of the adjacent roads to the site. It is essential that the developer rehabilitates/restores laneways, footpaths, kerbing and other road related items, as recommended by Council, to ensure that the Council infrastructure surrounding the site has a high level of serviceability for employees, visitors and other users of the site.
Council Laneways	
Council Laneways within the Development Site	A check of Council's GIS and the City of Yarra's *Register of Public Roads* indicates that there are currently two Council controlled laneways within the development site, as shown in the snippet below (coloured red):  The east-west aligned laneway adjacent to the land at 53 Burnley Street is laneway 3064 and the north-south aligned lane abutting the rears of 65 to 77 Burnley Street is laneway 705. As part of the landscaping works, the laneways are effectively being privatised. As a consequence, the laneways would no longer function as 'roads' and should be discontinued via a formal process under the provisions of the *Local Government Act* 1989.

	We will not approve the works as proposed for the laneways should they remain under Council ownership/control. If the laneways are retained as Council assets, they must be reconstructed to Council standard and in accordance with Council's *Road Infrastructure Materials Policy*, and be accessible for vehicles, bicycles and pedestrians.
Frontage Roads along Development Site	
Kerb and Channel Reconstruction Footpath Reconstruction	Construction works at the site and the occupation of the footpaths during works will impact on the condition of the footpaths and kerb and channel. The provision of underground utilities often require open cut trenches to be made – which result patch-work reinstatements. The Permit Holder is to reconstruct the footpaths and kerb and channel along the property's Burnley Street, Doonside Street and David street road frontages. The reconstructed footpaths (in sawn bluestone pavers) must have cross-falls of 1 in 40.
Pavement Re-sheeting	Heavy vehicle movements and activities made by plant often scour and deteriorate the condition of the road pavement – noticeable by cracking, dislodging of material/stones and heaving in the pavement. The Doonside Street and David Street road pavements are to be re-sheeted upon the completion of works. Any areas of pavement failure are to be reinstated with full-depth road pavement in accordance with Council requirements.
Removal of Redundant Vehicle Crossings	All redundant vehicle crossings are to be demolished and reinstated with paving, kerb and channel.
Removal of Redundant Property Drains	Redundant property drains under the footpaths must be removed and reinstated to Council's satisfaction.
Undergrounding of Electricity – Doonside Street	The applicant is to underground electricity along the north side of Doonside Street to the satisfaction of the relevant power authority and Council. The undergrounding of power must not interfere with the tree root zones and irrigation systems for the trees.
Engineering Design	
Inception Meeting between the Applicant's Civil Engineering Consultant and Council's Civil Infrastructure Team	Before the preparation of the detailed engineering design commences, the applicant must convene an inception meeting with Council's Civil Infrastructure team to discuss the civil engineering and drainage design aspects of the infrastructure works associated with the development.
Detailed Engineering Design	The applicant must submit detailed engineering design drawings of all infrastructure works associated with the development to Council for assessment and approval.
Proving of Underground Utilities	The applicant must locate and prove all underground utility services within the road reserves fronting the development.
Indented Parking Areas – Doonside Street	The design of the indented parking areas along the north side of Doonside Street is to be in accordance with the Australian/New Zealand Standard AS/NZS 2890.5:2020 *Parking facilities Part 5: On-street parking*.

Legal Point of Discharge (LPD)	A Council drain capacity assessment and catchment analysis is required to determine if the site's LPD can be discharged to a Council drain. A detailed drainage design, together with hydraulic and hydrological calculations, is also required to be submitted to Council for assessment and approval. To assist the applicant, base maps showing the existing drainage infrastructure surrounding the site have been appended to this memo.
Public Lighting	A lighting consultant is to be engaged to provide a lighting report detailing the following: ▪ Existing lighting conditions. ▪ Proposed temporary lighting solution. ▪ Proposed permanent lighting solution. ▪ Lighting that needs to be removed/replace as part of development and rationale behind this. ▪ Lighting category to be used for any proposal and rationale behind this (usually P4 lighting level). Plans to be provided should include: ▪ Existing lighting conditions should be shown for comparison against proposed lighting conditions. ▪ Temporary and Permanent Lighting Plan/Proposal to be provided in accordance with the below standards: o AS1158.1.1 and AS1158.3.1:2020 – should be shown on a lux diagram plan with lighting arrangements (i.e. fixture, category of lighting, whether poles are proposed or not, height clearances etc) o AS4282:2019 – lux diagram showing light spill levels against any habitable windows in surrounding area o Lighting calculations for existing and proposed in accordance with relevant standard requirements from AS1158.1.1 & AS1158.3.1 o Lighting consultant statement of lighting level proposed/existing in accordance with AS1158.3.1:2020 (1158.1.1)(light technical parameters) – usually lux diagram, tables & statement o Should be particularly provided for the laneway sections given there are plaza/courtyard areas proposed which would attract pedestrians (or will these be private?) ▪ Poles to be removed/replaced as part of works.
Other Items	
Pedestrian Crossing – Doonside Street	The applicant is to coordinate with other developers in relation to infrastructure works in Doonside Street, particularly the possible new pedestrian crossing in Doonside Street (outside the Harry The Hirer site).
Finished Floor Levels	The finished floor levels of all pedestrian entrances of the development must be designed to match the design levels at the DDA footpaths (i.e. – back of footpath levels, along the property lines). The applicant may need readjust levels internally if required.

GENERAL ENGINEERING CONDITIONS

Civil Works

Upon the completion of all building works and connections for underground utility services,

- The kerb and channel along the property's Burnley Street, Doonside Street and David Street road frontages must be reconstructed to Council's satisfaction and at the Permit Holder's cost.
- The footpaths along the property's Burnley Street, Doonside Street and David Street road frontages must be reconstructed to Council's satisfaction and at the Permit Holder's cost.
- The road pavements along the property's Doonside Street and David Street road frontages are to be re-sheeted to Council's satisfaction and at the permit holder's cost. Any areas of pavement failure associated with the development works shall require full depth pavement reinstatement.
- All redundant property drain outlets from the site into the road reserve must be removed and reinstated with infrastructure to Council's satisfaction at the Permit Holder's cost.
- All redundant vehicle crossings must be demolished and reinstated with paving, nature strip and kerb and channel to Council's satisfaction and at the Permit Holder's cost.
- The developer must prepare and submit detailed engineering design drawings of all road infrastructure works associated with this development to Council for assessment and approval.

Vehicle Crossings

- At the design phase of the development (before construction), the finished floor levels of the slab or accessway must be first designed/determined, by taking into account the relative adjacent road and footpath infrastructure levels, in order to provide satisfactory vertical access (i.e. - vehicle ground clearance) into and out of the site via the frontage road.
- Before the development commences, or by such later date as approved in writing by the Responsible Authority, a vehicle crossing design must be submitted to Council's Engineering department for approval, and:
    - Demonstrate satisfactory access into and out of the site with a vehicle ground clearance check using the B99 design vehicle; and
    - Be fully dimensioned with actual reduced levels (to three decimal places) and comply with design requirements set out in Yarra City Council's Vehicle Crossing Information Sheet.
- Prior to the occupation of the development, or by such later date as approved in writing by the Responsible Authority, any new vehicle crossing(s) must be constructed:
    - In accordance with any requirements or conditions imposed by Council;
    - At the permit holder's cost; and
    - To the satisfaction of the Responsible Authority.

Road Asset Protection

- Any damaged roads, footpaths and other road related infrastructure adjacent to the development site as a result of the construction works, including trenching and excavation for utility service connections, must be reconstructed to Council's satisfaction and at the developer's expense.

Impact of Assets on Proposed Development

- Any services poles, structures or pits that interfere with the proposal must be adjusted, removed or relocated at the owner's expense after seeking approval from the relevant authority.
- Areas must be provided inside the property line and adjacent to the footpath to accommodate pits and meters. No private pits, boundary traps, valves or meters on Council property will be accepted.

Construction Management Plan

- A Construction Management Plan must be prepared and submitted to Council. The Plan must be approved by Council prior to the commencement of works. A detailed dilapidation report should detail and document the existing and post construction conditions of surrounding road infrastructure and adjoining private properties.

Discharge of Water from Development

- Only roof runoff, surface water and clean groundwater seepage from above the water table can be discharged into Council drains.
- Council will not permit clean groundwater from below the groundwater table to be discharged into Council's drainage system. Basements that extend into the groundwater table must be waterproofed/tanked.

Removal, Adjustment, Changing or Relocation of Parking Restriction Signs

- No parking restriction signs or line-marked on-street parking bays are to be removed, adjusted, changed or relocated without approval or authorisation from Council's Parking Management unit and Construction Management branch.
- Any on-street parking reinstated as a result of development works must be approved by Council's Parking Management unit.
- The removal of any kerbside parking sensors and any reinstatement of parking sensors will require the Permit Holder to pay Council the cost of each parking sensor taken out from the kerb/footpath/roadway. Any costs associated with the reinstatement of road infrastructure due to the removal of the parking sensors must also be borne by the Permit Holder.

ADDITIONAL ENGINEERING ADVICE FOR THE APPLICANT

Item	Assessment
Legal Point of Discharge	The applicant must apply for a Legal Point of Discharge under Regulation 133 – Stormwater Drainage of the *Building Regulations* 2018 from Yarra Building Services unit. Any storm water drainage within the property must be provided and be connected to the nearest Council pit of adequate depth and capacity (legal point of discharge), or to Council's satisfaction under Section 200 of the *Local Government Act* 1989 and Regulation 133.

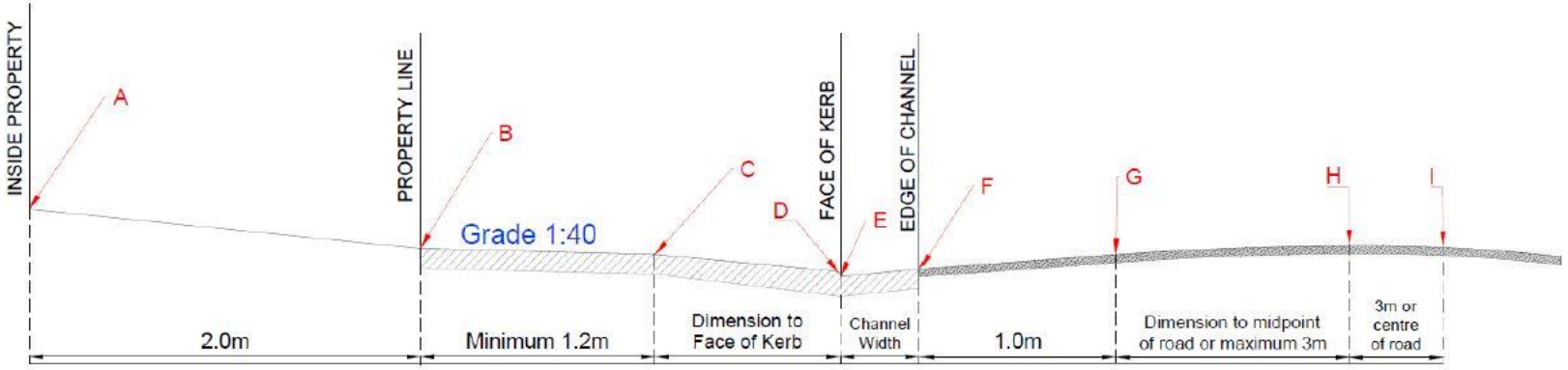
Engineer:	Mark Pisani
Signature:	
Date:	16 June 2022

Vehicle Crossing – Cross Section

The designer is to submit a 1:20 scale cross section for each proposed vehicle crossing showing the following items:

A. Finished floor level 2.0 metres inside property
B. Property line surface level
C. Surface level at change in grade (if applicable)
D. Bullnose (max height 60mm) – must be clearly labelled
E. Surface level at the bottom of the kerb
F. Surface level at the edge of channel
G. Road level 1.0 meter from the edge of channel
H., I. Road levels

- Please note the cross section must be fully dimensioned. As shown in the sketch below.
- Please show both the existing and proposed surface.
- The maximum allowable cross-fall between points B and C is 1:40 (2.5%).
- A bullnose (max 60mm) is permitted at point D, however not compulsory.
- The levels shown must be exact reduced levels, to three decimal points. Interpolation of levels is not acceptable.
- The designer must demonstrate that an 85th or 99th percentile vehicle profile can traverse the design cross section as per the Australian/New Zealand Standard ground clearance template (AS/NZS 2890.1:2004).
- Significant level changes to the existing footpath level B to C will require additional level design either side of the proposed crossing.
- Please include any additional levels or changes in grade that are not shown in the diagram.



EXISTING DRAINAGE NETWORK – Burnley Street Frontage

EXISTING DRAINAGE NETWORK – Doonside Street and David Street Frontages