Mark Lawler Architects

16th August 2018

Lake Macquarie City Council
Box 1906 HRMC
SPEERS POINT NSW 2310

Attention: Ms Georgie Williams

Dear Georgie

RE: DA/419/2018 - MIXED USE DEVELOPMENT
114-120 CARY ST, 1, 2, 3, 5 BATH STREET, 3 ARNOTT AVENUE
TORONTO NSW

Please find following our response to the items listed in Council letter dated 6th June, 2018 and the SEPP65 Design Review Panel's recommendations from the 13th June, 2018 meeting.

1. **Owners Consent**

   The Applicant is currently liaising with Council's Property and Business Development section to obtain Owner's Consent.

2. **Hunter Water**

   deWitt Consulting are currently undertaking sewer relocation design works. Contact has been made with Hunter Water. This item will be resolved along with item 1, but we request D.A. processing by Council to continue and not be held up awaiting finalisation of this item.

3. **Water Management Act 2000**

   As confirmed with you earlier, we are nominating the development as Integrated Development. Cheque for $320 has been posted to Council separately.

4. **Building Height**

   An amended Clause 4.6 Variation Request is submitted with this response.

   The Clause 4.6 Variation Request includes 3D images (Fig.5 on pg4 of the Request) depicting the LEP height limits as a transparent building envelope. These images are also included separately in larger format for clearer indication.

   Whilst indicating the Cary St building projecting above the envelope, the images also indicates the significant space *within* the building envelope that is *not* occupied by built form, particularly the central open communal space and the setting back from the public reserve & former rail line at the south.
   The Clause 4.6 Request elaborates on this manipulation of the built form resulting in increased public benefit and appropriate urban design.

   The likely effect of setting a precedent that exceeds the height limit is supported not only by the Clause 4.6 Variation Request and the VIA, but also by the following two considerations;

   a. From a design merit and urban analysis perspective, the SEPP 65 Design Review Panel's recommendations from 10 May 2017 supports the proposed height as evidenced in the following excerpt from their recommendations;

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"The Panel was of the view that the consultants' arguments in support of a building of greater height facing Cary Street had merit, and potentially offered a better urban outcome than the previously approved low-scale development proposal, which was considered to be a rather understated response, and at a scale that did not fulfil the aim stated of the Town Centre Plan for the site to be a northern gateway site to the Toronto business area. Further, the suggestion that this site could readily "bookend" the recently completed Anglican Care seniors-living development located just under the ridge to the southern end of the township, was considered sound.

It was also agreed that it was preferable that the two residential blocks not be equal in height, and that a differentiation of one to two storeys was desirable, with the eastern, Arnott Street section of the site preferably being the lower.

While the eastern block's height is around one floor above that of the previous DA approval and was considered to be of a height potentially acceptable, the overall height of the western block was significantly higher than the controls. The building as proposed was considered to be moderately taller than the likely future context of the Toronto central area. From a first principles consideration of the site, the Panel formed the view that a building of five or possibly six levels above ground would be the maximum appropriate for the western part of the site. A roof garden above this level was considered to potentially be a positive provision that, if well detailed, need not further increase the apparent height of the building. This consideration of the Cary Street block's appropriate overall height was informed by a number of contextual considerations, one of the more significant of which was the canopy height of trees on the hill to the north of the site around Renwick Street, which was noted in the provided Site Sections. Other considerations informing this consideration included the topography of the area, the heritage Hotel above the waterfront to the site's south, other nearby heritage items, and the "gateway" Aged Care building on the southern entry to the business area.

The opening of the southern end of the development has successfully reduced the earlier visual bulk of the scheme, which now offers a more sympathetic background to the heritage area accommodating the former rail line, to the site's south."

b. From a legal and precedent perspective, precedents have already been set of height exceedance being approved, some with higher percentage than the proposed. The following seven examples of Joint Regional Planning Panels and The Land and Environment Court granting consent to numerical departures greater than 10% illustrate that there is no numerical limit to the variation that can be granted consent to.

Reference	Consent Authority	Proposal	Approval Date	Variation
2014SYE053	Sydney East Joint Regional Planning Panel	14 storey mixed-use development	30 October 2014	FSR – 24%
2014SYW125	Sydney West Joint Regional Planning Panel	Mixed-use development comprising 424 apartments, commercial retail tenancies and communal facilities within 3 towers	29 January 2015	FSR – 13.57%
2014HCC023	Hunter & Central Coast Joint Regional Planning Panel	Shop-top Housing (276 apartments), Hotel (134 rooms), Restaurant and bar, Commercial, Function Rooms, Carpark in 2 towers	14 May 2015	FSR - 85.9% Height - 33% and 46%
2014HCC025	Hunter & Central Coast Joint Regional Planning Panel	Retail & Shop Top Housing comprising 180 residential units	14 May 2015	Height - 30%
2014HCC026	Hunter & Central Coast Joint Regional Planning Panel	Residential Flat Building comprising of 16 storeys (140 units) and three basement car parking levels	17 September 2015	Height - 56%

2015HCC002	Hunter & Central Coast Joint Regional Planning Panel	Mixed use development including commercial, residential (Shop Top Housing), Cinema, Hotel and Tavern in 2 Towers	3 December 2015	FSR - 47.5-72% Height - 64.5-210.2%
Baker Kavanagh Architects v Sydney City Council [2014] NSWLEC1003	NSW Land and Environment Court	Three storey shop top housing development	14 January 2014	FSR - 187%

These examples demonstrate that consent is permissible for the proposed development, notwithstanding the contravention of the height development standard.

5. Scenic Values

Visual Impact Assessment prepared by Mansfield Urban is submitted with this response.

6. Stormwater Management

Northrop Consulting Engineers have liaised with Council's Engineers and provided written response to each of the items along with updated documentation, included with this response.

7. Natural Water Systems

This is currently being addressed with further response to be forthcoming. We have consulted with Council's Vanessa Owen to clarify requirements.

8. European Heritage

a. *Consideration should be given to the recommendation in the SoHI regarding the inclusion of further colours in the proposal.*

Please refer Heritage Consultant John Carr's letter of response in relation to proposed colours. The colours selected were reviewed in detail between John Car and Mark Lawler Architects. Following this review a further new colour was added to the Arnott Avenue building around the ground level.

b. *Interpretation of the former railway needs to be addressed. This requires developing an Interpretation Plan, by a qualified heritage professional, which should be considered closely with landscaping and take into account the existing Aboriginal interpretative area. While the detailed Interpretation Plan can be included as a condition of consent, general information regarding contact and location of any interpretative elements should be included at this stage.*

Please refer Heritage Consultant John Carr's letter included with this response.

c. *The proposed trees in the landscape plans are not consistent with the submitted 3Ds. Clarification is required.*

The Landscape Plans indicate the proposed trees. The submitted 3Ds are intended to be concept graphics, showing the overall design intent and outcome. The Architectural drawings do not show authentic botanical representation.

9. Traffic and Vehicle Access

Please refer McLaren Traffic Engineering's supplementary information included with this response. Further response also relating to the particular Council comments;

a. *Arnott Avenue is extremely narrow and should be widened to facilitate acceptable turning manoeuvres into the site for both passenger vehicles and Medium Rigid Vehicles.*

McLaren Engineering's supplementary information with vehicle pathways and turning demonstrates there is sufficient existing width along Arnott Avenue from the Bay Street intersection to the development's vehicle entry without need to widen Arnott Avenue.

Arnott Avenue is not "extremely narrow", it is 6.5m wide kerb to bitumen in front of No. 2 and No. 4 Arnott Avenue and 7.2m wide kerb to kerb in front of the Yacht Club carpark. Councils DCP Part 8 Subdivision Development Table 3 indicates a "cul-de-sac" or "access street" should be 7m wide, Arnott Avenue complies with this requirement. The Traffic Consultant's response oincludes further details on the widths being suitable for this road type.

Further South along Arnott Avenue, past the development's vehicle entry/exit point, there is no requirement whatsoever by the development to use this section of Arnott Avenue as all required carparking and loading is accommodated on site.

Our Site Analysis identifies Arnott Avenue as a pedestrian friendly street linking the Northern residential part of town to the commercial town centre towards the South. Arnott Avenue is a quiet passive street compared to Cary Street being a major four-lane roadway that is not pleasant for pedestrians to walk along.

The design responds to this analysis by intentionally seeking to minimise vehicle activity generated by the site on to Arnott Avenue, to maintain and promote Arnott Avenue to be pedestrian friendly leading towards the public reserve at the South and the town centre further South.

d. *Arnott Avenue is narrow with high volumes of traffic produced at certain times by the yacht club. It is noted that the road design has not provided a turning area at the end of Arnott Avenue. Turning provisions should be provided.*

Council have used the argument "what if someone accidentally goes past the development entry point and has to turn back?" and that we need to provide a turn bay at the end of Arnott Avenue to facilitate this. We see this to be unfound reasoning, for the following reasons;

- It could be anyone turning "accidentally" in to Arnott Avenue, not necessarily users of the proposed development.

- What happens when people accidentally turn in to Arnott Avenue now? They somehow find some way to be able to turn around and go out.

- The Yacht Club carpark has in/out arrangement that can facilitate return.

As aforementioned, Arnott Avenue at 6.5 to 7.2m is standard width. Cars can currently comfortably parallel park against the kerb on one side whilst other cars pass each other.

The Yacht Club by nature of its operation generates very little traffic during the week. On weekends, outside of school and standard business hours, is when the yacht club generates traffic.

The current roadway situation with the Yacht Club has existed for many years and vehicles, trailers etc., have managed to enter Arnott Avenue and manoeuvre satisfactorily.

If it is deemed the Yacht Club generates high volumes of traffic, any road modifications should be arranged between the Yacht Club and Council to satisfy the Yacht Club's requirements. It is inappropriate and unreasonable to expect this D.A. to solve the historical traffic issues generated by other developments.

It has also come to our attention of Council's own intention to develop operational land at 4 Bath Street, Toronto with a 4 – 6 storey mixed use building and associated with this Council's own intention to extend Arnott Avenue through to Victory Parade. Council's own development will generate increased traffic and requirement for any road widening more so than this proposal.

10. Design of Parking and Service Areas

Please refer McLaren Traffic Engineering's supplementary information included with this response, as well as following further responses to particular comments;

a. Parking

i. *More information is required regarding access ramps including clearance details and transition lengths.*

Sections and dimensioned plans are submitted with this response demonstrating clearance details and transition lengths.

ii. *Manoeuvring for parking spaces appears marginal (Residential) Disabled parking bay 19 N/E corner, N/W corner, Disabled Circulating Areas shall not interfere with the reversing bay and angled bays.*

The firestair at the North-East corner in the basements has been adjusted to facilitate manoeuvring for the end carpark, refer attached amended plan.
McLaren's supplementary information includes turning paths demonstrating compliance.

v. *Disabled Shared Zones shall not be located within the travelling aisles.*

McLaren's supplementary information cites AS 2890.6 clause 1.3.2 allowing travel aisles and share zones to occupy same space. This is the case anyway for the share zone at the rear of the disabled access carparks, which is always within the travelling aisle.

vii. *Details are required regarding how the residential car park is secured from the commercial carpark.*

Architectural drawing 1588 DD-1-03/D Basement 1 Plan submitted for D.A. includes dashed line and note "Ventilating Security Grill" at North-East corner near top of ramp. This provides the secured separation, the grill operating as remote controlled/card reader.

viii. *The applicant shall provide a section through the low head height area S/W of the Commercial Carpark.*

Sections are submitted with this response demonstrating head height clearance.

b. Servicing

i. *The applicant has not adequately demonstrated how vehicles will be off-loaded without interfering with the actual through lane for trucks.*

Refer McLaren response.

ii. *The produced turning/travelling arc for the commercial vehicle interferes with the landscape area on Cary Street.*

The landscape area will be removed to facilitate truck turning.

The path is also across the frontage of the adjoining lot on Arnott Avenue. The turning paths should be compliant without interfering with the landscaping or adjoining properties.

Refer McLaren response and amended Architectural Ground Floor Plan. Truck turning path has been revised to avoid the adjacent lot frontage.

iii. *The height of the loading bay and truck access is to be demonstrated on a longitudinal section.*

Architectural Section C is updated to include 4.5m height line shown in red demonstrating minimum clear 4.5m height achieved.

11. Car Parking Rates

Refer McLaren response. Further response also as follows;

Council's DCP is a guideline, not legislation. The RMS Guide is also a guideline. It is considered the RMS Guide is appropriate as a statewide guideline facilitating consistency.

This development provides the required total number of car spaces in accordance with LMCC's DCP. The minor shortfall in visitor parking is due to the allocation of 2 car spaces for the 3 bedroom apartments in lieu of the 1.5 car spaces nominated in the DCP. This allocation is on the basis that it is most likely the occupants of these larger units will have two cars. These parking spaces will be used on a daily basis.

The visitor spaces are for infrequent use, typically after business hours or at weekends, when spaces in the commercial area will be available. The parking allocation proposed provides a better outcome for residents and visitors, better reflecting reality, than the theoretical values in the DCP.

12. Traffic

Refer McLaren response.

Refer also responses to previous item 9, plus further response to particular comments as follows;

It is considered that the road should be widened from Bay to Bath Street for a minimum width of 9.5m.

Arnott Avenue is a "dead end" street. There is no through traffic. Traffic using Arnott Avenue is used only by the Yacht Club and visitors utilising the Council parklands/public reserve.

Arnott Avenue has been measured to be 6.5 to 7.2m wide, plus 2m dimension from the road's Western kerb to the subject property's boundary. It is therefore physically impossible to widen Arnott Avenue towards the West in front of the property without compromising the width of the public verge.

Overhead street power lines and power poles sit directly on the Western kerb of Arnott Avenue. There is also a large telecommunications pit at the corner of Arnott Avenue and Bay Street on this Western side. This all compounds the impracticality (and high cost) of widening the road towards the property.

Include kerb and gutter construction on the Western side of the road.

A formed kerb and gutter already exists along the full length of the Western sides of Arnott Avenue. Conversely, an irregular bitumen edge exists along the Eastern side as driveways of neighbouring properties come off Arnott Avenue. Also, there are no power lines along this Eastern side. Refer photographs of existing included with the original D.A. plus attached current photographs from just a week ago.

This will also require road widening of approximately 3.8m along the street frontage of Arnott Street.

Considering the abovementioned existing site factors, the Eastern side of Arnott Avenue is more plausible for widening.

Reinforcing earlier responses, the Applicant considers Arnott Avenue does not require widening due to the proposed development. Summary of the reasons include all cars being accommodated on site, no traffic activity by the development along Arnott Avenue past the vehicle entry/exit point, adequate turning and passing demonstrated by Traffic Consultant, applicant should not have to solve other development's traffic generating issues.

Please note this requirement will impact upon the amount of proposed deep soil zones.

Deep soil zones on site will not be impacted as the property boundaries will not be changing.

Turning arrangements at the southern end of Arnott will require a cul-de-sac arrangement or road widening to accommodate turning vehicles that will enter this street to visit or utilise the new premises.

A cul-de-sac at the south end of Arnott Avenue is not required by the development as the development will not be generating vehicle activity at this end of the street.

Clear sight lines, good signage and resident/user familiarity will minimise vehicles inadvertently going past the vehicle entry point to further along Arnott Avenue. It will not be like a commercial street with multiple shops lining the street that the visitor may accidentally bypass. It is a dead end street with no other conflicting commercial uses. The Yacht Club and a few residences are the only other users of Arnott Avenue other than visitors to the foreshore and the public reserve.

As previously mentioned, we are aware that Council is proposing to extend Arnott Avenue to Victory Parade, to service their own 4 - 6 storey development on 4 Bath Street. Council's intention to change the current road configuration may then require widening as part of such works to cater for the increased traffic generated by Council's own development.

13. Landscaping area

In regard to Section 6.8 (Minimum landscaped area) of DCP 2014, on-structure planting comprises 1308m² of which approximately 47% is hard surfacing or impermeable. Council's Landscape Architect has advised the high percentage of non-contributory landscape is not supported with permeable and planted design outcomes preferable for maximising landscape amenity.

Please refer Landscape Architect Helen Mansfield's response and our comments that follow under Item 23 of this letter.

Concern is also raised regarding the amount of deep soil zones proposed on site. It is noted that whilst Council's DCP requires a deep soil zone of 10%, the ADG's require for a site greater than 1500m², 7% of the site area with a minimum dimension of 6m. A number of included deep soil zones are below 6m in width.

The proposal complies with the ADG 7% for deep soil with 6m minimum dimension. The countable deep soil extent is indicated on Architectural drawing 1588 DD-1-02/D Basement 1 Plan (424m^2 which exceeds 416.5m^2; 7% of 5950m^2 site area). There are other sections of deep soil less than 6m width, these are not counted as part of the calculation.

The countable deep soil includes a minor component of permeable paving against the Arnott Avenue building line which is permissible as noted under Figure 3E.4 and shown in the Figure 3E.2 diagram of the ADG. The permeable paving is located at one edge of the deep soil zone and will be a product such as Hydrapave or Stoneset, sustaining deep soil for the proposed trees and planting.

The applicant has also undertaken to upgrade the adjacent 1400m^2 public reserve at the South. This is to be included in considerations as the proposal responding to its context, to enhance and beautify the surroundings for public benefit.

The deep soil on site is located at the most appropriate and beneficial locations for both residents and the public, along Arnott Avenue and at the South end as contiguous connection with the public reserve. The proposal meets the 7% area and 6m criteria's and meets the ADG objectives of landscape design of positively contributing to the streetscape and amenity.

The context should form part of the evaluation of the deep soil provision. The ADG is obviously written for relatively dense urban locations i.e., primarily Sydney. The context for this site includes the large public reserve adjacent, the Lake front, the Wetlands to the West as well as the significant trees in the neighbouring streets. Combined, these abundant natural features and landscape make the deep soil requirement for the site largely irrelevant.

It is noted approval was granted for the mixed use development on the 5093m^2 site at 482 The Esplanade, Warners Bay. Our understanding is this development provides less than 5% deep soil, which is located at the rear corner behind built works and the building, not visible to the public.
In comparison, our proposal is compliant, expansive, addresses streetscapes and is contiguous with an adjacent reserve.

14. Solar Access

The applicant is requested to provide a table identifying the percentage of solar access to living rooms and private open spaces.

- The apartment towers are arranged as long buildings, with significant width space in between, to facilitate elevations on all sides accessing good natural light. There are no overshadowed parts of the building, no enclosed areas, no donut or u-shapes that would create sun access issues.
- The Site Analysis Diagram illustrates the sunrise and sunset as well as the path of the sun during the day in relation to the development.
- Every apartment incorporates a large deck stretching the full width of the apartment façade.
- Every Living/Dining room directly adjoins their deck with 2.4m high, full width sliding glass door unit.
- All decks receive direct sun except those facing the Reserve, these receive early morning and late afternoon sun during the summer months.
- No Living/Dining area is deeper than 5m to the glass line.
- No deck is deeper than 3m from facade line to the glass line.
- The building shape and orientation, shallow depth, expansive width and full width glazing provides excellent natural day light to every apartment.
- The ADG Objective 4A-1 of optimising sunlight to habitable rooms and private open spaces is achieved.
- The SEPP65 Design Review Panel in their recommendations have not requested a solar access table.
- The Applicant's Architect has completed numerous apartment buildings that have been approved without providing a solar access table.
  One example that has very similar characteristics to this proposal is DA/1376/2014, 55 Caves Beach Road, Caves Beach. That development included two apartment towers oriented and spaced similar to this proposal.

Another example with similar building arrangement is the recently approved 482 The Esplanade by another developer. This included no solar access table as searched on application tracking.

Certain aspects of the ADG conflict with each other and require a balanced assessment of the best outcomes to achieve good amenity. This proposal provides generous balconies and decks for outdoor living as well as sun and privacy control. These decks provide sunny areas for the majority of apartments and help address the difficult (in terms of sun control) East and West orientations.

These decks have the (desirable) side effect of limiting hot summer sun into the apartment living areas. The generous areas of glass and sliding glass doors ensure good daylight. Removing or reducing the decks to gain direct sun would have a detrimental impact on the occupants. Therefore on balance, weighing the competing factors, this proposal achieves the outcomes desired by the ADG.

It should also be acknowledged that the units facing South towards the Reserve will not receive direct sun, this is a physical impossibility due to the orientation. These units comprise less than 5% of the total number of units. The lack of direct sunlight is compensated by expansive glazed openings to the Living areas outlined above plus the attractive views over the Reserve and diagonal Lake views.

Considering all the above, it is deemed a solar access table for this proposal serves no purpose and therefore is not required.

15. Safety and Security

Awaiting NSW Police comment.

16. Street Trees and Streetscape Improvements

a. The northern new tree on Cary St is to move further North slightly to avoid conflict with the new awning.
b. Co-ordination between the Applicant's Level 3 Electrical Designer and Ausgrid is currently underway and the power pole and tree canopy will be co-ordinated to avoid conflict.
c. The proposed pedestrian connection can be deleted without landscape design impact. This can be conditioned as part of the DA approval.
   The new Oak Tree has been placed as part of the overall landscape design to assist in way finding and as marker point at the end of Arnott Ave and along the public walkway adjacent to the rail line. The Applicant's preference is for the Oak Tree to remain as part of the intended landscape design arrangement.
d. Recommendation to replace turf with mulch/groundcover under existing Casuarinas is acceptable.
e. The VIA outlines the extent of proposed new trees and the visual impacts. It is considered the extent of existing and new trees as indicated in the proposed images forming part of the VIA is sufficient for providing an appropriate landscape surround.
f. The Arnott Avenue public verge along the site is only 2m wide, hence the proposal to include trees on the site with a 6m setback to the building allowing for generous landscaping on site. This allows for 2m wide footpath on the public verge without interference from any tree and its roots, thereby minimising maintenance required by Council.
g. Please refer the VIA addressing visual impacts. In consideration of the context with existing surrounding trees, the proposal includes for an appropriate level of new tree planting.

17. Waste

a. Waste Collection

i. 1100L (and 660L) bins cannot be collected by side lift waste collection vehicles at kerbside and must be collected from an onsite location by rear lift waste collection vehicles.

We are aware of the rear operation to service 1100L and 600L bins as we (Mark Lawler Architects) enquired with Council's Waste Operations Co-ordinator David Brake in August 2017.

We had also checked with David that Council's trucks do not lift bins higher than the truck itself, as well as for Council's bin service packages.

Collection will be on site, not kerbside.

ii. The waste management plan only states that for ongoing waste:

"council waste bins will be used to manage waste and place at the kerb on the relevant collection day. As shown in Appendix 15 the ground floor includes space for resident waste in the form of resident and commercial 1,100 litre bin storage area".

Further information is required on the proposed ongoing waste collection.

Apologies, the original submitted waste management plan by deWitt Consulting referring to kerbside waste collection is an incorrect anomaly. Amended Waste Management Plan is included. Collection will occur on site via the truck service lane and loading area along the northern edge of the site. All accessways from bin storage rooms to the loading area are minimum 1.6m wide. The loading area is 6 x 7m area with a 1.5m wide ramp to the truck lane. These dimensions accommodate the 1240 x 1070mm 1100L bins.

iii. *Confirmation is required that noise from lifting and replacing the 1100L bins will not disturb residents or neighbours.*

The most disturbing noise in any suburb is the Council garbage collection trucks, operating in the early morning when there is little background noise and when people are asleep. Usually there are two garbage services on collection day (general garbage and recycling/green waste) and the noise is exacerbated as trucks move along both sides of the street. In this context the garbage collection for this development will generate far less noise.

The adjacent neighbour is McDonalds Restaurant, with their drive-through along the common boundary next to the proposal's truck lane. Both McDonalds drive through and the proposal's truck lane incorporates slow moving vehicles generating low vehicle noise. There will be more noise generated by the four lane Cary Street as a major transport route and with vehicles accelerating from the traffic lights.

Residential neighbours are opposite Arnott Avenue and have their garages fronting the road with their dwellings and POA set further behind. The garages may be considered as buffers from truck noise for the respective residents.

No residential neighbours are therefore impacted.

The apartment building partially overhangs the truck lane with Bedroom windows directly above including externally mounted screens that will assist to mitigate vehicle noise.

b. Waste Storage Areas on each floor

The Disability Access Report statement is incorrect. Refer Access Consultant's letter update. Both service lifts are for resident use, to be able to take garbage down themselves to the garbage storage rooms.

Access clearances are provided from the lifts to the garbage rooms.

c. Waste Storage Areas

The design of the garbage rooms as part of the service area allows for flexibility for expansion as necessary. The adjacent shops/office area allows for services expansion/adaptation without impacting on vehicle movements, vehicle servicing, any external volumes or appearances, or compromising any commercial area/operations.

This flexibility allows to accommodate waste cart, bin washing, taps, drains etc. which will be finalised as part of the Construction Certificate documentation.

18. Erosion and Sediment Control

Refer Northrop Consulting Engineers amended documentation included with this response.

19. Property

As advised earlier in this response for items 1 and 2, Owner's permission and sewer relocation is currently being addressed.

Regarding Council's comments about pedestrian access across 2a Bath St, please consider these comments;

a) There has been extensive Pre-D.A. communications with Council where incorporating proposed upgrade of 2A Bath was made clear from as early as July 2016. It would have been preferable for Council to have made arrangements with the proponent prior to D.A. instead of being a latent item in this RFI.

b) The Client is offering to upgrade 1400m^2 of public reserve on 2A Bath at his cost.

c) The general public currently freely accesses 2A Bath St as a public reserve and thoroughfare. The proposal simply intends to allow this current situation to remain and also to enhance this experience for the public..

d) The SEPP65 Design Review Panel supported the proposal to integrate the public reserve as a contiguous landscaped buffer with the boundary line to become invisible.

We encourage Council to realise and support the opportunity presented by the proponent for improved amenity and streetscape for public benefit.

20. SEPP 14 – Coastal Wetlands

This is being currently addressed with further response to follow.

21. Roads and Maritime Services (RMS)

Please refer Traffic consultant's supplementary information addressing the RMS issues.

22. Submissions

The submissions have been reviewed by the Applicant.

23. State Environmental Planning Polish (SEPP) No. 65 – Design Quality of Residential Apartment Development

Refer SEPP65 Recommendations dated 13th June 2018 and our following detailed response;
The application of the Apartment Design Guidelines is not a "painting by numbers" assessment with a checklist to tick. The ADG criteria are intended to be applied with an informed and close examination of the context and the development proposal.

While the ADG contains numerous guidelines the relative importance of each item must be weighted against the site, the context and the design response. The overriding objective is to ensure a high level of amenity for the residents and good urban design that contributes positively to the city.

Panel Comments;

This is the third iteration of this scheme reviewed by the Panel. The Panel is generally satisfied with the manner in which many of the issues raised previously by the Panel have been resolved.

However, there remain or have now arisen, certain aspects that the Panel considers require further attention before it is able to fully support the development.

In relation to the current layout, the Panel is not satisfied that the relationship of the development to the adjoining McDonald's site to the north has been adequately justified.

The proposed setback has been consistent on the submitted drawings in the Pre-DA documentation. It is not new or changed. Justification of the proposed setback from McDonalds has previously been accepted and approved by the Panel as part of the Pre-DA process.
The Panel actually made the following comment as part of the Pre-D.A. recommendations from the 10.1.17 submission "*Setbacks were generally reasonably appropriate*".
The post DA meeting is the first time the Panel has changed its position in relation to this setback. This can only be due to the change in Panel members and particularly it appears the personal view of Alison McCabe.

Council has also not raised objection to this setback previously.

Councils own Block Plan F shows desired built form continuous along Cary St. The design process responded to this, including 3D diagrams (drawings 1588 S65-7.08 to 7.15) forming part of the Concept submission showing how the proposal can be built up along Cary St.

The SEPP65 Concept Plan submission dated 20.1.17 included various urban analysis diagrams and concepts.

The ADG allows buildings to be built up to a side boundary for zero setback in particular circumstances.

The proposed minimum 3m side setback allows for windows to the bedrooms facing this side boundary. These windows are small of narrow dimensions and include face fitted sun screens to facilitate privacy. The Panel have previously been supportive of the articulation of this façade.

The proposal does not present as a continuous elevation along the Northern side boundary, but rather two buildings each 25m wide, with a 16-18m open space between.

It cannot be assumed that the current use of that site will remain in perpetuity.

It can absolutely be assumed that the adjacent site as a McDonald's Restaurant will continue due to it being established, being located on a major roadway, functioning well as a very popular major national franchise with good customer base and unequalled profitability.

If anything, it would be more likely the development would expand on its site to cater for its continual business, or another McDonalds would be developed on the other side of Cary St, much like other locations on major arterial roads. Recent history shows that these sites are renovated and upgraded, there are numerous examples of this process within Newcastle and Lake Macquarie.

In the unlikely event McDonalds were to vacate this site for a larger operation, it would more than likely be taken over by one of the other major fast food retailers due to the site's prime position and already being set up for fast food operation.

It would be appropriate for the applicant to provide analysis to demonstrate how the McDonalds site may be developed in the form of at least a complying development under the current LEP controls, but also contemplating development applying similar principles to those proposed on the subject site.

The McDonalds site has been reviewed for a mixed use development potential. Refer attached sketch plans. The site's dimensions and carpark accommodation restricts this site to maximum 3 levels above ground. It cannot support 4 – 5 levels due to the parking limitations. Building and apartment orientation would position Living areas towards the North facing Bay St away from our proposal with minimal Living and bedrooms towards the south facing our proposal. This arrangement minimises Living areas directly facing each other between the sites, notwithstanding the use of privacy screens anyway.

Considering the abovementioned limitations and reasons, the Applicant's proposal is appropriate.

The Panel notes that internal corridors are very long (up to 50 metres in the eastern building), provide access to several more units than specified in the ADG and have insufficient access to natural light and ventilation relative to their length.

This again is the first time the Panel have raised this despite two Pre-D.A. submissions being made to the Panel.

The Pre-D.A. submission of 10.01.17 included the same floor plan in principle; (drawing 1588 S65-1-03/A Level 03 Typical Apartment).

The hallways are 1.6m wide with larger "social" spaces at no more than 18m apart. Natural light and ventilation is provided to both hallways whereas there are many other apartment developments with internal hallways with no natural light and ventilation.

It is not the length of the hallway or the number of apartments served that is important. It is the quality of the space with the physical and social amenity that the hall provides that is relevant. This is the outcome the ADG is seeking to ensure.

The hallway lengths serve stairs and lifts at both ends, such that there is an average 8 apartments per lift and stair. Good natural light and ventilation is provided at the ends of the longer eastern hallway.

These design elements meet the objectives of the ADG by providing good amenity to the common circulation zones.

The Panel also notes that several units are marginally below the minimum areas specified in the ADG.

All twenty one 3 Bedroom apartments comply with the minimum size.

All seventy eight 2 Bedroom apartments comply with the minimum size.

Five of the twenty four 1 Bedroom apartments are below the minimum recommended 50m^2. Of these five, four are at 48 – 49m^2, only marginally below 50m^2. One apartment is at 42m^2. This one apartment may be considered as a Studio apartment (walls between the Bedrooms/Living may be removeable partitions) compliant with the minimum ADG recommended 35m^2 for Studios. These apartment sizes helps provide greater social diversity with these most affordable apartments available to fulfil a social need and particular lifestyle choices.

In this regard, all apartments meet the objectives of the ADG with the overwhelming majority 96% exceeding the minimum area.

The design has evolved and responded to all items raised by the Panel through the Pre-D.A. process, including opening the Southern end of the built form to reduce visual bulk, increasing ground level setback addressing Cary St, planting new Oak tree, reducing the building height facing Cary St.

None of the items in the Panel's post D.A. recommendations were mentioned in any Pre-D.A recommendations, despite the proposed scheme being the same in terms of planning and setback, from Pre-D.A. to D.A.

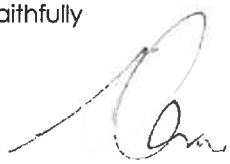
There should be consistency in the Panel's feedback to enable the Pre-D.A. process to be effective and worthwhile and to facilitate efficient design advancement for the D.A.

It is anticipated the responses herewith adequately addresses the Panel's latest recommendations with clear reasoning that the proposal meets the objectives of SEPP65 and can therefore be supported.

Conclusion

It is anticipated these detailed responses to both Council's RFI and the SEPP65 Design Review Panel's recommendations adequately addresses all items raised and that Council can accordingly support this Development Application.

Yours faithfully



STEPHEN COON
Director

Encl.

cc. Toronto Investments No. 1 Pty Ltd
Our Ref: 1588_Authorities.corr.doc008

[redacted]

[redacted]

I will need a cheque of $320 made out to:

Natural Resources Access Regulator
Department of Industry

If you can just confirm in writing that you are nominating integrated development under the:

Water Management Act 2000	ss 89, 90, 91 - Water use approval, water management work approval or activity approval under Part 3 of Chapter 3

No need to amend DA form as the above will suffice.

Regards

Georgie Williams
Senior Development Planner
Monday, Tuesday, Wednesday
P: 02 4921 0119
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Box 1906 HRMC NSW 2310

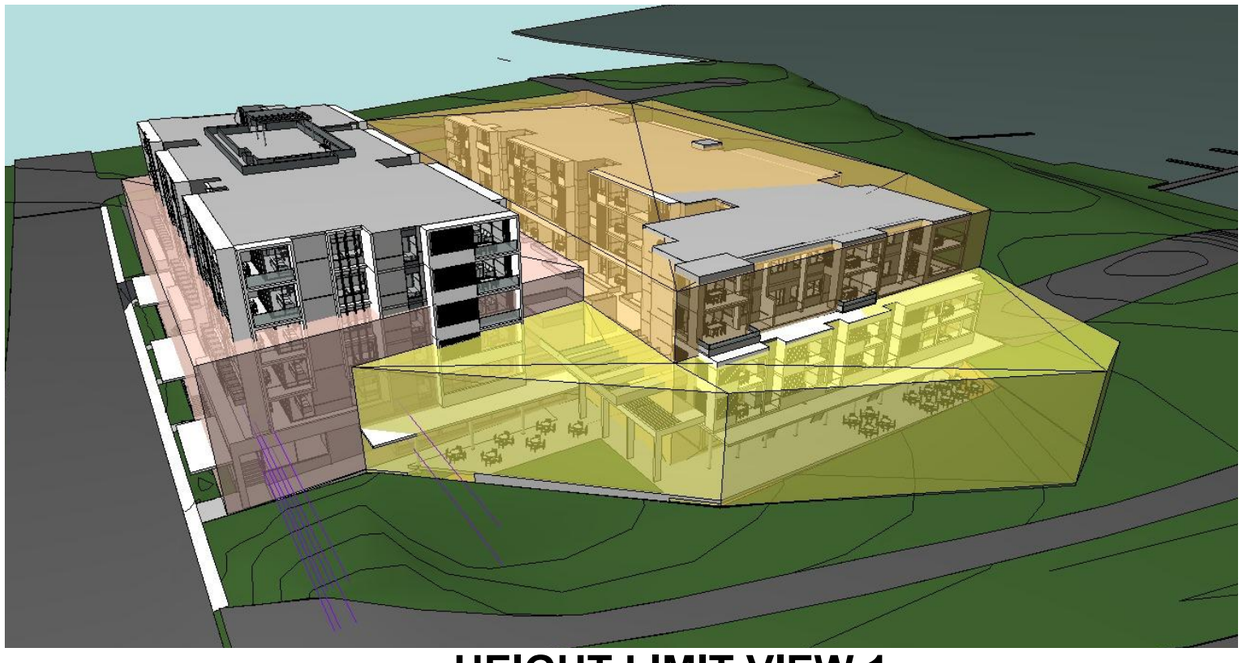
lakemac.com.au

From: Stephen Coon [mailto:stephen@marklawlerarchitects.com.au]
Sent: Wednesday, 4 July 2018 12:14 PM
To: Georgie Williams
Cc: fayv@napf.com.au; Mark Lawler
Subject: DA/419/2018 - Toronto Mixed Use development

Hi Georgie,

As discussed last week, we are addressing all items and are aiming to have detailed response to you next week.
Item 3. Water Management Act 2000, we are taking on board your recommendation and would like to nominate the development as integrated under the Act. Please advise what we need to do for this... tick the application form ? applicable fee ?

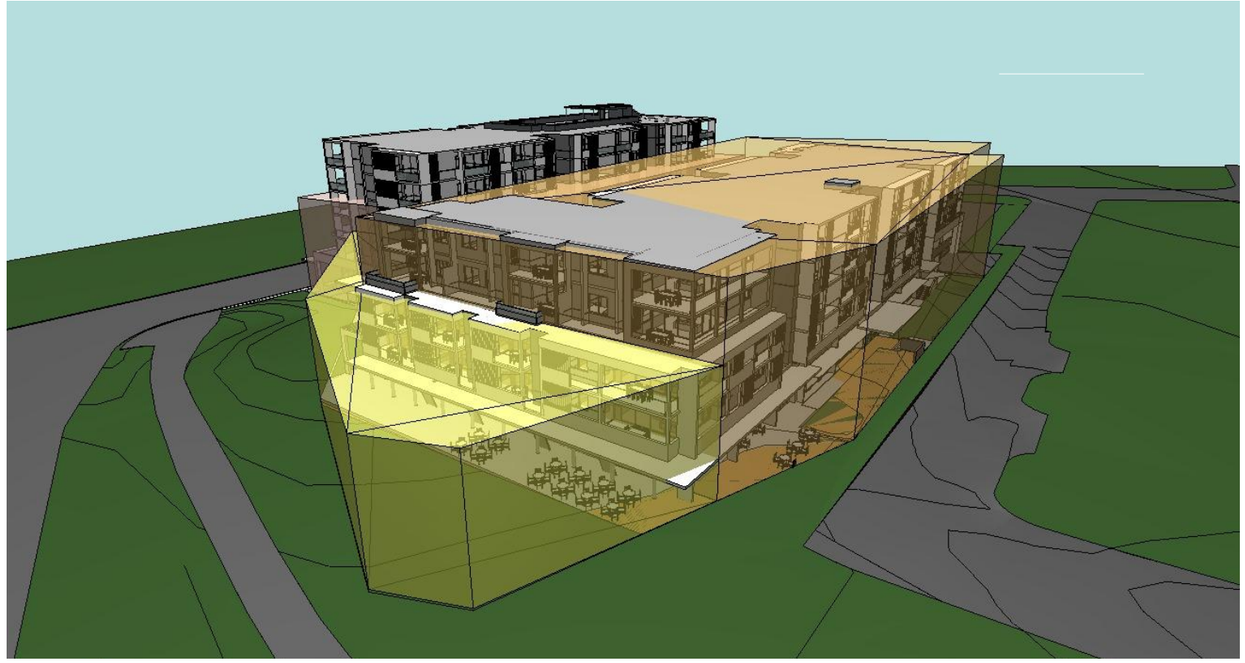
Regards
Stephen Coon
Director



LEP HEIGHT LIMITS

- 16 metre
- 13 metre
- 10 metre

HEIGHT LIMIT VIEW 1



HEIGHT LIMIT VIEW 2

HEIGHT LIMIT VIEW 3

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PROJECT:	TORONTO MIXED USE	**LOCATION:**	118 CARY STREET TORONTO
CLIENT:	TORONTO INVESTMENTS NO.1 PTY LTD		
DRAWING:	BUILDING ENVELOPE	**DWG No:**	1588 DD - 7-22
SCALE:	1:229.99	**ISSUE:**	D
DATE:	6/08/2018	**DRAWN**	SC & ML & CG

1.1 Clause 4.6 Exception to Development Standards

This Clause 4.6 variation request seeks to vary Clause 4.3 of Lake Macquarie Local Environmental Plan 2014 (LEP) on the height of building limit for the proposed development. The request for variation aims to meet requirements of Clause 4.6(4)(a)(i) and address matters required to be demonstrated by Clause 4.6(3).

Clause 4.6 of the LEP enables development consent to be granted for a proposed development even though the proposed development would contravene a development standard such as the maximum height limit imposed by the LEP for the Site. Clause 4.6 of the LEP allows flexibility in applying development standards in certain circumstances and aims to achieve better outcomes for and from development.

Sub Clause 4.6(3) requires an applicant to provide written justification for the contravention of the development standard demonstrating:

(a) that compliance with the development standard is unreasonable or unnecessary in the circumstances of the case, and

(b) that there are sufficient environmental planning grounds to justify contravening the development standard.

This variation request is made having consideration for the requirement of Clause 4.6 and in accordance with the NSW Department of Planning and Infrastructure (DP&I) guideline Varying Development Standards: A Guide and has incorporated relevant principles of Four2Five Pty Limited v Ashfield Council [2015] NSWLEC 90 and Wehbe v Pittwater Council [2007] NSWLEC 827 ('Wehbe').

This variation request, as is required, aims to meet the requirements of Clause 4.6 of the LEP to enable development consent to be granted for the proposed development and should be read in conjunction with the Statement of Environmental Effects included (SEE) in the Development Application for the Site.

The site is a large site that contains a mix of permissible building heights. Furthermore, the site is located on a busy road that provides the main entrance into Toronto as development proceeds from mainly residential to mixed use commercial and residential district and further to the central business district of Toronto. As stated in the SEPP 65 Urban Design Review Panel Recommendations dated 10 May 2017 "…The Panel was of the view that the consultants' arguments in support of a building of greater height facing Cary Street had merit, and potentially offered a better urban outcome than the previously approved low-scale development proposal, which was considered to be a rather understated response, and at a scale that did not fulfil the aim stated of the Town Centre Plan for the site to be a northern gateway site to the Toronto business area. Further, the suggestion that this site could readily "bookend" the recently completed Anglican Care seniors-living development located just under the ridge to the southern end of the township, was considered sound…".

1.1.1 Development Standard to be Varied

This Clause 4.6 variation request seeks the variation of the Clause 4.3 of the LEP maximum building height for the Site. There are three maximum building heights specified in the relevant LEP height of building map for the Site and these range between 10, 13 and 16 metres. This can be seen in the below extract from the LEP Height of Building Map HOB_009B in Figure 1 below and Appendix 4 of the SEE.

The LEP defines 'height of building' in the Dictionary as meaning:

> *'in relation to the height of a building in metres—the vertical distance from ground level (existing) to the highest point of the building, or*
>
> *(b) in relation to the RL of a building—the vertical distance from the Australian Height Datum to the highest point of the building,*
>
> *including plant and lift overruns, but excluding communication devices, antennae, satellite dishes, masts, flagpoles, chimneys, flues and the like.'*

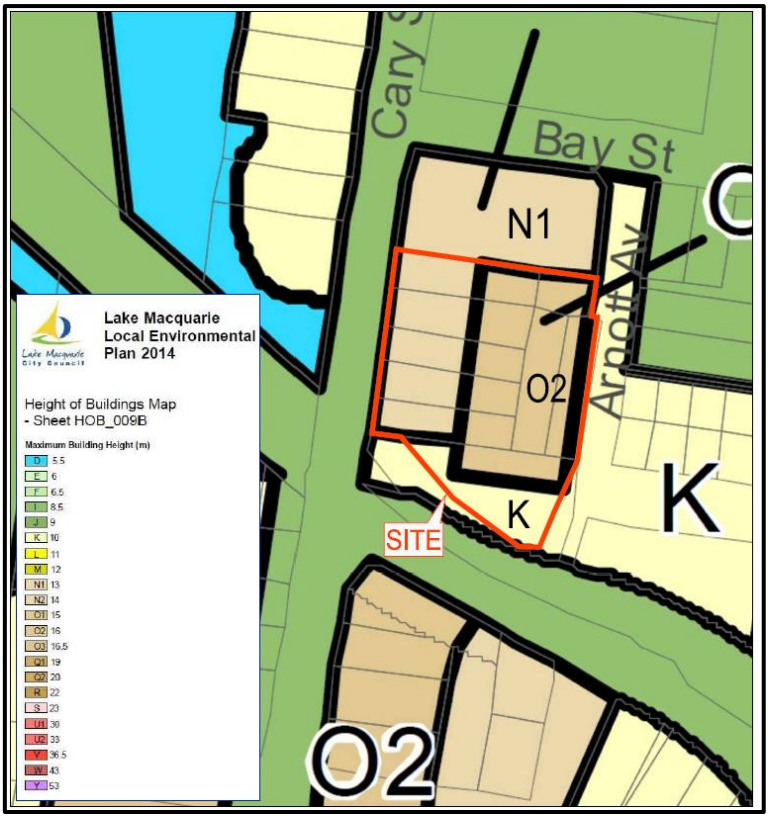


Figure 1 –Maximum Permissible Height map (source: LEP 2014)

Proposed building heights are as indicated on the elevations submitted with the development application. The Cary Street building on average is 20.6 metres above natural ground level (excluding the roof garden) (RL23.9 minus ground RL3.3), which is a 7.6 metre variation to the 13 metre maximum building height. The highest part of the encroachment in the 13 metre height limit is a small area of the building being the 80m^2 roof garden, lift and stairs. The Arnott Avenue building is average 16.1 metres high (RL20.6 minus ground RL4.5).

1.1.2 Justification for Variation from the Development Standard

Figures 2-4 below present the proposed building height and maximum permissible building height under LEP 2014 (not to scale).

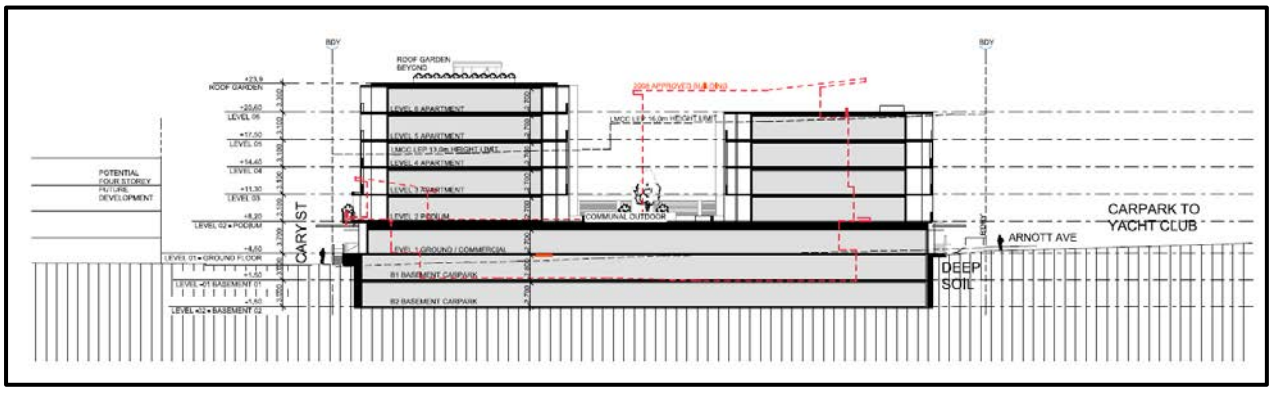


Figure 2 – Section A

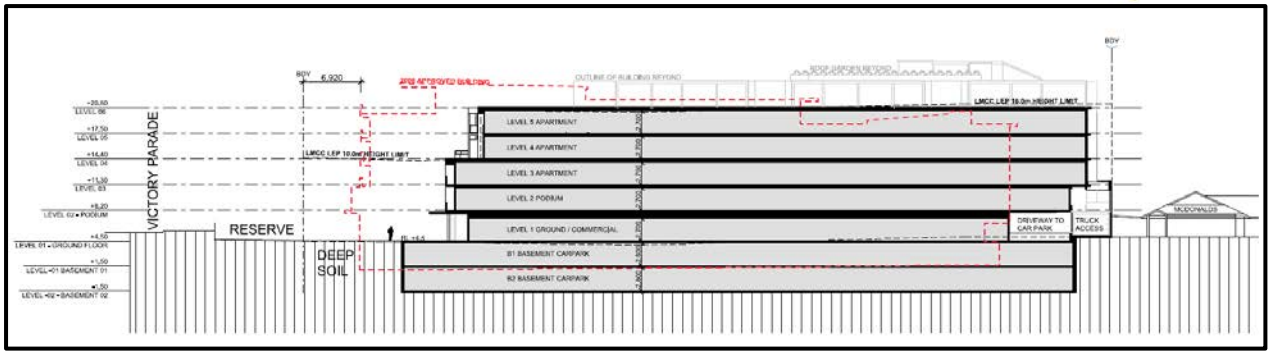


Figure 3 – Section B

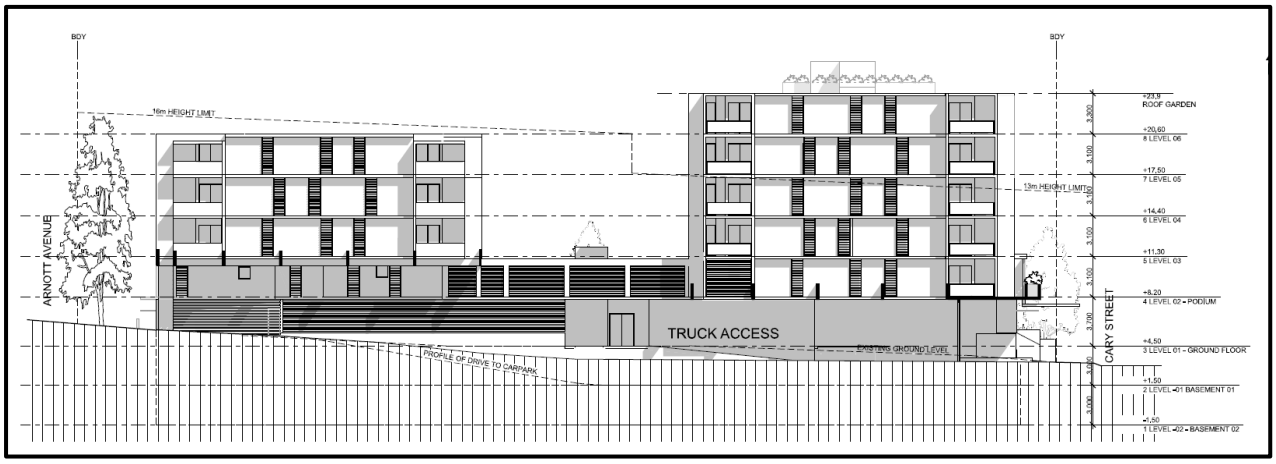


Figure 4 – Section C

1.1.3 Extent of Variation

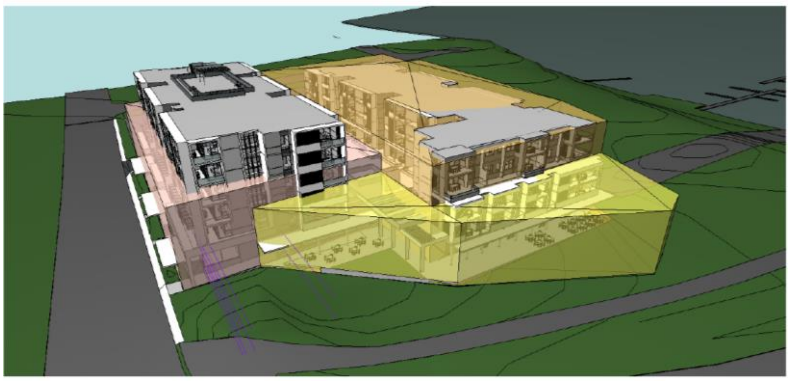
The proposed extent of variation to the height limit is presented in Table 1 and Figure 5.

Table 1 – Variation to height limit

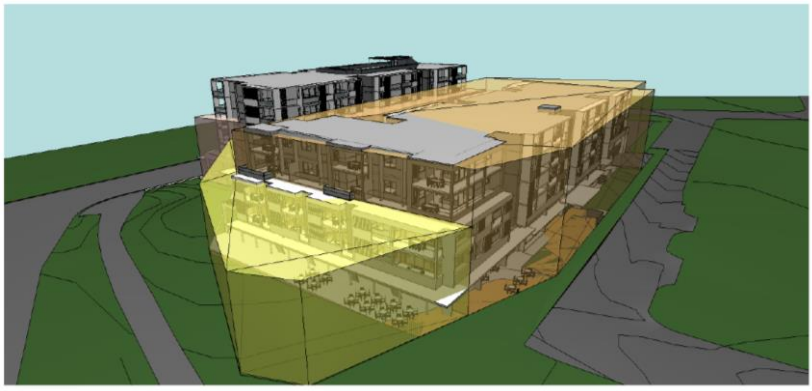
Height Control	Proposed Height	Variation (%)
10 metres	10.5 metres	5%
13 metres	20.6 metres to building and 23.6 metres to roof garden structures	58% to building and 81.5% to roof garden structures
16 metres	16.1 metres	0.6%

The above numerical variations need to be considered in the context of the overall development. A significant part of the site has not been developed as the separation in the middle allows creation of a podium level communal outdoor space that is 11 metres lower than the height limit. The space not utilised in the middle of the site should allow for greater building heights as it results in a higher quality built form.

Figure 5 – 3D Height Plane Renders



Height limit view 1



Height limit view 2

Height limit view 3

The reasons for the variation to the height limit are that the site is appropriate for higher density as the site is:

- located in a local centre zone that has been considered appropriate for a range of residential and commercial land uses
- ideally positioned to high demand for residential accommodation in close proximity to existing amenities and commercial centre of Toronto thereby reducing need for vehicle travel
- able to supply appropriate car parking in accordance with Council's DCP
- within close distance of a number of complimentary zones that integrate well with the proposed development including residential, business, infrastructure and recreational
- connected to the same B2 Local Centre zoning in Toronto central business district (with the exception of the recreation land for the heritage rail corridor) that confirms the critical role of the site of connecting residential land uses with core business district of Toronto
- able to accommodate a high quality development that signals the entry to Toronto while integrating with the site and surrounds
- appropriate for a building that exceeds mapped permissible building heights as it slopes towards the lake and this allows the building to express the local topography while setting a statement of design excellence
- able to accommodate a numerical exceedance of permissible building height and achieve the objectives of the zone
- large enough to allow a built form to meet height limits on the majority of the site while also allowing for denser development on that portion of the site that has least impact to neighbours, heritage and open space.

1.1.4 Unreasonable and Unnecessary

Compliance with the Standard is unreasonable and unnecessary.

> 'In *Wehb*e, the now Chief Justice Preston gave five ways in which compliance with a development standard might be shown as unreasonable or unnecessary and these are as follows:
>
> 1. compliance with the development standard is unreasonable or unnecessary because the objectives of the development standard are achieved notwithstanding non-compliance with the standard;
> 2. the underlying objective or purpose is not relevant to the development with the consequence that compliance is unnecessary;
> 3. the underlying objective or purpose would be defeated or thwarted if compliance was required with the consequence that compliance is unreasonable;
> 4. the development standard has been virtually abandoned or destroyed by the Council's own actions in granting consents departing from the standard and hence compliance with the standard is unnecessary and unreasonable; and
> 5. that "the zoning of particular land" was "unreasonable or inappropriate" so that "a development standard appropriate for that zoning was also unreasonable or unnecessary as it applied to that land" and that "compliance with the standard in that case would also be unreasonable or unnecessary.'

The following demonstrates that compliance with the development standard is unreasonable or unnecessary because the objectives of the development standard are achieved notwithstanding the non-compliance with the standard. The first point above clearly presents a way in which non-compliance with a development standard may be considered unreasonable or unnecessary as the objectives of the building height standard are achieved. The two objectives under Clause 4.3(1) are:

> (a) to ensure the height of buildings are appropriate for their location,
>
> (b) to permit building heights that encourage high quality urban form.

<u>The proposed buildings are appropriate for the site</u>

4.3(1)(a) - to ensure the height of buildings are appropriate for their location

The development site is an amalgamated land holding comprising ten allotments and therefore represents an opportunity for a holistic built form and urban design outcome. Due to the large area and amalgamated nature of the site it encompasses the junction of three different building height zones that do not facilitate a consistent or holistic built form response to the site. Strict compliance with the individual building height zones is not appropriate or necessary in this instance as the development provides an opportunity for a built form response that is specific to the site, rather than the arbitrary application of the building height zone boundaries. The Urban Design peer review demonstrates that the proposal is a suitable response to the site.

Various building forms were explored as part of the Concept Design Stage such as a building that spread across the site as a lower, "fatter" block form within the height limits. Concerns were made about filling in across the site as it would have less opportunity for; outlook; outward facing external walls facilitating natural light and ventilation; privacy; distance separation and circulation.

As a result of the Concept analysis to make best use of the site dimensions, the proposal creates two long buildings separated to enable maximum perimeter walls for windows, decks and outlook. The separation in the middle allows creation of a podium level communal outdoor space that is 11 metres lower than the height limit.

A built form that would be allowable within the height limit in this central area would create various amenity and architectural problems as abovementioned. Therefore, instead of built form in the middle of the site, built form is transposed to the Cary St building to maximise natural light, ventilation, outlook, general amenity to all apartments and reinforce the Architectural design. The Cary St building exceeding the height limit by 8 metre to the top apartment level and 11 metres to the roof garden is juxtaposed by the 11 metre height reduction of the central podium.

This transposition to create the height is made possible by a couple of primary factors:

- there are no FSR constraints
- the number of apartments accommodated by the height is supported by the respective car parking numerical requirement being satisfied fully on site with the two basement carparks.

This transposition, whilst creating height, also creates open space and separation between built forms, maximising amenity whilst reducing building mass and bulk and provides a better outcome than a lower, singular large mass spread across the site within the height limit.

The design facilitates appropriate development of the site with encroachment into the maximum permissible building height justified on the basis of a better design outcome and improved amenity for occupants, which is considered to be a positive outcome within the context of the B2 Local Centre Zone. Significance of surrounding heritage items such as the Toronto Hotel is visually maintained and not affected by the proposed building. Furthermore, the proposed development creates a Gateway to Toronto to indicate entry into the Toronto Town Centre to achieve its gateway significance. It is appropriate to focus the development on the busy Cary Street side of the site with higher built form in that location rather than on the quieter Arnott Avenue side. The building follows the topography of the land with lower building height sloping toward the lake and recreation allowing for appropriate density in a design that considered surrounding slope of the land.

Further justification for the proposed height is presented below:

- The proposed development is of appropriate height and scale to avoid undesirable impacts on the scenic quality of the township, especially as viewed from the Lake.
    - Low visual impact of the proposed development from and to the Lake as the building seeks to follow contours of the land while making a statement at the entry to Toronto
    - Low impact on views as the proposed building will be set within the business zone and with similar height to surrounding crowns of trees.
- The site is positioned in a low section of Cary Street that allows for extra height that does not dominate streetscape or lake views while making a statement with a landmark building in a key site
- View corridors are retained and not impacted by the additional height

- Additional height is ameliorated by the central podium communal outdoor level being 11 metres lower than the development standard. The podium provides visual and spatial relief to the built form and reduces overall encroachment into the building height
- Urban design has provided an appropriate outcome rather than uniform mass block in accord with the development standard. The proposed development appears as two buildings and provides extensive visual relief at the podium level
- Higher parts of the building are facing the major road of Cary Street with lower built form facing more sensitive yacht club and residential neighbours. Reorienting the building to that identified in the Area Plan will achieve a more appropriate built form with focus of building towards Cary Street to reinforce the gateway significance
- Retention of dominance of surrounding heritage items over the site. Due consideration has been given to heritage components through advice from the heritage consultant in consultation with the project architects
- Retention of Solar Access due to two building forms with 18 metre separation. The extra height allows for increased solar access to higher apartments with no additional overshadowing to any residential neighbours beyond a compliant scheme.

The proposed development is located on a prominent site that allows for consolidated lots to achieve a good quality design with appropriate densities and uses. The development presents an opportunity for the site specific design response proposed that signifies entry to the Toronto town centre. In this regard, the LEP building height zones do not envisage a single development opportunity (because there are multiple allotments) and strict compliance with them would not facilitate the best urban design outcome for the site. The development scheme has been the subject of an iterative Urban Design process including a peer review that has supported the scheme on the following grounds.

The proposed buildings are appropriate for the site as the siting and design results in minimal privacy impacts to neighbours. Courtyards are generally located on the ground floor and are oriented around the building and internal on the podium level. In this regard the additional height proposed will not increase the potential for overlooking of neighbouring properties, particularly as the building is adjacent to a public reserve and commercial premise. Proposed height is commensurate with the height of the surrounding tree canopy and as such the portions of the development that exceed the building height control do not result in any significant loss of views.

A portion of the development extends into the 10 metre height zone. While this results in the largest numerical non-compliance with the standard, it will not result in any significant perceived non-compliance as it only arises as a result of the encroachment of the building into the lower height zone as presented in Figure 4. The combination of sloping land and lower height limit combine to limit potential design options for the site that reduce options for high quality built form. The proposed design has considered site attributes and incorporated these attributes into design opportunities throughout the entire site that is more appropriate than strict compliance with height controls.

As illustrated in the Architectural Site Section diagrams (Figure 2-4) the site is located in a lower topographical area within the locality and as such is suitable to accommodate additional building height without compromising any significant views or resulting in a building form that is visually prominent throughout the locality.

The height of the development has been designed to ensure it is commensurate with the canopy height of the trees in the surrounding area.

The site has a sloping topography that results in a level change of approximately 2.5 metres across the site. As illustrated in the LEP Height Limit Diagram (Figure 1), the non-compliance with the 13 metre height control is a direct result of the slopping topography of the site. In this regard the non-compliance with the 13 metre height control is attributed to a circumstance specific to the site.

<u>The proposed buildings have a high quality built form</u>

4.3(1)(b) To permit building heights that encourage high quality built form

Compliance with the development standard is unreasonable and unnecessary as the proposed development provides for high quality built form, high levels of solar access and excellent internal living spaces.

The design facilitates appropriate development of the site with encroachment into the maximum permissible building height justified on the basis of a better design outcome and improved amenity for occupants, which is

considered to be a positive outcome within the context of the B2 Local Centre Zone. The proposed building complies with the height objectives as it is appropriate for the site and has high quality, built form.

As the proposed development is across a number of lots with varying height limits the design has been undertaken in a manner which enables the building to be viewed as a single development albeit articulated across the site rather than uniformly breaking the massing up to comply with the prescribed height limits which would result in disjointed building elements. Instead, the built form steps down appropriately to the more sensitive surrounding context. The proposed encroachments result in better design outcomes for the building as a whole.

As shown in Figures 2-5 a number of design features are included in the building to improve overall building design and internal living space such as:

- The DCP Town Centre Plan Block Section building separation is achieved through the shared podium level that reduces building bulk and improves liveability of the building
- Exceedance in height is partially for architectural roof forms permissible under Clause 5.6 which create interest and better internal living space for residents
- The intended form of the building is to provide a statement that is a gateway to the northern end of Toronto. The high quality built form and greater height allow for increased design options that achieve a high quality built form. As stated earlier the SEPP 65 Urban Design Review Panel stated "…The Panel was of the view that the consultants' arguments in support of a building of greater height facing Cary Street had merit, and potentially offered a better urban outcome than the previously approved low-scale development proposal, which was considered to be a rather understated response, and at a scale that did not fulfil the aim stated of the Town Centre Plan for the site to be a northern gateway site to the Toronto business area
- The roof garden, lift and stairs occupy approximately 7% of the Cary Street building footprint and is centrally located within the footprint to be set back at least 5 metres from the building edges for most of the roof garden and is an open structure with a single flat plane with no solids.

Underlying objective of the height standard

In *Wehbe*, Preston J also stated that another way to establish that compliance with a development standard is unreasonable and unnecessary was to establish 'that the underlying objective or purpose would be defeated or thwarted if compliance was required with the consequence that compliance is unreasonable.' The following demonstrates that compliance with the development standard would result in the underlying objective or purpose would be defeated or thwarted if compliance was required with the consequence that compliance is unreasonable.

- View arguments – Note that the building has been 'skilfully' designed (as required in the view loss test set out in *Tenacity Consulting v Warringah Council [2004] NSWLEC 140* at 25-29) as the height is commensurate with the height of the surrounding tree canopy and as such the portions of the development that exceed the building height control do not result in any significant loss of views. A building design that complied with the height standard would not have similar options as presented in this proposal and would potentially therefore result in a building design that is less of a statement as the entry to Toronto.

- The site has a 75 metre frontage to Cary Street and is located at the junction of Cary Street and Victory Parade that signifies the northern entry to Toronto. As such, it forms a prominent location within the locality that is suitable for a prominent built form response. The proposal increases the building height along the Cary Street frontage to reinforce the hierarchy of this corridor and the sites prominent location at the junction of two major roads. The desire to create a statement at the site that will be considered a landmark to bookend the northern entry to Toronto with the southern entry to Toronto is evident in the overall design outcome. The ability to consolidate the lots and achieve a different building design to that proposed in the Area Plan provides for additional high quality and visually interesting architectural features and options that would not be available with a compliant building.

In the SEPP 65 Urban Design Review Panel Recommendations for the meeting on 10 May 2017 the panel found that "…the consultants' arguments in support of a building of greater height facing Cary Street had merit, and potentially offered a better urban outcome than the previously approved low-scale development proposal…". In that light, the Urban Design Panel desire for greater height to Cary Street could not be achieved with strict compliance with the height standards and therefore the objective of Clause 4.3 would be defeated or thwarted with

greater height to Arnott Avenue as the buildings would not be appropriate for the site and would not have high quality urban form.

Clause 4.6(3)(b) there are sufficient environmental planning grounds to justify contravening the development standard

There are sufficient environmental and planning grounds to justify contravening the development standard due to the following:

- Proposed development meets the zone objectives as set out below and the height control objectives above
- The site located as the Gateway to Toronto Town Centre and increased density is warranted to provide access to existing transportation, services and facilities
- The proposed development creates appropriate built form outcomes for the zone and is compatible with existing buildings including heritage
- Non-compliance with the maximum permissible height is directly related to creating amenity on the site without an adverse impact on the surrounding sites such as preserving privacy and solar access.

Setbacks

The proposal generally achieves setback requirements. The following setbacks are proposed:

- 6 metres to Arnott Avenue
- Varied setback to Victory Parade and up to 21.268 metres
- Varied setback to Cary Street of 3.028 metres to 3.429 metres
- Varied setback to the northern boundary of 6.08 metres to 12.01 metres.

Recreation space and interaction to the reserve to the west provides separation from Victory Parade and allows for interaction from the commercial area. The front setback of around 3 metres is appropriate for the site, nature of the development and proposed commercial space to integrate with the street. Setbacks accentuate building form where more prominent parts of the building facing Cary Street are closer to the street that other areas of the site. The Cary Street frontage seeks to accentuate the built form, encourage interaction with the community and adjoining activities and further promote the landmark statement of the building.

Site Coverage and Landscaping

Continuation of the existing North East landscape characteristic is proposed to be extended along Arnott Ave with *Auracaria* spps. Street trees and new landscaping are included along Cary St.

Landscape species will draw heavily from existing mix of exotics and natives as massed planting. Feature tree of *Quercus robusta* (English Oak) will be planted in the Reserve in recognition of the ageing Oak tree that is to be removed from site.

Transition of landscape from private to public domain is planned to integrate existing landscapes and historic elements with new proposed elements.

Proposed landscaping includes upgrade 1,500m^2 of rail corridor public reserve, deep soil zones connecting with reserve and Arnott Avenue, 6 metres wide, 440m^2, equivalent to 7% of the site area. In addition, a 1,000m^2 podium level communal open space for residents and rooftop garden of 300m^2.

The extra height allows the site to realise its development potential while allowing for significant landscaping and communal areas.

Orderly and Economic Development of Land

The development promotes the proper and orderly development of land as contemplated by the controls applicable to the zone, which is an objective of the Act (s 5(a)(ii)) and which it can be assumed is within the scope of the "environmental planning grounds" referred to in cl 4.6(4)(a)(i) of the LEP.

The development represents a use that is permissible with consent in the zone and is consistent with the zone objectives. It is located within an area that is serviced by existing roads and other essential infrastructure. In this regard, the proposal represents the orderly and economic development of land.

Amenity

A scheme that achieves strict compliance with the building height controls would squash the same building envelopes into lower forms that would result in reduced building separation, reduced access to sunlight, reduced area of ground floor communal open space and deeper apartments. Rather, the proposal improves all of these aspects by creating taller building envelopes. Internal and external amenity is provided in the design by access to space, light and ventilation that is encouraged through high quality design within the taller building envelopes. Interaction between commercial, residential and recreation space is enhanced by the podium level, walking paths and landscaping that consolidates uses and embeds the building into the environment.

Summary

The above demonstrates that there are sufficient environmental and planning grounds to justify the proposed contravention of the building height development standard. The additional height sought by the proposal will not result in unreasonable impacts to the physical environment, is permitted under Clause 4.6, and will not adversely impact views or visual quality of the site or the amenity of neighbours. The proposal seeks to create a significant development that provides a northern gateway to Toronto that accentuates and enhances use and built form of surrounding development and will make a significant positive contribution to the streetscape. In this regard, there are sufficient environmental planning grounds to justify the proposal.

Clause 4.6(4)(a)(ii) the proposed development will be in the public interest because it is consistent with the objectives of the particular standard and the objectives for development within the zone in which the development is proposed to be carried out

The proposed development is consistent with the objectives of the B2 Local Centre zone. Each objective is addressed as follows:

• *To provide a range of retail, business, entertainment and community uses that serve the needs of people who live in, work in and visit the local area.*

The site is ideally situated at the northern entry to Toronto at the interface between residential, business and recreational land uses. The land uses that are proposed by this proposed development will provide for a wide range of commercial and retail uses on the ground floor. The mixed use development provides for a significant opportunity for future commercial activities in the building that directly satisfy and meet with the objectives of the zones. The proposed commercial uses that are coupled with a high density residential component will provide for further retail, business and community uses for the proposed residential occupants, the existing residents and the existing broader community.

• *To encourage employment opportunities in accessible locations.*

There will be further intensification of existing commercial activity with the ground floor consisting of shop, office and restaurant areas within the proposal. This will increase employment opportunities and when consideration is given to the availability of public transport in close proximity to the proposal it can then be concluded that this proposal meets with the stated objectives of the zone.

• *To maximise public transport patronage and encourage walking and cycling.*

The site located as the Gateway to Toronto Town Centre, and the increased density is warranted as it provides access to transportation, services and facilities. The bus network that traverses Cary Street and the nearby Toronto centre provides access to and within Lake Macquarie and further to Newcastle and connections to rail transport. Furthermore, facilities and services within the Toronto Town Centre are readily accessible by walking and cycling.

• *To create spaces that are accessible and are a central focus for the community.*

The proposal represents a land mark building in its unique location and its aesthetically pleasing architectural expression. It will therefore provide a focus for the local and broad community.

The opportunity to access commercial, residential and recreational spaces and interact with the lake and the broader natural and built environment further enhances the proposals central focus for the community.

- *To provide for housing as part of mixed use developments.*

This proposal does meet with this objective as it proposes higher residential densities and a variety of housing accommodation in the form of a residential tower as part of a mixed use development. It challenges Council to adopt tall buildings within a consolidated large site that interact with the community and the environment with full and adequate respect for each other. It will provide ongoing housing accommodation and a variety of dwellings for local residents and the broader community.

The analysis presented in this document demonstrates that the development achieves the objectives of the height control and also objectives of the zone.

Clause 4.6(5) In deciding whether to grant concurrence, the Secretary must consider:

(a) whether contravention of the development standard raises any matter of significance for State or regional environmental planning, and

(b) the public benefit of maintaining the development standard, and

(c) any other matters required to be taken into consideration by the Secretary before granting concurrence.

It is understood the proposal will be considered by the Joint Regional Planning Panel that may assume concurrence from the Secretary for the proposed variation.

As demonstrated in this document and submission to Council there are sufficient planning grounds to justify and allow for a variation to the maximum permissible building height development standard. Such justifications include but are not limited to a stronger presence facing Cary Street, lower building heights to Arnott Avenue and the southern public reserve, creation of a podium level communal outdoor and associated landscaping and connection to recreation areas for both public and private amenity at various levels from the ground to the podium to the roof. The proposal provides for a high quality design that achieves Council's objectives for the site while creating a landmark building for the northern entry to Toronto that will form a bench mark for future developments. The proposed development will provide an attractive and significant entry to Toronto and encourage appropriate ongoing growth in Toronto and Lake Macquarie.

Town Planner

Mark Maund

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VISUAL IMPACT ASSESSMENT

TORONTO INVESTMENTS NO 1

MIXED USE DEVELOPEMNT
Carey Street and Victory Parade
TORONTO NSW

August 15, 2018

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Date issued: August 15, 2018

Report status: FINAL

Images within this report are artistic impressions only and have been developed as accurately as possible to represent the proposal outcomes.

This report has been undertaken from ground level viewer impacts only and not from any elevated built form.

Table of Contents

1. Introduction

1.1 Purpose of this Report

This report has been prepared on behalf of the applicant, Toronto Investments No. 1, as part of a Development Application for a six storey mixed use development at the corner of Cary St, Arnott Avenue and Victory Parade Toronto NSW.

Visual Impact Assessment (VIA) Objectives

The primary objective of the VIA is to provide a description of the impact of the proposal within the context of the development to form an assessment of how the development relates visually to the site and surroundings.

Other objectives include

- Providing a concise understanding of the visual impacts of the proposal as measured against adopted criteria such as the Lake Macquarie Scenic Management Guidelines 2013.
- Providing a concise understanding of how the proposal responds visually to the site context within the landscape setting.
- Providing comments in relation to possible measures which may be implemented to minimise any adverse visual impacts noted.

Limitations of the Visual Impact Assessment

- No assessment for night time visual impact has been considered.
- All images taken with standard 35mm camera unless indicated.
- No photo montage's. Artists impressions have been developed as accurately as possible.

1.2 Site Location and Context.

The site is located at the corner of Cary Street and Victory Parade Toronto. The site is located in a prominent gateway location on the northern entry perimeter of Toronto.

The immediate existing character is complex with a number of built form and landscape elements combining to create the context.

Briefly context can be described as

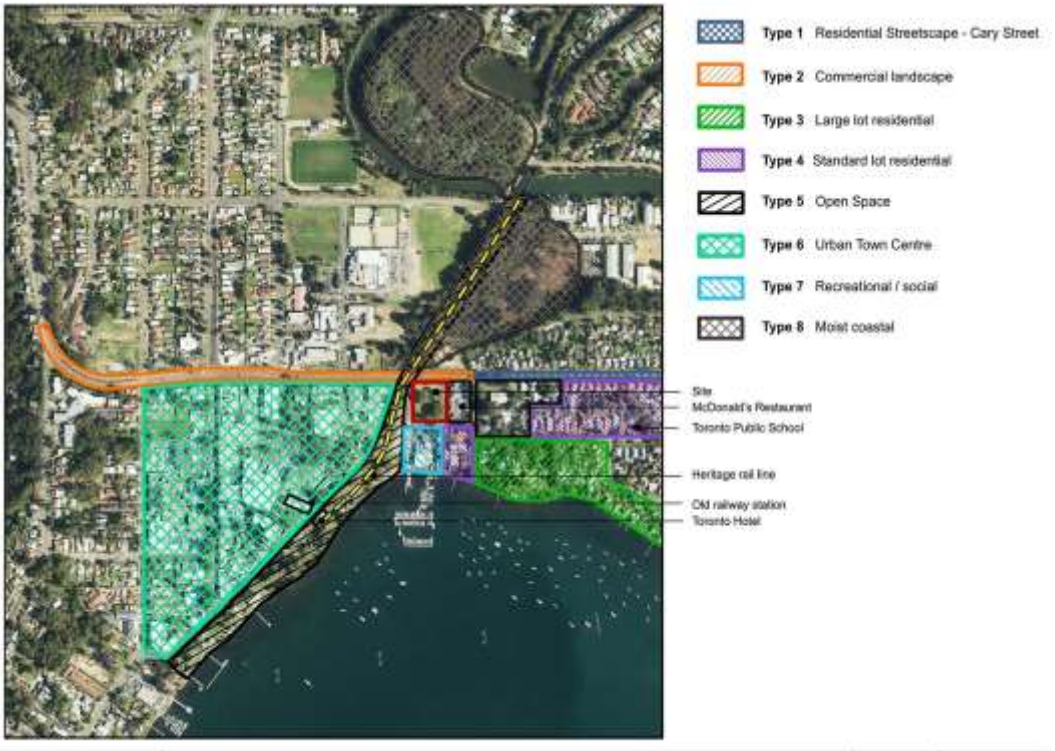
- Immediately adjacent to the west is Cary Street – a busy arterial 4 lane road.
- Beyond Cary Street to the west is retained bushland

- Immediately to the south is a Heritage rail corridor with existing vegetation and cycleway. This forms part of the existing Greenway link to Fassifern.
- To the south is Victory Parade (beyond a small parcel of publicly owned land, the former rail link land and pathway connection to the Greenway) a busy local road connecting with the Toronto Town Centre.
- Immediately to the east is Arnott Avenue Ave- a small residential street that services access to the Toronto Royal Motor Yacht Club and Public boat ramp. Dominant are rear detached garages of older style dwellings and inconsistent set backs of built form. The corner of Arnott Avenue and Bath Street form an open car park for Yacht Club patrons.
- Beyond Arnott Avenue to the east is the Yacht Club itself with direct waterfront access. Parts of the Yacht Club are listed in Council's Heritage Register.
- Immediately adjacent to the north is a MacDonald Restaurant complex occupying at last one third of the available block space defined by Cary, Bay, Arnott Avenue and Bath Streets.
- Immediately north of the MacDonalds site across from Bay Street is a Public School.
- Small grain and large grain blocks co-mingle with commercial, educational, recreational and heritage elements. The differing block sizes and zonings have allowed the past development of a visually complex landscape of differing built styles, height, bulk, scale, uses and landscape settings that have limited visual consistency.

Image 1 – Site Context Map 1(Broad Context- up to 2 klms) showing Toronto township with site centrally located on major north /south road alignment . North is to the RH side of the image.

Image 2 – Site Context Map 2 (medium Context – up to 500m) showing site in visual setting context with MacDonalds and Toronto Public School to the north, Toronto Yacht Club and Lake Macquarie to the east, Victory Parade and bulky commercial form/ car park to the south and Cary Street /vacant land to the west. The Toronto Hotel is to the south.

Image 3 – Site Context Map 3 – (Immediate Context – up to 100m) showing mix of context with easterly Yacht Club, northerly MacDonalds, southern open recreational space and westerly green space corridor link to Fassifern.



LANDSCAPE TYPOLOGIES MAP

Image 4- depicts the built form and landscape typologies within the immediate site context.

2. Assessment Methodology

2.1 Overview

The following visual assessment methodology has been used for this report:

- Review of existing planning context – review of relevant planning documents, guidelines and previous assessments relating to site. (Chapter 3 Planning Context.)
- existing visual environment – described in terms of site context and visual environment. (Chapter 4)
- the proposal assessment – review of description (Chapter)5
- visual impact assessment – assesses visual impacts to the landscape and surrounding viewpoints, - (Chapter 6)
- Findings – (Chapter 7)
- Conclusion - (Chapter 8)

The report focuses on impacts on both permanent and transient viewpoints of the site as those within this viewing distance that have the greatest potential for impact.

More explanation on factors considered during the assessment of the existing visual environment and the potential visual impact of the proposal is provided below.

2.2 General Terminology and Definitions

It is necessary to understand the value of a particular landscape in order to assess how acceptable any proposed change to that landscape would be to those that would view such change.

Terminology for use within a Visual Impact Assessment document may differ from report to report.

For the purposes of this report the following definitions are used for assessment. The definitions are a combination adopted terms from the Guidelines and broader professionally accepted terminology to assess visual impact.

- 'Scenic Quality' This is a broad term used as a general guideline explained (within the Guidelines), as a value placed upon the view by the perception of the viewer and is a combination of both the inherent quality of the landscape and the importance the viewer attaches to that landscape or view. This perception is what helps distinguish the characteristics of one place as contrasted to another place and includes key features, positive and negative, of the landscape or built form. Within any given 'Scenic Quality 'area there will be sub-sets of differing Scenic Quality levels.

- The Landscape Settings (the discrete bounded geographical location for each setting as described in the Guidelines) include a ranking of 'scenic quality' in terms of low, moderate or high. This ranking should be used as a broad guide only, as within any given Landscape Setting there can be a range of varying scenic quality.
- Landscape Value- a combination of Scenic Quality, Site Sensitivity /Visibility and Cultural Value.
- Landscape Impact – is an assessment finding and relates to the relative capacity of the landscape to accommodate changes to the physical landscape of the type and scale proposed either through the introduction of new features OR the loss of existing features.

2.3 Landscape Value – Proposal Context.

Landscape value may also be interpreted as the 'Context' in which the proposal is to be set. The value of this context is a combination of the following aspects

2.3.1 Scenic Quality.

Scenic quality measures the degree to which the visual aesthetics of a landscape are valued from a human point of view and the impact that any proposed changes may have on such values.

2.3.2 Visibility/Sensitivity.

Visibility refers to how easily a site can be seen, and can be indicated by these factors:

- visual prominence (how easily a site is seen);
- visual accessibility (how closely and often a site is seen); and
- viewer permanence (whether viewers are permanent, such as residents, or transient, such as road travellers).

Normally the sites that are most visible are those with high and/or fixed viewing populations and sites that are visually prominent and/or elevated.

TABLE A- VIEWER SENSITIVITY DEFINITIONS

SENSITIVITY	DEFINITION
High	1. Occupiers of residences with long viewing periods with close proximity to the proposed development. 2. Users of outdoor recreational areas including nature reserves and nature based recreation (such as walking/cycling , horse riding trails, bird watching, hiking, water based recreation) where their attention is focussed in part on the landscape and its amenity. • Communities that place value upon the landscape and enjoyment of views of their landscape setting

Medium	• Outdoor workers who have a key focus on their work who may also intermittently view the project area. • Outdoor recreation users such as sporting activities where the focus is primarily focussed on the sporting activity being undertaken. • Occupiers of residences with long viewing periods at a distance from or visually screened from the project area
Low	• Road users in vehicles, trains or transport routes passing through the site context area as defined. These users will have transient or short term views. • Viewers indoors at their place of work
Negligible	• Viewers from locations where there is screening by vegetation or structures where only occasional screened views are available and viewing times are short. • Transient road/transport users where views into the site are partially screened and viewing times are short.

2.3.3 Cultural Value.

The cultural value of a landscape can be assessed by considering the contribution the landscape makes to the understanding of the 'sense of place ' by residents and visitors to a region. Factors such scarcity of a particular landscape, visitation by tourists and recognition in the arts, heritage both European and native and special places as designated by local groups or uses.

2.4 Assessing the Visual Impact of the proposal

The 'visual impact' of a proposal is a measure of the overall extent and type of potential visual change as a result of the proposal on the landscape and from surrounding visually sensitive viewpoints.

Visual impact on landscape value (ie how the landscape is visually affected either positively or negatively relative to a perceived value)

Visual impact on the landscape can be assessed by considering the proposed landscape change against the identified landscape value. Landscape change generally takes into account the visual contrast between the existing scenic quality/landscape character and the character of the proposal, the extent of landform change, the bulk and scale of the proposal, changes to topography and loss of vegetation.

Visual contrast (ie how the proposal contrasts with the existing landscape)

may be assessed as the difference in the visual style between the existing surrounding context and the proposal.

Visual impact to viewers (ie how the proposal will affect viewers)

Viewers can be assessed in two groups. Permanent or transient.

Visual impacts to permanent viewers (such as those from houses) need to be assessed differently to general visual impacts on the landscape. Even when houses are located within an area that has been assessed as having a low landscape significance value, the impacts on houses within close proximity can still be relatively high as a large part of their existing views can be altered. This is because visual change is directly perceived by permanent viewers in a similar way regardless of the identified landscape significance value of the location.

The potential for impact usually increases as the viewer's position becomes closer. In terms of visual change, the highest impact is usually on local or foreground views (less than 1 km away), while sub-regional or mid-ground views are moderately sensitive (1 to 5 km away), and regional or distant views (over 5 km away) are the least sensitive.

Transient views are those views which are not permanently experienced.

2.5 Landscape (Context) Impact

For the purposes of Visual Impact Assessment, the term 'landscape' encompasses the broad visual field both built and natural.

Table A below provides definitions of what constitutes determinants for the Visual Impacts assessed and the relative VIA level determined.

TABLE B – LANDSCAPE /CONTEXT IMPACT DEFINITIONS

LANDSCAPE /CONTEXT IMPACT	DEFINITION
High	• A substantial and obvious change due to the total loss of, or change to, elements, features or characteristics of the landscape setting where the landscape would be permanently changed and the qualities of the landscape permanently or significantly (for more than 10 years) be diminished or extinguished. • Change is likely to cause a direct adverse permanent or long term (more than 10 years) impact on the value of the receiver.
Moderate	• Discernible changes in the landscape due to partial loss of, or change to, the elements, features and characteristics of the landscape setting. The change would be out of scale and context of the setting in relation to local patterns, vegetation typologies and landforms. Will leave an adverse visual impact on a landscape of recognisable quality. • Change is likely to impact adversely the integrity /value of the viewers perception of visual quality. May recover visual quality within 15 years.
Low	• Minor loss or impact to one or more key landscape attributes, features or characteristics OR the introduction of elements that are visible but may not be uncharacteristic within the existing landscape setting. • Change is likely to impact adversely the integrity /value of the viewers perception of visual quality. May recover visual quality within 4 years
Negligible	• Almost imperceptible or no change to the existing view that would cause a negative visual impact. • The existing landscape quality and setting is generally maintained so as to not cause the viewer to perceive any adverse view effect.

3. Planning Context

3.1 Consent Authority

The Joint Regional Planning Panel is the consent authority for the proposed development with the DA process managed by Lake Macquarie City Council.

3.2 Lake Macquarie City Council

3.2.1 Lake Macquarie City Council LEP 2014

The subject site is located within the B2 (1) Residential Zone in the Lake Macquarie LEP 2014.

The objectives of this zone are:

To provide a range of retail, business, entertainment and community uses that serve the needs of people who live in, work in and visit the local area.
- To encourage employment opportunities in accessible locations.
- To maximise public transport patronage and encourage walking and cycling.
- To create spaces that are accessible and are a central focus for the community.
- To provide for housing as part of mixed use developments.

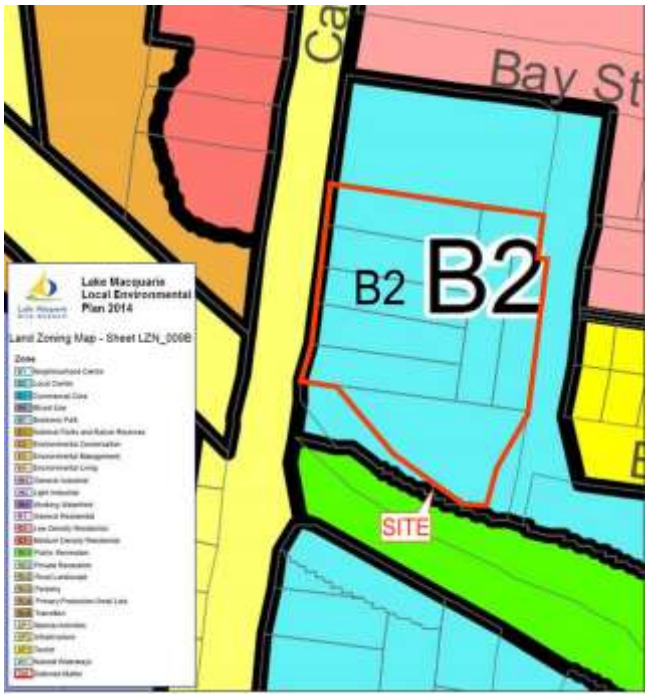


Image 5 – excerpt from LMCC Zoning Maps showing site zone as B2-Local Centre

3.2.2 Lake Macquarie City Council DCP 1

The Objectives of the document state that the Plan (i.e. DCP 1) are to implement the objectives of the Lifestyle 2020 strategy by facilitating ecologically sustainable development.

The objectives of this Plan support the core values of the strategy of sustainability, equity, efficiency and liability to

- Promote environmentally sustainable and quality development in the City
- Provide detailed guidance to prospective applicants of Councils requirements for building, sub-division and land development
- Elaborate on the requirements of the Lake Macquarie LEP 2004 as a key tool in the LEP's implementation
- Provide detailed criteria to assist Council in assessing Development Applications as required by the Section 79C (1) (a) of the *Environmental Planning and Assessment Act*'

Additionally, the Plan provides a performance approach to development management in the City through the use of three key components

- Intent Statements
- Performance Criteria
- Acceptable solutions

This approach allows Council to consider the individual proposal on 'merit' and provides flexibility to respond to a broad range of issues and community expectations within a known set of performance criteria.

3.2.3 Toronto Town Centre Area Plan

The Toronto Town Centre Area Plan (the Plan) has been adopted as part of the DCP 2012 to provide guidelines for the development of the Toronto Town Centre.

The area covered by the Plan includes the proposed development site subject to this report and appears in Figure 19 – Block Control F of the Plan.

The block controls include height limitations and site coverage.

It is noted that the proposal exceeds the Plan height limit by 2 stories.

It is also noted that the site is located at the extreme northern edge of the town centre Plan on a main road intersection at what could be described as a 'gateway' site into the Toronto Town Centre.

The Plan objectives

a. To maintain and enhance street views from the town centre to Lake Macquarie.

b. To maintain and enhance street views from the town centre to the Watagans.

c. To maintain and enhance the visual prominence of the Toronto Hotel and the bluff, as viewed from the lake foreshore and from the water.

d. To maintain the visual prominence of the spire of the Anglican Church on the corner of Cary Street and Brighton Avenue

e. To maintain and enhance the treed slope and ridgeline to the south of the town centre, as viewed from the lake foreshore, and from the water

The Plan Controls

A development proposal must include a 3D electronic model of the development that can be viewed from the surrounding streets, the foreshore reserve, and from the lake, for selected development sites up to 500 metres from the foreshore. This has been provided with the architects submission.

2. The height, scale and setback of development in the area bounded by Victory Parade, Cary St and Brighton Avenue must be designed to protect the visual prominence of the Toronto Hotel and the spire of the Anglican Church, as shown in Figure 3 - Toronto Town Centre Structure Plan.

3. Development must maintain or contribute to a continuous tree canopy on the ridgeline along Excelsior Parade when viewed from the lake foreshore, and from the lake.

Figure 19 - Block F Control Plan

Image 6 – Excerpt from LMCC Toronto Town Centre Area Plan

3.2.4 Heritage

The Toronto Town Centre Area Plan Figure 19 also shows the Royal Toronto Yacht Club as a listed Heritage item. (Heritage Item Number 173.) This Heritage item is located within 20.0m of the eastern site boundary of the proposed development.

The Toronto Hotel (Heritage Item Number 186) situated on the bluff south east of the proposed development site is also a consideration within this assessment as it is specifically noted in the Toronto Town Centre Plan as contributing to the local visual culture of Toronto within a prominent headland setting.

3.2.5 Scenic Management Guidelines 2013

The Scenic Management Guidelines (the Guidelines) places into context various Landscape Settings, Significant features and Scenic Management Zones around the Lake Macquarie LGA for the purposes of assessing impacts on scenic quality.

This document is the primary document referenced for the purposes of this report.

The guide states a number of Objectives as follows

•Objective 1 - Protect vegetated ridgelines and upper slopes;
•Objective 2 - Retain green breaks between urban areas;
•Objective 3 - Protect important natural landscape features;
•Objective 4 - Ensure the built environment does not dominate natural landscape qualities in non-urban areas;
•Objective 5 - New development to achieve a balance between the character of both the built and natural environment; and
•Objective 6 – Protect and enhance attractive views from highly visible viewpoints.

The Guidelines have assessed areas of sensitive visual access. Table 2 of the Guidelines describes areas of Visual Sensitivity.
The table does not include 'lake bays' as Visually Sensitive Landscapes per se however Table 3 of the Guidelines does describe the criteria for identifying places of potentially high or moderate visibility and visual sensitivity.

Using this criteria and noting that the site is located approximately 70.0m from the lake shore at the closest point and adjacent to public open space and the Toronto Yacht Club it may be assessed that the site has a moderate to high visual sensitivity.

3.2.6 Prior Council Comment/ Previous assessments.

The proposal has been viewed by the LMCC SEPP 65 Design Review Panel on two occasions prior to the lodgement of the DA- initially in February 2017 and again in May 2017. Significant changes to the building design which included opening up the central communal areas of the podium and reducing the Cary Street height by one storey were made in response to comments received by the panel prior to the DA being lodged.

The site has been previously approved for a 6 storey development in 2009- image below.

The Aqua Blue proposal has some similar features of the current proposal- most notably height. The image below demonstrates a similarly located proposal in an oblique aerial photo looking north west and showing the visual contrast of bulky larger scale form to the south of Victory Parade and the Town Centre 2B zone extension of the site to the North adjacent to the Royal Toronto Yacht Club.

Image 7 – Image from previously approved Aqua Blue Development showing current location of site from oblique aerial view with previous approved 6 story bulk and form noted.

This report is based on the current DA lodgement proposal from Toronto Investments No 1 dated March 2018 and the image above is included for comparison purposes only.

3.2.7 Current Council Development Proposals.

Lake Macquarie City Council is currently considering works within the immediate vicinity of the site. Refer to LMCC Property Investment Committee Meeting Agenda April 9, 2018)

Works include an Extension of Arnott Ave for vehicular traffic and the construction of a mixed use development up to 6 levels.

3.2.8 Other Assessments and Findings affecting Visual Impact.

- Heritage – Report completed for the project by John Carr, Heritage Design dated July 9, 2018 has found that after discussion with the architect, the final colour selection of the external paintwork facing Arnott Avenue and Bay street at podium level will have no detrimental visual impact on Heritage.
- Architects – during the initial site analysis for the project a difference in assumed levels between the Section FF Block F completed in the Toronto Town Centre Plan and the actual site levels were noted.
- Section FF of the Plan show the land falling from Cary Street to the lake edge. This is incorrect as site topography as surveyed indicates that the Cary Street boundary RL is lower than the Arnott Street boundary RL. This finding has an impact on the height limitations of the site should the Town Centre Plan nominated existing site RL be used as the base RL for the site. This difference is noted in the current DA application.

4. Existing Visual Environment

4.1 Existing Visual Context and Landscape Value.

4.1.1 Existing Landscape Value

The scenic quality of any landscape is closely associated with the perception of the viewer of the landscape and the expectation of what the landscape should visually be in any given location.

Under the adopted Scenic Management Guidelines 2013 this site is

- Not located within a Significant Natural Landscape Feature area (Ref Figure 25, 96 Scenic Quality Guidelines 2013)
- is located within a Scenic Management Zone 5.
- Has a Scenic Quality rating of Moderate with a Viewing Level of 2

Scenic Management Zone 5 guidelines (Table 10 of the Guidelines) – relative to the proposed site indicates that the Existing Character of the Site

1. includes a high level of urban development
2. Located close to the foreshore
3. Limited vegetation, built form dominant
4. Existing character displays emerging increased urban development.

Additionally, noted site characteristics pertaining to existing contex/landscape value as a *positive* contribution include

- Location as a 'gateway site' and extension of the Town Centre
- Location as a potential destination/termination point of foreshore open space
- Highly visible site

Noted site characteristics pertaining to existing contex/landscape value as a *negative* contribution include

- Unkempt appearance
- Lack of Town Centre connectivity
- Lack of street presentation
- Lack of or indeterminate cultural value
- Highly visible site

4.1.2 Existing Tree Species and Landscape Character

The site comprises the remnant of past maintained garden areas associated with the past dwellings on the site. This includes concrete paths, driveways, gardens, mown grass lawn.

The site is heavily disturbed, with a number of trees, weeds and grasses.

Existing tree species within the site context include

- An existing semi - mature Oak species on site.
- Existing fig tree- noted as in declining health.
- existing street trees (heavily pruned Lophostemon confertus dominant) in surrounding streets
- mixed native and exotic trees within residential areas to the north east of the site
- commercial landscape applications within the MacDonalds site of little screening value
- natural tall canopy dense vegetation to the west of the site as part of the Greenway Link
- older style residential landscape supporting commercial and residential built form to the south.
- Signature Phoenix canariensis (Canary Date Palm) located on the corner of Cary St and Victory Parade on rail corridor land. Wayfinding element.
- Norfolk Island Pines punctuate skyline to the north of the site and add structure to the soft landscape.
- Emergent Eucalypts present in local context.
- Distant vegetated ridgelines

Location Map 12 – View towards lake at the intersection of The Boulevard and Victory Parade looking east.

The image above shows an example of the existing broader site context vegetation species mix and visual forms evident within the Toronto Town Centre Area. The strong architectural forms of the Phoenix canariensis and Norfolk Island Pine offer structural and formal contrast to the softer forms of the tall canopy Eucalypts and mid ground broad canopy Casaurina to the right of the pine. This mix makes up the broader landscape typologies of the landscape character.
The distribution patterns of both palm and pine species are shown in Photo Map 1 and 2 later in 4.2 of this document.

4.2 Existing Site Images.

This section visually documents the site, the site context and the major visual approaches to the site.
Photo Map 1 and 2 have been designed to accompany images within this section to identify the locations from which they were taken.

Additionally, these maps show the location of all Phoenix canariensis and Norfolk Island Pines within the site context to illustrate the importance of those species to the establishment of a consistent landscape value and character. Eucalypts are the most common tall canopy species within the context but as these are very numerous they have not been separately identified.

The following Photo Maps show photo locations in numbers

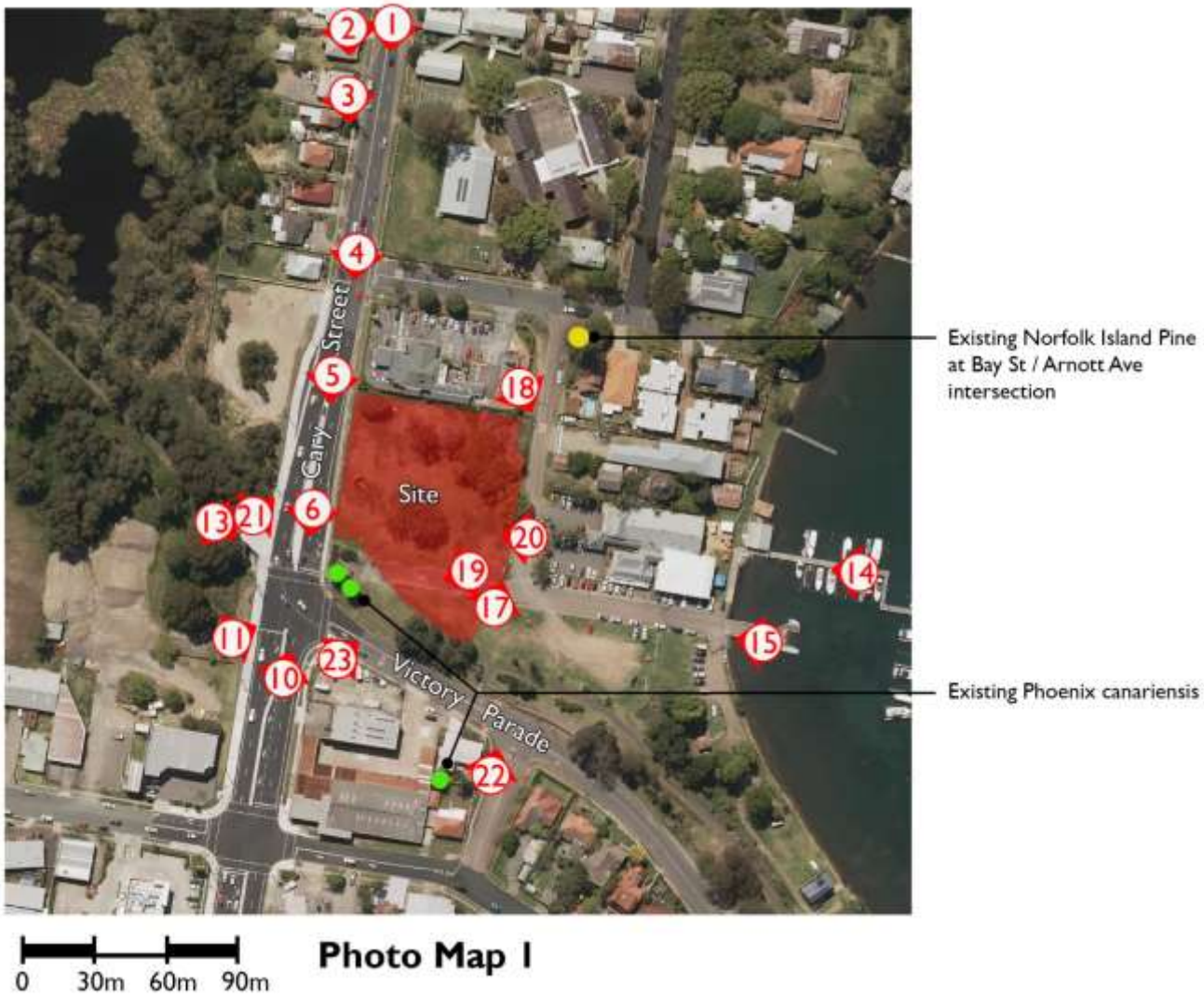


Photo Map 1

Photo Map 2

Photo Map 3

4.2.1 Northern approach to site.

Location 1 - Image taken from outside Toronto Public School looking south. The southern entry of Cary Street into the town centre is clearly visible in the distant centre of the image. Beside this to the right is the Uniting Care Aged Care facility showing clearly visible built form contrast in the setting. Natural lighting conditions are overcast and this mutes the colour contrast.

Location 2 - This image shows the northern entry looking south from opposite the Toronto Public School. Noted here is the visual contrast of the MacDonalds sign ,the break in vegetation along the street in the saddle of topography where the main commercial activity of the Town Centre is located and the bulk and scale of the distant Uniting Care Aged Care facility to the right of the power pole.

Location 3 - Image above taken opposite Toronto Public school on a clear day. This image clearly shows the existing mature Phoenix canariensis as a landmark landscape feature on the corner of Victory Parade and Cary Street. Toronto Private hospital roof line breaks ridgeline vegetation at this point.

Location 4 - Similar images on a sunny clear day highlight colour contrast further. This image taken from the corner of Cary Street and Bath Street

Location 5 - This image shows the northern approach to the first major intersection of town centre on the corner of Cary Street and Victory Parade. The proposed development site is on the left shown with existing chain wire fencing at the southern boundary of McDonalds. Phoenix palms help define intersection node visually.

Location 6 - This image is located close to the south west corner of the proposed development site indicated by the chainwire fencing post near the telegraph pole on the left. At this point the value of the existing mature Phoenix as a prominent local landscape feature is obvious. So is the mature vegetation to the west at the entry to the Greenway link. This creates a defined visual break in what would otherwise be an 'open' view south without a visual entry marker to the Town Centre. The central view towards the south is unimpeded at this point with a clear line of site to the ridge line, the Toronto Private Hospital and the Uniting Care Aged Care facility in the distance.

4.2.2 Southern Approach to Site

Location 7 - This Google screen shot shows the immediate view to the north as the viewer passes the Toronto Private Hospital and the Uniting Care Aged Care facility entering the main commercial section of Cary Street. Notable is the distant treed ridgeline, the church roof line, the sparse arrangement of tall canopy vegetation in the foreground and middle distance and the sense of arrival given by the larger scale buildings left and right in the image.

In the centre left of the image in the distance in the saddle of the distant ridgeline the very top of a Norfolk Island Pine can just be seen. This pine is located near the proposed site on Renwick Street at the highest topographical point on the northern side of the development site.

Location 8 - This image shows the northern approach from the corner of Brighton Ave. Noted in this image is the saddle topography commencing at the traffic lights and continuing to the distant rise north, the larger bulky scale of the commercial premises, highly visible signage.

Importantly this image shows the middle distance punctuation of the ridgeline by tall canopy Eucalypts The Eucalypt in the middle distance left is in the Toronto Public School grounds opposite the Tackle Shop on Cary Street) and Norfolk Island Pines on high ground north of the site in Renwick Street.

Location 9 - This Google snapshot shows the southern approach from the intersection of Thorne St and Cary St.

Noted in this image is highly visible commercial signage and scattered tall canopy trees.

In the middle distance to the immediate left of the BP sign is the Norfolk Island Pine located near the proposed site on the corner of Bay Street and Arnott Ave.

Location 10 - This Google snapshot clearly shows the existing landscape context of the site from the location just south of the Victory Parade and Cary Street intersection.

Existing tall canopy Casaurinas are evident at the right hand side of the image. These trees are in public land and are anticipated to remain.

Site vegetation includes the existing site trees shown between the existing Phoenix palm trees and the traffic light pole (RH Side of image). These trees will be removed under the proposal with the exception of the emergent Norfolk Island Pine shown (on the corner of Bay and Arnott Streets).

Just to the left of the Phoenix palms the existing tall canopy Eucalypts can be seen in the Toronto Public School grounds above the MacDonalds sign.

On Cary Street to the west is a large stand of mature vegetation that fronts the wetlands and Greenway areas behind.

Location 11 - This image shows the prominence of the existing Phoenix canariensis palm trees as visually significant way finding elements in the landscape similar to the Phoenix canariensis on the corners of The Boulevard and Cary Streets.

4.2.3 Western Approach to Site

The western approach to the site is mainly from the Greenway link by cycle or foot.

Some partial visibility of the site may be gained from the car park of the Toronto Workers Club however existing tree screening exists on the vacant land just south west of the Greenway entry point.

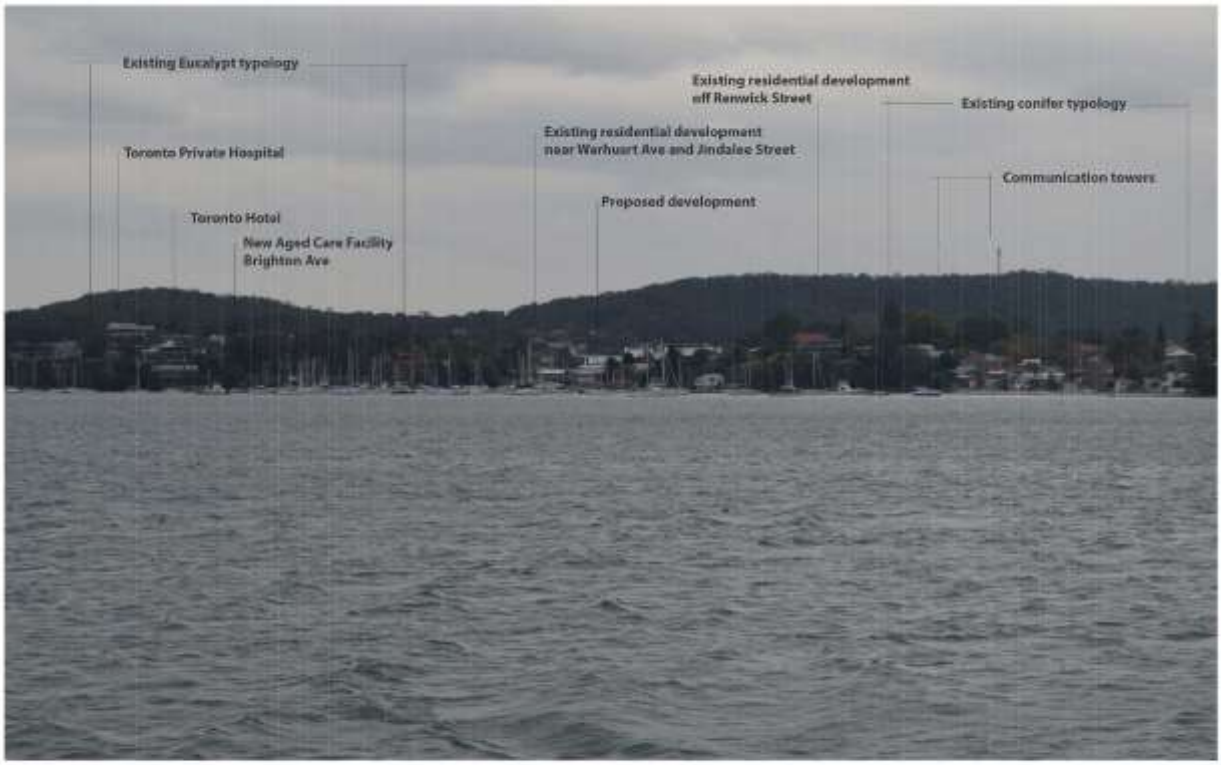
Location 13 - Image above is taken 10.0m inside the Greenway link looking east towards the site. The Yacht Club car park Palms can be seen on the left hand side of the image with the Phoenix canariensis palms and Casaurinas behind visible at the site intersection area. Views from the Greenway link into the site further from the west were not possible due to the landscape.

4.2.4 Eastern Approach to Site

The Eastern approach to the site is mainly visually from the water or the marina area adjacent to the Yacht Club.

Location 14- View from Toronto Yacht Club Jetty. Note emergent Norfolk Island Pine at corner of Arnott and Bay Street prominent in view. The proposed site visual extent commences from the tree immediately to the left of the pine to just above the left hand extent of the Yacht Club white veranda canopy.

Location15- The image above is taken from the jetty of the Yacht Club. This clearly shows the palms in the Club car park, the existing Phoenix canariensis on the intersection of Cary Street and Victory Parade at the termination of the telegraph poles. The tall canopy vegetation shown to the right of this is the Greenway link vegetation on the western side of Cary St. On the left hand side of the telegraph poles are the existing Casaurinas lining the shared path and a single polar species on public land. All vegetation shown in this image will remain.



VIEW 8 - VIEW FROM BOLTON POINT PARK
DEVELOPMENT APPLICATION

TORONTO MIXED USE DEVELOPMENT
Mark Lawler Architects | MANSFIELD URBAN

Location 16- This image is taken from the DA submission set with a view point from Bolton Point Park approximately 1.6 kilometres from the Toronto foreshore opposite.

In the direct centre of this image is the Toronto Yacht Club with the proposed site directly behind. On the extreme left is the Fig Tree Point Aged Care Facility visually prominent on the foreshore.

The Toronto Hotel roof can be seen directly in front of the ridgeline rise in the left centre of the image.

4.2.5 Immediate Site Context.

The following images have been taken in various locations immediately adjacent to the site.

Location 17- Looking north along Arnott Street from Bath Street intersection

Location 18 - Existing Arnott Avenue St view opposite north east site corner.

Location 19 Existing Casuarinas and Phoenix canariensis at the Southern edge of the site from Bath Street looking west. Note Phoenix canariensis on intersection.

Location 20- Looking west across the site towards Cary Street from yacht Club Car Park

Location 21- Looking obliquely north east across site toward MacDonalds boundary from entry to Greenway.

Location 22 -Google snapshot looking north into site from roundabout on Victory Parade. Toronto Yacht Club shown right hand side of photo.

Location 23 -Google Image looking north east into site from Cary Street and Victory Parade intersection.

5. Project Proposal Description

5.1.1 Outline

The proposal comprises a six storey mixed use building with basement car parking located at 118 Cary St Toronto.

The commercial component comprises 2,872 square metres of podium level space at near ground level that connects directly to public access from Cary Street and Arnott Avenue. Access to the commercial space and upper residential levels is made from the podium level.

The building is separated into two main apartment buildings connected at podium level with a central private community outdoor space.
The southern building steps back in profile with the immediate façade presenting to the Reserve is 3 storeys.

5.1.2 Proposed Architecture

The proposal constitutes a series of two distinctly separate buildings with the eastern building directly facing the south as a third architectural element situated on a single storey podium level. Below the podium level is single level commercial space with an extension of the floor level outward to contain terraced areas.

Although the buildings are visually related, the bulk and scale of the building mass has been separated by articulated design to avoid an otherwise potentially block like appearance.

The Cary Street building is proposed at five storeys above commercial space with the remainder of the buildings proposed at 4 levels each.

The proposed colour scheme is neutral dark greys, mid greys and off whites with balcony elements in glass and aluminium.

No reflective glass elements are proposed on any external surface.
No reflective metal elements

The overall height of the proposed building departs from the Toronto Town Centre Plan by 2 storeys on the western building fronting Cary St.

Th building fronting Cary St is designed with a roof top pergola and landscape elements.

There is no visible roof element in the proposal.

Setbacks to boundaries meet the current planning requirements.

The southern building presents to an existing LMCC Open Space Reserve.

Night time lighting for common areas at low levels is proposed for building entries/lobbies. Commercial space as standard commercial lighting and undercroft /ceiling lighting of the terrace areas.

No neon or affixed lighting for the building is proposed.

Image 8- Proposed Building Footprints.

Image 8 shows in plan view certain elements of the architectural proposal. The building footprints can clearly be seen with the areas shaded orange representing the above podium residential building portion of the proposal.

This residential portion represents the main bulk and scale of the building as the height of this portion increase to 5 storeys above podium on the Cary Street side and 2 and 4 storeys on the Arnott Street side and open space to the south.

The commercial space below the residential portion extends the entire building footprint between Cary Street and Arnott Street and below this is the basement car park.

This image shows that there is significant building separation between the 'orange' portions. The space between the 'orange' portion at the residential level will be private common open space for residents.

The building is shown as having articulated frontages to the streets and open space reducing the visual impacts of bulk and scale at street level.

Image 9 – Perspective View of Proposal from Victory Parade.

This image shows the architects design separation of the two main building elements. Upper storeys are set back on the eastern building fronting the open space and nearer the lake.

Image 10 – Perspective View along Cary Street showing articulation of building setbacks to create visual separation of bulk and scale.

NORTH EAST PERSPECTIVE

Image 11 – Perspective View from corner of Bay and Arnott Streets

Street trees proposed continue the existing landscape character. Mid boundary building separation reduces built form adjacent to northern boundary facing MacDonalds car park. Mid – to large scale planting in raised planters is shown on the podium landscape plan.

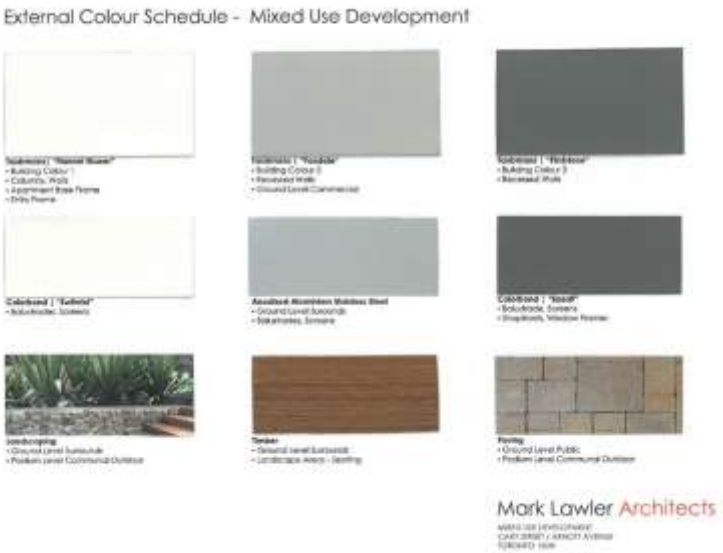


Image 12 – Proposed Colour Scheme

The proposed colour scheme is muted with the application of the painted finishes designed to highlight built form articulation and visual interest. This design approach helps to reduce visual contrast.

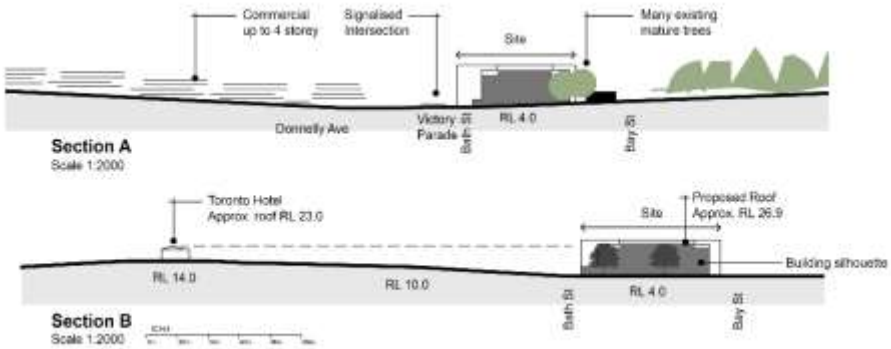
5.1.3 The Proposal in Context.

The proposal, as discussed, sits within a broader visual context that provides the nominated setting (as per the Scenic Management Guidelines 2014).

As part of this assessment the visual impacts of the proposals have been considered against identified important landmarks in the Town Centre. The Toronto Hotel location and height has been mapped in relation to the proposal and the potential view corridor that may result as a consequence of this development.

Location Image 22 and 23 (page 55 and 56 in document) shows the view from the lake to the Toronto hotel and the location of the proposed development.

SITE CONTEXT SECTION LOCATIONS



Site Context Sections

Image 13- Site Sections – text follows

Section A shows the location of the proposal relative to development along Cary Street commercial precincts. This section demonstrates that the proposal's height, while taller than other development along Cary Street within the immediate site/near site context, is mitigated by its location in a topographical saddle. Cary Street continues south at higher levels reaching an RL of 26.9AHD inclusive of roof garden and lift over run

Section B shows the height relationship between the Toronto Hotel and the proposed development in a direct line between the buildings. The proposal exceeds the overall height of the hotel however the locations of the two buildings are in separate view contexts and are separated visually. There is no direct line of sight between the buildings. The proposal will not visually impact on the Hotel from any land based view point. Image 24 shows the location of the proposal relevant to the Hotel with the visual impact considered to be negligible or low given the proposal context in relation to the Fig Tree Point development, the Toronto Yacht Club in the foreground and the continuation of the distant unbroken treed ridgeline.

5.1.4 Landscape Proposals

The proposal indicates that landscape consistent with existing landscape character will be included within the site and on adjacent public land.

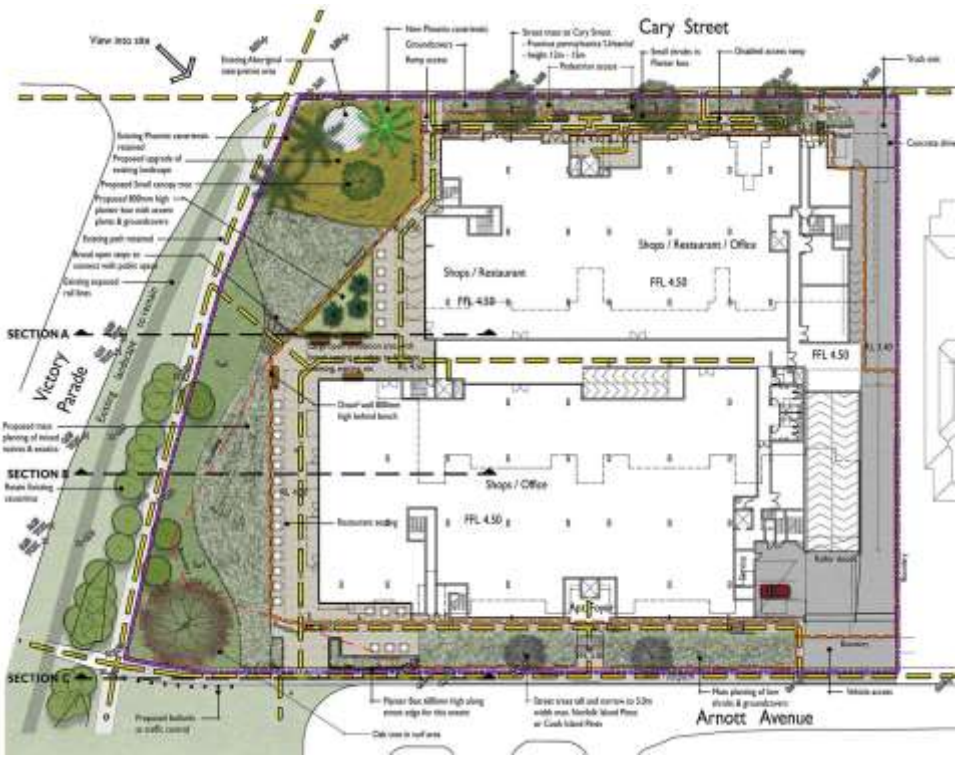


Image 14 – Landscape Master Plan

The proposal adjoins LMCC public open space. The proposal indicates that remediation of this space extending to the intersection corner and pathway extension east of the site off Arnott Avenue.

The proposal also indicates a continuation of the Norfolk Island Pine landscape character along Arnott Street and the replacement of the same species for the removal of an Oak tree from site to continue site landscape character further south on public land.

The landscape proposal includes embellishment of the public open space immediately adjacent to the southern portion of the site.

Image 15 – View into site from Carey Street and Victory Parade intersection.

This view indicates that the existing landscape characteristic of the Phoenix canarisensis will be strengthened by the addition of one mature palm adjacent to the existing two palms already at the intersection.

This perspective also indicates proposed new street tree planting along Cary Street and substantial new planting at the intersection area .

Image 16 – Perspective from Marina

This view indicates that from the marina at the point shown the top storey of the building will be partially visible. Emergent Norfolk Island Pines will be visible along the street front behind the Yacht Club.

5.2.1 Other Proposals Potentially affecting the Visual Context of the Site

As mentioned earlier in this report, Council is considering development on operational lands immediately adjacent to the site.

The plan below shows the site with existing residential and commercial development shaded pink and blue.

Areas shaded yellow are LMCC Operational land. Part of the current proposal subject to this Visual Impact Assessment relies on the upgrading of land directly to the south of the proposed site as a recreational public space.

Discussions with Council staff have indicated that this proposal would be considered an appropriate use of space , improve links to the Greenway

and provide an extended landscape setting at the 'gateway' site to Toronto.

It is also noted on the plan below that an extension of Arnott Street is currently being considered by Council. (Refer LMCC Property Investment Committee Agenda April 9 2018 and Concept Development Plans therein).

Should that extension proceed the visual context of the immediate setting for the subject proposal would be altered significantly. The proposed open space area connected to the immediate southern site boundary of the subject proposal would effectively become an isolated landscaped area with Bay Street and Arnott Street potentially being used as a 'rat run' to avoid the intersection traffic lights. This would alter the visual connection to the Lake foreshore. The potential of a 6 story construction on the foreshore would also significantly alter the immediate site context.

Plan 1- Existing and Proposed Land Uses in the immediate Site Vicinity

6. Visual Impact Assessment.

6.1 Current Landscape Value of Site

6.1.1 Scenic Quality, Visibility and Cultural Value.

The existing Scenic Quality of the site is considered low.
The existing site visibility is considered high
The existing cultural value of the site is considered low.

The overall existing landscape value of the site is considered low as it makes little or no positive contribution to the immediate/ broader site context nor to the prominent location adjacent to the northern entry way into Toronto Town Centre.

6.2 Scenic Quality Guidelines expectations

Desired Future Character –

1. Encourage compact high density development
2. Active street frontage
3. The character of buildings and the surrounding landscape should reflect the lakeside location and the popularity of these areas as social and recreational destinations.
4. Physical and visual connections to the lake are important and should be preserved and enhanced.

- **Scenic Management Guidelines- related to visual impacts**

1. buildings are of a scale that does not dominate views from the lake nor breach the tree-line of surrounding ridgelines;
2. any buildings of three storeys or more to be partially screened (approximately 30 -50%) when viewed from the lake, within 5 years;
3. for commercial and industrial buildings provide for trees in the front setback and/or footpath area.
4. create attractive pedestrian and vehicular thoroughfares and entry points to the town centre.

6.3 Impact of Proposal on Existing Visual Context

6.3.1 General.

Generally, the overall extent and type of potential visual change the proposal will generate is considered high in the immediate vicinity of the proposal but reducing to moderate as distance is achieved from the site.

Importantly the existing Visual Impact of the site in its current form may be also considered high given that it is located in a highly visible location on the southern 'gateway', has three street frontages and is in a visual state of near neglect and abandonment.

These two aspects of the Visual assessment are discussed further below.

6.3.2 Immediate Visual Context.

For the purposes of this report the immediate visual context is taken as site context within 100m of the site or close to that approximation for the entire height of the building on one or more faces of the building.

A number of photo points have been mapped at various approaches to the site.
Approaching the site from the north visibility will not be evident until POINT A on the map

Approaching the site from the south visibility is not evident until POINT B on the map. (Map appears on following page.)

The north and south approaches are the primary approaches for vehicles/transitory viewing as these are the main trafficable routes through the township.

From the west the site is visibly apparent from POINT C on the map (intersection of The Boulevard and Cary St) while crossing the intersection.

Also from the west the site is visible from POINT D on the map which becomes immediately apparent for the viewer when exiting the Greenway at the intersection of Cary St and Victory Parade.

From the east- south/east the site is visible from POINT E on the map from open ground immediately south of the Yacht Club
POINT F on the map shows where the site becomes visible from Victory Parade travelling north west.

POINT G on the map illustrates the view from jetty
POINT H from Uniting Care at the corner of Brighton Ave Toronto.

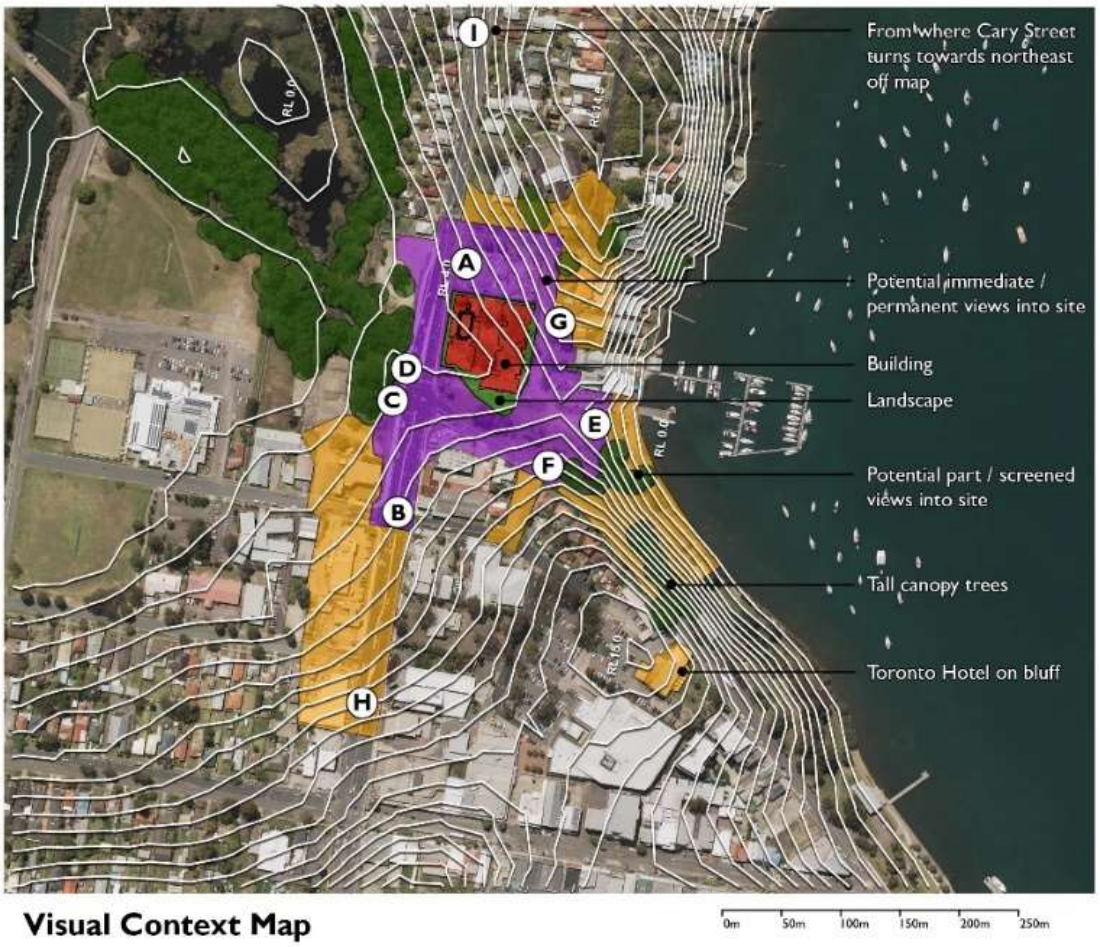


Image 17 – Visual Context Map and Contours

6.3.3 Receding Visual Context.

For the purposes of this report the receding Visual Context is illustrated as below map and is contained within the general area of the Toronto Town Centre Area (with the exception of the view back to Cary Street from the Catalina Motel on Awaba Road.)

As the site is located on the corner of a major intersection and through traffic road running north – south through the Toronto town centre it is assumed that the transient viewing level is high.
The impact to transient viewers however increases with proximity to the site and recedes as distance is achieved between the viewer and the site.

Therefore the main transient view corridor is shown on the image below as being the north south axis along Cary St with southbound traffic unable to visibly access the site from near or at the southern boundary of the Toronto Public School and north bound traffic being unable to initially

visually access the site from the top of the hill near the existing Uniting Care facility where the site is viewed in the distance, disappearing again from view when travelling north and re-appearing closer in view near the Cary St and Victory Parade intersection.

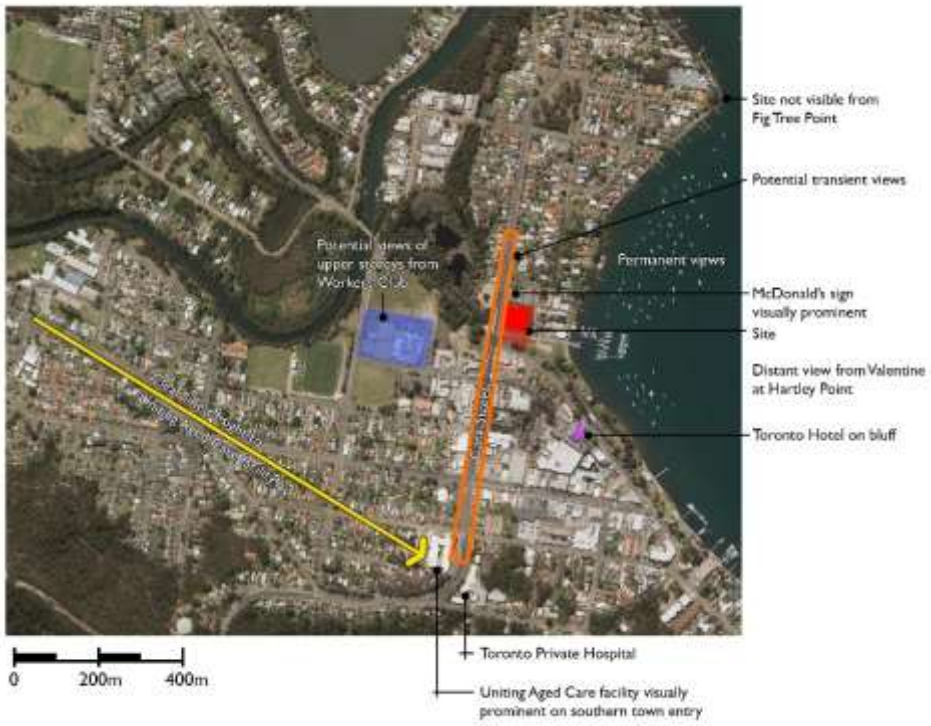


Image 18 – Receding Visual Context

6.3.4 Transitional Visual Context.

The most notable visual transition of the proposal will occur as a result of the height difference between the existing site form and the proposed built form. (See elevations page 52) Street and boundary (north) presentation to all four sides of the development will be visually changed significantly from the current vacant bloc/remnant landscape form.

The MacDonald's site to the north is a single story development with adjacent car park to the east however future higher development on this site cannot be precluded although the time frame may be at present indeterminate.

The Cary Street transition fronts a main street into the town centre and is the zone for the highest level of the development. The building here also contains a roof garden with pergola and landscape on the top level which is set back 12.0m from the building edge reducing potential visibility from the northern approach.

The transitional visual context includes some quite large buildings along Cary St to the south such as Carpet Court, the BP Service Station and the Toronto Court House among others.

The proposal follows the existing block patterning at street level with the visual departure of height being the main visual difference. The height visibility however is somewhat assisted by the difference in levels at this point in the topography with the site sitting low in the landscape unlike the comparative (bulk and scale) development of the Uniting Care Aged Care Facility on a high point above the township. (Images later in the document)

The proposal plan indicates that mitigation measures to reduce the visual impact potential of the proposal include landscaping with tall canopy trees, provision of a developer contribution landscape treatment to the current publicly owned open space immediately south of the site boundary line and streetscaping of Cary and Arnott Avenues.

6.3.5 Impact of the proposal on the Landscape Value of the Existing Site.

The existing landscape value of the site is considered low.

The existing site landscape does contain mature trees however the current landscape value of these trees is considered low as they are not visually connected to a higher landscape value in context and will not form part of the proposed landscape setting.

The proposal indicates and improvement to soft landscape areas with areas of deep soil zones and podium landscape within the proposal site area.

The impact of the proposal will increase the landscape value of the site as it will provide a positive visual contribution in both built and landscape form to the existing site landscape value comparative to the current 'vacant land' site value.

6.3.6 Impact of the proposal on the Landscape Value of the Immediate Visual Context.

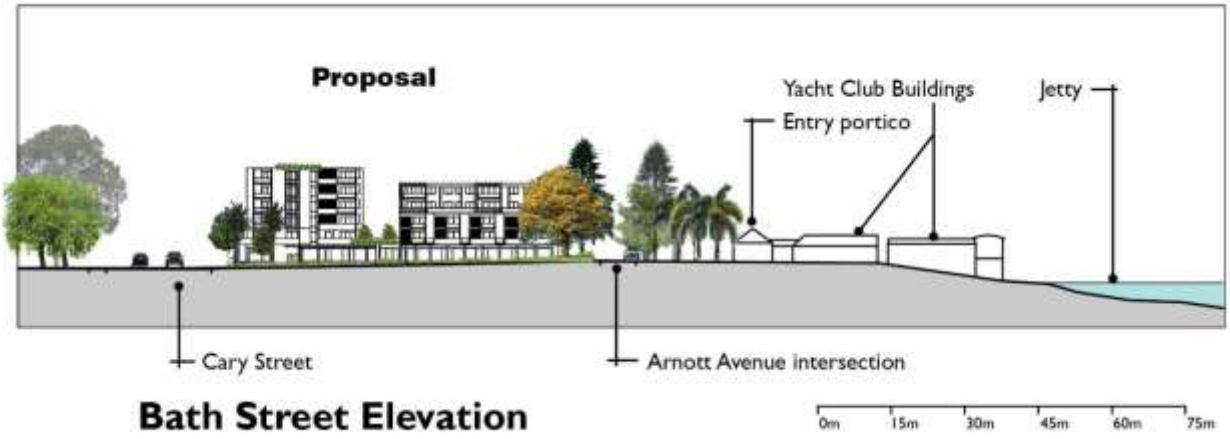
The landscape value of the area takes into account the perceived quality of the landscape and its contribution to the expected mixed commercial/ residential / recreational setting.

The proposal will activate the street fronts and provide visual permeance and activity in the area.

At present there is little block/ site boundary definition. Bath Street west extension as an unused street with piece of bitumen detracts visually from the site. The lack of street continuity in the built form presents as a weak or interrupted visual aesthetic separated from the town centre with little

visual connection to the existing street pattern of development to the north and north east and none to the south.

The estimated visual context appears in the image below and has been determined from available aerial mapping, available contour mapping and the development of the existing roof heights maps. (See Page 57)



Bath Street Elevation

Cary Street Elevation

The *immediate* site context includes the Cocos palms/ car park and the Yacht Club Car, the rear entry points into residences along Arnott Avenue, the residences along Victory Parade to the south and the transient pedestrian locations along the Greenway Connection pathway plus the tall vegetation. The MacDonalds car park is also part of this immediate context.

The proposal includes an upgrade of the existing Arnott Avenue public domain with the inclusion of street trees along the sites eastern boundary of Norfolk Island Pines. This species is currently present in the existing landscape close to the site.

The proposal also describes the upgrade of 1400 square mtrs of the public domain lands to the south as a contribution to the project(subject to DA approval).

Included in this public land upgrade is the installation of a mature Phoenix canariensis adjacent to the existing two Phoenix canariensis. This will visually re-inforce the existing landscape and wayfinding character at the intersection.

The contribution to the public landscape is significant and will contribute positively to the proposal visual setting and reducing overall visual impact if maintained into the future.

6.3.7 Visual Contrast

The visual contrast of this development with the immediate surrounding context is considered to be high.

The most noted visual contrast is the height of the development comparative to adjacent development and bulk and scale of the built form.

However, when assessing the visual contrast potential within a particular setting, other built forms within the setting may be assessed for Visual Contrast as a comparison to help assess the level of visual impact that the proposal may contribute.

The Uniting Care site on the corner of Brighton Avenue and Cary Street Toronto approximately 500m south of the proposed development site may be considered within the viewable site catchment area as the Uniting Care development is easily seen form the Cary Street/Victory Parade intersection.

This development has a clear visual departure from the surrounding visual context in terms of architectural form, bulk and scale and contrasting colour. It would be considered to have the same level of Visual Contrast to that of the proposal and can be seen from various viewpoints.

Image 20- The Boulevard Intersection travelling East looking South towards the existing Uniting Care Aged Care facility.

Image 21 – Taken from the entry to the Catalina Motel (Image 18 shows location) on Awaba Road approximately 700m west from the intersection in Image 20. The Uniting Care facility shows a clear Visual Contrast from the existing site context.

Image 21a- View of Uniting Care Aged Care facility from the northern corner of Brighton Avenue west

Image 22- Image taken directly east on the lake approximately 500m from the shore.
From the lake and as far as from Bolton Point and Valentine, the visual contrast is reduced by the fact that the site is located within a natural low point in the landscape so that the building height is not prominent in comparison the headland to the south, the distant ridgeline hills and the higher ground to the north of the site.

The site is located at a 'gateway location' into the southern end of the Town centre. Visual Contrast in this location may be considered expected and desirable to better define town centre entry points and way finding opportunities.

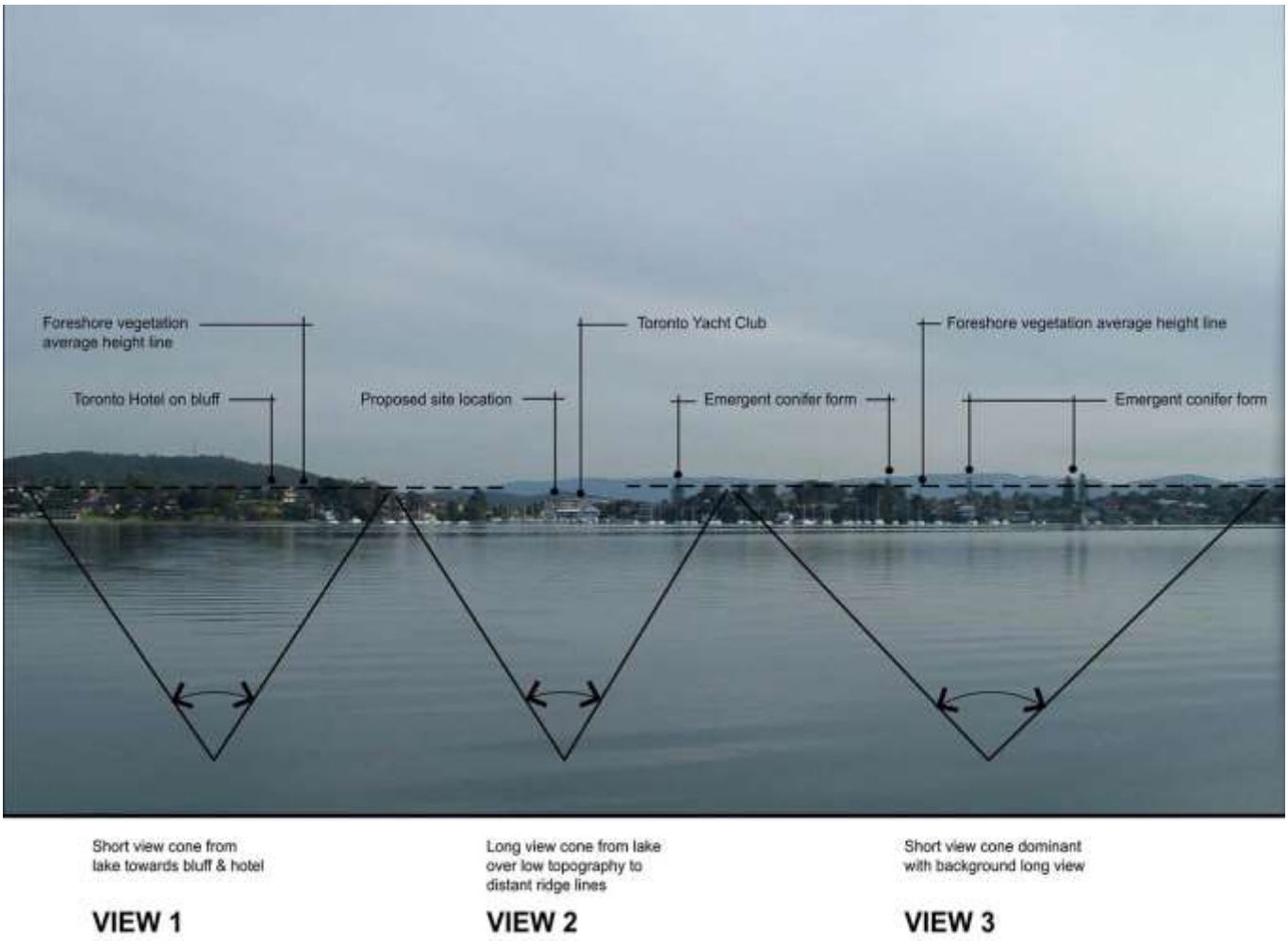


Image 23- shows the view cones into the site from the Lake.

Image 23 shows the segmentation of the views from the Lake into the site. The Visual Contrast already exists between these three visual cones. View 1 is on a bluff with a heritage building and tall canopy natives. View 2 , with or without the proposal is established as a 'saddle' view through to distant hills with foreshore built form .View 3, shows an emergent landscape form with conifers and residential development.
The visual contrast of the proposal is the added height behind the Yacht Club however the landscape setting is already evident so Visual Contrast is limited .

6.3.8 Visual Sensitivity.

Visual sensitivity refers to the level of viewing that could be expected at a given site. Where public traffic and pedestrian activity is high and the expectation of the visual quality is of a high concern to users of that space then a site may be assessed as having a high level of visual sensitivity.

This site has a high level of visual sensitivity as it is located at a prominent intersection with high levels of transient viewers.

The point of highest transient sensitivity is considered to be the intersection with Cary Street and Victory Parade where traffic and pedestrian activity is at the highest.

The point of highest sensitivity for permanent views may be considered to be the residences along Victory Parade to the south east of the site however this sensitivity level is deemed moderate to low as the proposal is 200m from these residences and partially screened by vegetation and a busy local road.

6.3.9 Impact to Viewers.

The most visual impacts will be felt by persons viewing the proposal from the immediate site context as previously described.

The site is visually protected from the east and the lake somewhat due to the location behind the existing yacht Club however the proposal will have high visibility potential from the immediate site context areas.

Some visual access into the site is possible from the receding viewpoints of the most southern entry point into the Toronto township at the corner of Excelsior Parade on high ground however the visual impact form that point is considered low and well within the expected visual context of the large block like bulky forms of the service industries along Cary St which can also be viewed from that same view point.

Image 24- Contours and Relative Roof RL's .

Image 24 (Previous page) illustrates the existing roof heights as overall relative heights. This assists with understanding the visual impacts to viewers particularly when viewed from the lake.

On the image Coles has a roof height RL of 20.0 which is only 3.9m lower than the roof of the proposed development. Coles is situated on higher ground and is screened from the Lake by trees.

The two story Toronto Hotel has a roof height RL of 24 comparative to the proposed development roof height of 23.9m so they are of equal height in the landscape when viewed from the lake. The Hotel is viewable partially through a vegetative screen from the Lake. The proposal will be partially visible from the lake also behind existing built form and existing sparse vegetative screening to the south east along the foreshore open space.

The impact of the proposal also relates to visual style as well as height. The architectural style showing articulation of mass and form along with a muted and varied colour schemes reduces the overall impact in the setting however the proposal remains as an 'in the round' proposal within its own setting as no other built form (with the exception of the MacDonalds car par to the north) is immediately adjacent to the site.

The visual impact to viewers, both transient and permeant, created by this singular building in its own setting will be high initially however the proposal can be assessed within a future context of increased density along with increased heights and tighter block definition as per the stated future desired characteristics of Toronto (LMCC Toronto Town Centre Plan) and current Council panning for foreshore development on operational land.

Additionally the proposed upgrade of streets and landscaped public areas will not only provide the setting for the site itself but will potentially lead to increased activation of the space making it more visually attractive from a cultural point of view as a contribution to the Toronto foreshore extension area and connectivity to the Greenway.

The impact on viewers will reduce over time with the maturation of the proposed landscape and the permanence of the built form.

6.3.10 Likely Visual Outcomes.

The existing street front patterning along Cary St will be continued further to the north thus extending and re-inforcing the existing identifiable commercial town centre limits at street level.

Image 25- Illustrates the proposed development as viewed from the southern town entry near the Uniting Care facility.

The proposal will 'bookend' with the existing Uniting Care Facility to the south and provide a definitive built form for the northern town Centre entry.

The proposal indicates that landscape consistent with existing landscape character will be included within the site and on adjacent public land.

The height and style of the proposed built form will be readily identifiable in the town centre context. This is neither positive or negative but is a Visual outcome of the proposal.

The Visual Contrast of the proposal to the existing site context and setting is high. It is to be expected that the proposed building and landscape setting will have a high impact however this is to be expected in the location and zone.

No overshadowing is foreseen on the site so no visual impacts related to sunlight/shadow changes on adjacent sites are considered.

The proposed building and landscape settings are considered an improvement on the current visual site condition.

The likely immediate visual outcome will be high but positive (given the zoning) and although initially may be seen to have a high impact the expected future development outcomes will absorb the initial visual contrasts and makes a positive contribution over time.

6.3.11 Other Potential Visual Impacts.

No assessment has been made for night time visibility within this assessment however it is anticipated that a standard acceptable level of lighting will be proposed.

No estate signage or other visual elements have been assessed. Details are not available at this stage.

LMCC Property Development has flagged potential development proposals for Arnott Street and operational land close to the lake foreshore. The potential of the Visual Impacts this may have on the broader context of the subject development in this report cannot be estimated at this time.

Attachment 5 from the current LMCC proposal showing a building on the foreshore land and Arnott Street extension.

6.3.12 Consistency of Proposal with Planning Objectives.

The proposal is considered to be generally consistent with the planning objectives of the current Lake Macquarie City Council LEP, Lake Macquarie City Council DCP 1 and the Scenic Management Guidelines (2013) and the Toronto Town Centre Plan , inclusive of the proposed height departure above the LEP limit. This height departure is the subject of the Clause 4.6 Variation Request forming part of the DA submission.

7. FINDINGS

7.1.1 General.

The findings relate to the potential Visual Change the proposal will generate as assessed in the following areas

7.1.2 Site Location.

The site is on the most northern extension of the Toronto Town Centre Area and forms a separate and discrete block of development land in a larger block bounded by Arnott, Bay, Cary Streets and Victory Parade. Within this larger block area only one other development has occurred and that is a MacDonalds restaurant.
MacDonalds takes just less than one third of block area while the proposed development site takes the remaining two thirds.
This block, at its south western corner, is also where the first set of traffic lights are located when entering Toronto from the north.
Therefore the block may be considered as the point in which travellers first slow down and potentially stop. This will increase visual site sensitivity and give the viewer an opportunity to better observe their surroundings.
From this point the whole of the Toronto commercial strip is viewable to the south terminating at the top of the hill where the Uniting Care Aged Care Facility is located across from the Toronto Private Hospital. These buildings are readily viewable from south west corner of the development block and provide a visual 'bookend' to the main commercial street. For this reason the block may be considered to be the 'gateway' location for the northern entrance to Toronto and is visually prominent.
At present, the MacDonald signage appears to be the most visually dominant element on the approach to Toronto from the north.

7.1.3 The Proposal.

It can be shown that the architects for the proposal have responded to assessment feedback from Council and have re-designed the buildings to better separate bulky forms and reduce impacts while including a significant upgrade to the public space south of the project boundaries.
This has shown a desire to integrate the buildings into the immediate 'triangulated' visual ground plane limited by Cary Street, Arnott Street and the pedestrian connection to the Greenway. Failure to address the remnant public space that would otherwise have been left over in this 'triangulation' of land would have signified a lack of appreciation for and understanding of the setting and its significance as a 'gateway' location within the Toronto Town Centre Area.
The proposal also includes a greater visual quality for Cary Street and Arnott Street with the inclusion of street trees and activated street frontages.
Height of the proposal is concentrated along Cary Street which is considered appropriate within the visual context that exists to the east.

The proposal also continues with the inclusion of species that reflect the existing landscape character of the site and broader landscape context.

7.1.4 Immediate Visual Context.

The Visual Change is expected to be HIGH in the *immediate* Visual Context *comparative to the existing visual context*.
However, the proposal continues and extends the existing commercial context of Cary Street north into an area zoned as B2 and identified as the Toronto Town Centre. This extension of the existing landscape (built form) typology is shown in Image 4 in the report .
The existing Cary Street commercial area is consistent with larger bulky forms, mainly single to two storey, inconsistent setbacks and low activity street frontages. Large scale commercial signage dominates and the lack of street trees or public street aesthetics is noted.
On Cary Street, the proposal will extend the existing visual field with a more design appropriate response to the street and pedestrians generally providing greater activation of space and a higher level of aesthetics. The MacDonalds restaurant may be considered to be an extension of the Cary Street commercial strip and is depicted as such in Image 4 – Landscape Typologies Map. The proposal therefore could be considered an infill development within an existing commercial streetscape typology.
On Arnott Street, the impact on Visual Context will be high also however the impact has been moderated by the lower built form on this side of the development, the inclusion of large scale street trees and the buffer existing of Arnott Street itself and the Yacht Club Car Park.

7.1.5 Receding Visual Context.

The visual change in the receding Visual Context is considered to be moderate to low as the viewer, once past the development travelling south, approaches bulky built form along Cary Street terminating with the Uniting Care Aged Care Facility and the Toronto Private hospital on the ridgeline at the southern end of the Town Centre area.
The view from the lake is moderate to low as the proposal is situated behind the existing yacht club in the main.
Additionally, developable land exists on the foreshore to the south east of the development which has been assessed for a potential 6 storey development by LMCC recently .

7.1.6 Transitional Visual Context

The visual change is the Transitional Visual Context is considered to be moderate to high.
Along Cary Street to the west tall canopy vegetation exists at a similar height to the proposed development. This assists in minimising visual transition on this alignment.
To the south the visual transition is moderated by the distance between existing built form over 200m away, the presence of Victory Parade, the presence of tall canopy screenings along the shared Greenway path and tall canopy Eucalypts to the south east. Additionally the proposed built form is stepped down to 3 storeys facing the Public Reserve.

To the north the transitional visual contrast is considered high as there is a notable height difference between the proposed building and the existing MacDonalds although this is moderated by the position of the MacDonalds drive thru on their northern boundary adjoin the proposed development and the significant (18.0m) recess of the podium landscape area between the two apartment buildings facing north.
The visual transition to the east is considered high as the proposal faces a flat area of ground being the Yacht Club Car Park and the lower yacht Club building itself. This visual transition has been considered in the design of the proposal with the apartment buildings on this side reduced to 4 storeys in total including commercial space and the inclusion of tall canopy trees within the front setbacks and massed landscape adjacent to Arnott Street.

7.1.7 Landscape Value of the Existing Site.

The landscape value of the existing site itself is considered to be low due to the unkempt nature of the site.
The landscape value of the *area* is described within the Scenic Management Guidelines and is described as Moderate.
The site is not 'close' to the foreshore.

7.1.8 Landscape Value of the Immediate Visual Context.

- The immediate land based site context is considered to be low.
- Views from the site to the lake are considered to be high value.
- Views from the lake into the site from the immediate context will be part screened by the existing Yacht Club and proposed landscape integration measures.
- Views from the lake at a distance are mitigated by distance, topography, location of proposal behind (partially) existing buildings and are considered low impact.
- The vegetated ridgeline directly west is not visually affected by the development as viewed from the lake.

7.1.9 Visual Impact on Heritage

- The heritage Toronto Hotel is not impacted directly by the development as direct line of site is not achievable between the two buildings with current vegetation in place along Victory Parade.
- The existing Yacht Club visibility, scale and bulk will be potentially diminished in contrast with the scale and bulk of the proposal however no overshadowing or other visual impact is anticipated to directly visually affect negatively the Yacht Club as it is currently perceived in the landscape. The existing palm trees and proposed Arnott Street landscape will act as a visual transition zone and buffer between the developments.
- Potentially the view to the yacht club, particularly from the southern line of site may be improved with increased site boundary definition and streetscaping of Arnott Avenue and reserve landscaping.

7.1.10 Visual Contrast

The visual contrast of the proposal is considered to be high. This contrast is due to the perceived visual difference between the existing built form on the site or immediately surrounding the site.

7.1.11 Visual Sensitivity

The Visual Sensitivity of the site is considered to be high. This is due to the location of the site and the potential number of viewers that could view the site.

7.1.12 Impact to Viewers.

Initially high but reducing over time, particularly so for transient viewers.

7.1.13 Likely Visual Outcomes.

- Good potential to extend the Cary St commercial street front and positively 'anchor' the corner site visually.
- Opportunity to visually extend the current Toronto Foreshore and provide a destination focal point.
- Highly visible site will provide wayfinding point at northern end of town centre.
- Does not compete visually with Toronto Hotel
- May be considered to reflect the scale, style, location and visibility of the southern gateway site and recent construction of the Uniting Care Aged Care facility on Brighton Avenue.

7.1.14 Other Potential Visual Impacts.

Potential Development on LMCC operational land will reduce the built form Visual Impact of the subject proposal in an urban context.

7.1.15 Consistency of Proposal with Planning Objectives.

Consistent within the current planning objectives as stated within LMCC documentation generally.

7.1.16 Positive Attributes of the Proposal.

After consideration of the visual impacts of the proposal the following positive attributes have been noted.

- The significant 'gateway' site will be activated by the built form, the commercial space it proposes and the permanent residential aspect bringing people and recreation opportunities to the area.
- The Cary Street alignment in particular will 'fill in' the missing gap in the commercial streetscape and present well visually to the street.
- The built form respects the transition to the east and the public domain areas will be revived and available to many more people.
- The proposal provides a 'terminus' and a destination point for people walking /cycling along the Toronto Foreshore park area.

- The proposal meets the objectives for densification of the urban core of the Toronto Town Centre Area Plan and could be considered a forerunner of future development typology in the broader Toronto area.
- The proposal has maximised site potential and provided good transition to the public domain and extensive private open space for residents.
- The commercial component, particularly dining and café options , will provide greater choice for existing Toronto residents and a complementary service for Yacht Club patrons.

8. SUMMARY AND CONCLUSION

Generally, the overall Visual Impact outcomes of this development in the current visual context is high but deemed to be commensurate with the expected visual outcomes of the project within the planning and visual site context.

The development is proposed within the current planning context and supports the objectives of current policy.

While the proposed aesthetic does visually contrast considerably from the existing immediate built form, this Contrast and Difference to existing built form is acceptable in an area where the zoning and policy requires a different aesthetic response for a development typology that is permissible.

Development of this nature is expected in this planning context and does not negatively impact on the existing landscape and visual character of the site or the immediate context, however significant contrast is noted.

The proposal departs from the current built form in response to current planning and zoning policies relative to height limits however the impact of the additional height difference proposed is considered to be minor as part of the whole visual impact considerations. When the view from Victory Parade is assessed in section it can be noted that the trees to the west are almost as high as the building as it presents to Cary Street. This height is carried through to the building on Cary Street but then decreases approaching the lake. Arnott Street then acts as a landscape and visual buffer to the Yacht Club which, while significantly lower in height is assisted visually by the height of the palm trees in the car park area acting as a visual transition.

The proposed development improves the visual presentation to Cary St, Arnott Avenue and Victory Parade, primarily through activation of the space and improved landscape settings.

The Scenic Quality Guidelines notes that the site is within Scenic Management Zone 5 which includes a high level of urban development , with limited vegetation, built form dominant and with expected emerging increased urban development.

The proposal is within the visual expectation of the future desired character of the Toronto Town Centre Plan in terms of densification and urban context.

The proposal improves the existing visual context of the public land to the south of the development.

Visual overlooking onto the site is improved with the removal of the existing degraded remnant built form and the development of the site

commensurate with the broader context of the Toronto Town Centre areas as defined in the Plan.

Proposed landscape will take time to develop however the visual impact overtime is expected to produce a superior visual outcome for the site comparative to the existing site within the broader context and is assessed as acceptable given the land zoning, permissible use and existing street contexts.

There are no negative visual impacts on any identified Significant Features within the Scenic Management Guidelines.

The Visual Impacts of the development from the lake are reduced significantly by the location of the site behind the existing Yacht Club, the low topography of the site relative to the higher Bluff areas and residential land to the north, the proposed street trees and large trees in the Public Reserve area plus the potential development of LMCC foreshore operational land identified for future 3 storey development on the foreshore.

In the broadest terms the proposal is assessed therefore with a high visual impact commensurate with a site zoned for high density development in a highly visible location.

The visual outcome is acceptable for the intended use of the site and importantly the proposal sits as the first development of its type within a future planning context for similar permissible land use typologies.

The visual impacts will reduce over time and with future development of the foreshore area and the maturation of the proposed landscape.

It is concluded that the development will visually improve the current site condition and have minimal and expected visual impacts over time.

END OF REPORT

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NL171556

17th July 2018

Lake Macquarie City Council
126-138 Main Road
Speers Point NSW 2284

Dear Sirs/Madams,

Re: DA/419/2018 – Mixed Use Development at 114-120 Cary Street, Toronto RFI.

Additional information has been provided at the request of Council in order to adequately assess the proposed development at Cary Street, Toronto. The Stormwater/ Civil Engineering drawing package and Stormwater Management Plan have been adjusted in accordance with Council comments received. A list of these comments and summary of Northrop's response can be seen below.

6. Stormwater Management: *Having regard to Section 2.9 (Stormwater Management) of DCP 2014, Council's Senior Development Engineer, Greg Jones, has reviewed the submitted Stormwater Management Plan as unsatisfactory for the following reasons:*

a. The report has not taken into account the observed flooding within Cary Street for storms in excess of the designed event.

> **Northrop response:** Flood proof layout and materials to be provided along Cary Street frontage of the development 200mm above relief point. Spill level of relief point (traffic island within Cary Street) approximately RL 3.26. Further details to be provided at CC stage.

b. The applicant should provide the position of the proposed Harvesting Tank/s as this may require fencing or landscaping. The proposed usage should also be demonstrated and include the proposed overflow lines and discharge points.

> **Northrop response:** Additional Podium Level Plan has been provided as part of revised submission. The proposed harvesting tank location, overflow and discharge points have been included. Proposed harvesting tank usage previously included in Stormwater Management Philosophy – Stormwater Quality section. Harvested water proposed to be used for landscaping irrigation, 150kL/year usage has been adopted.

c. The proposed Stormwater Detention Tank appears to have a base level of approximately RL 1.5. The applicant shall demonstrate how the tank will be drained to the existing street drainage knowing that observed flood levels in Cary Street may be at RL 2.5.

> **Northrop response:** Stormwater Detention tank footprint has been revised, with the top of tank significantly raised. This has facilitated the IL of the tank to be raised to RL 2.80. DRAINS model has been revised to include new tank dimensions and tail water conditions during the Major Storm Event. The stormwater plans and report have been updated to reflect proposed changes.

d. The applicant shall demonstrate the 100y Flood event will not enter any of the car parking areas.

Prepared	RJ	17/07/2018
Reviewed	CS	17/07/2018
Admin	LB	17/07/2018

Northrop response: Entry to all basement carpark areas to be set above calculated spill point within Cary Street, approximately RL 3.46. Flood proof materials/layout to be provided along Cary Street frontage (6.a). Preferential spill point to be provided down service ramp to direct any approach flows from Arnott Avenue away from basement down ramp. Grated trench drain to act as surcharge point of detention tank, where flows are to be directed down service vehicle ramp. The stormwater plans and report have been updated to reflect proposed changes.

e. The applicant shall address the drainage in Bath Street as it appears a low point shall be created at the intersection with Arnott Street.

Northrop response: Additional Stormwater pit to be provided at the intersection of Bath Street and Arnott Avenue to drain newly created low point. Outlet to be conveyed to existing pit and pipe located in Bath Street around basement excavation. Details of infrastructure within public domain to be provided with S138 application. Stormwater Plans have been amended to reflect proposed changes.

f. Existing pipe work may exist in the section of roadway of Bath St. between Arnott and Cary Streets. The applicant shall address what is required to be removed or provided for and taking into account that an emergency overland flow path may have to be created.

Northrop response: Existing pit (2) and pipe has been located at the western end of Bath Street. Pits and pipes to be relocated/modified to adequately drain public domain works. No further pits identified on Bath street within proposed works (i.e. identified pits are top of line). Additional pits and pipes proposed in revised Stormwater plans to facilitate drainage of low point created at the intersection of Arnott Avenue and Bath Street. Emergency overland flow path from low point to be provided in case of blockage. Flows to be directed around building footprint with preferential spill point through proposed pedestrian pavement and landscaping area. Flow path to be sized to accept 100yr ARI flows.

18. Erosion and Sediment Control: *Having regard to Section 8.5 (Erosion and Sediment Control) of DCP 2014, Council's Erosion and Sediment Control Officer, Janine Koppel, has reviewed the submitted plans as unsatisfactorily for the area of disturbance and site risk associated with the development. Accordingly, the applicant is required to submit a revised plan removing all sediment controls shown as "Proposed Pit Protection to Existing Pits" from the plan. There are considered a traffic hazard and all sediment laden water shall be treated onsite.*

Northrop response: Pit protection for existing pits within Cary Street removed from Erosion and Sediment Control Plan.

We trust this meets your requirements, however should you require anything further, please do not hesitate to contact the undersigned.

Yours sincerely

Ross Jeans
BEng (Environmental)

Chris Smith
BEng (Civil) CPEng MIEAust NER

Attachment 1: C00DA – C20DA Drawing Set
Attachment 2: E01 Concept Stormwater Management Plan [B]

CARY STREET

EXCAVATION OF BASEMENT TO BE UTILISED AS TEMPORARY SEDIMENT BASIN THROUGH BASEMENT LEVELS CONSTRUCTION. DEWATERING TO BE UNDERTAKEN IN ACCORDANCE WITH LANDCOMS 'THE BLUE BOOK' AND LMCC GUIDELINES.

PROPOSED PIT PROTECTION TO EXISTING PITS WITHIN PUBLIC RESERVE.

EXISTING INLET PIT TO BE REMOVED OR ADJUSTED.

TEMPORARY BATTER MAXIMUM 1V:2H TO BE CONFIRMED BY GEOTECHNICAL ENGINEER. BATTER EXTENTS TO BE CONFIRMED AT CC STAGE.

INDICATIVE LOCATION OF TEMPORARY MATERIAL STOCKPILE. CONTRACTOR MAY RELOCATE TO SUIT ONSITE REQUIREMENTS.

PROVIDE CLEAN WATER CUT-OFF SWALE TO DIRECT UPSTREAM RUN-OFF AWAY FROM PROPOSED WORKS.

TEMPORARY CONTRACTORS VEHICULAR ACCESS POINT. CONSTRUCT A STABILIZED SITE ACCESS IN ACCORDANCE WITH DETAIL SD6-14 OF THE BLUE BOOK, OR ALTERNATIVELY PROVIDE A SHAKEDOWN CATTLE GRID' AT THE ENTRANCE POINT TO REDUCE THE LIKELIHOOD OF SEDIMENT BEING TRAFFICKED OFF-SITE.

ARNOTT AVENUE

LEGEND

- BOUNDARY LINE
- EXISTING CONTOURS
- SEDIMENT FENCE
- CLEAN WATER SWALE
- DIRTY WATER SWALE
- STABILISED SITE ACCESS
- STOCKPILE
- DENOTES SANDBAG OR GEOTEXTILE SOCK FILLED WITH NO FINES GRAVEL, PLACED IN INVERT OF GUTTER.
- FALL — DIRECTION OF GRADE

EROSION AND SEDIMENT CONTROL NOTES

1. ALL WORK IS TO BE CARRIED OUT IN ACCORDANCE WITH RELEVANT ORDINANCES AND REGULATIONS; NOTE IN PARTICULAR THE REQUIREMENTS OF LANDCOMS MANAGING URBAN STORMWATER, SOILS AND CONSTRUCTION' (THE 'BLUE BOOK').
2. INSTALL SEDIMENT PROTECTION FILTERS ON ALL NEW AND EXISTING STORMWATER INLET PITS IN ACCORDANCE WITH EITHER THE MESH AND GRAVEL INLET FILTER DETAIL SD6-11 OR THE GEOTEXTILE INLET FILTER DETAIL SD6-12 OF THE 'BLUE BOOK'.
3. ESTABLISH ALL REQUIRED SEDIMENT FENCES IN ACCORDANCE WITH DETAIL SD6-8 OF THE 'BLUE BOOK'.
4. INSTALL SEDIMENT FENCING AROUND INDIVIDUAL BUILDING ZONES/AREAS AS REQUIRED AND AS DIRECTED BY THE SUPERINTENDENT.
5. ALL TRENCHES INCLUDING ALL SERVICE TRENCHES AND SWALE EXCAVATION SHALL BE SIDE-CAST TO THE HIGH SIDE AND CLOSED AT THE END OF EACH DAYS WORK.
6. THE CONTRACTOR SHALL ENSURE THAT ALL VEGETATION (TREE, SHRUB & GROUND COVER) WHICH IS TO BE RETAINED SHALL BE PROTECTED DURING THE DURATION OF CONSTRUCTION. REFER ARCHITECTS PLANS FOR TREES TO BE KEPT.
7. ALL VEGETATION TO BE REMOVED SHALL BE MULCHED ONSITE AND SPREAD/STOCKPILED AS DIRECTED BY THE SUPERINTENDENT.
8. STRIP TOPSOIL IN AREAS DESIGNATED FOR STRIPPING AND STOCKPILE FOR RE-USE AS REQUIRED. ANY SURPLUS MATERIAL SHALL BE REMOVED FROM SITE AND DISPOSED OF IN ACCORDANCE WITH EPA GUIDELINES.
9. CONSTRUCT AND MAINTAIN ALL MATERIAL STOCKPILES IN ACCORDANCE WITH DETAIL SD4-1 OF THE 'BLUE BOOK' (INCLUDING CUT-OFF SWALES TO THE HIGH SIDE AND SEDIMENT FENCES TO THE LOW SIDE).
10. ENSURE STOCKPILES DO NOT EXCEED 2.0m HIGH. PROVIDE WIND AND RAIN EROSION PROTECTION AS REQUIRED IN ACCORDANCE WITH THE 'BLUE BOOK'.
11. PROVIDE WATER TRUCKS OR SPRINKLER DEVICES DURING CONSTRUCTION AS REQUIRED TO SUPPRESS DUST.
12. ONCE CUT/FILL OPERATIONS HAVE BEEN FINALIZED ALL DISTURBED AREAS THAT ARE NOT BEING WORKED ON SHALL BE RE-VEGETATED AS SOON AS IS PRACTICAL.
13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING A DETAILED WRITTEN RECORD OF ALL EROSION & SEDIMENT CONTROLS ON-SITE DURING THE CONSTRUCTION PERIOD. THIS RECORD SHALL BE UPDATED ON A DAILY BASIS & SHALL CONTAIN DETAILS ON THE CONDITION OF CONTROLS AND ANY/ ALL MAINTENANCE, CLEANING & BREACHES. THIS RECORD SHALL BE KEPT ON-SITE AT ALL TIMES AND SHALL BE MADE AVAILABLE FOR INSPECTION BY THE PRINCIPAL CERTIFYING AUTHORITY AND THE SUPERINTENDENT DURING NORMAL WORKING HOURS.

SITE PARAMETERS

CONSTRAINT	VALUE
SEDIMENT TYPE	D
SOIL HYDROLOGY GROUP	B
K = SOIL ERODIBILITY (K-FACTOR)	0.040
R = RAINFALL EROSIVITY (R-FACTOR)	2720
S = 2 YEAR, 6 HOUR STORM INTENSITY	11.2mm/hr
LS = SLOPE LENGTH/GRADIENT	0.95 (85m SLOPE @ 3.7% GRADE)
P = EROSION CONTROL PRACTICE (P-FACTOR)	1.3 (TYPICAL)
C = GROUND COVER (C-FACTOR)	1.0 (TYPICAL FOR STRIPPED SITE)
SOIL LOSS (RUSLE METHOD) (tonnes/ha/yr)	134
EROSION HAZARD (TABLE 4.2 BLUE BOOK)	VERY LOW

DUE TO AVERAGE ANNUAL SOIL LOSS BEING LESS THAN 150 TONNES/ha/YEAR. NO FORMALISED SEDIMENT BASIN REQUIRED (THE BLUE BOOK SECTION 6.3.2(D))

VERIFIER: C.SMITH
JOB MANAGER: K.SINCLAIR
DESIGNED: R.JEANS
DRAWN: A.GRIFFIN

NOT FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
A	ISSUED FOR DA APPROVAL	AG	CS	RJ	29.11.17
B	ISSUED FOR DA APPROVAL	LS	CS	RJ	09.02.18
C	RE-ISSUED FOR DA APPROVAL	CH	CS	RJ	12.07.18

CLIENT
TORONTO INVESTMENTS NO.1

DRAWING NOT TO BE USED FOR CONSTRUCTION UNLESS VERIFICATION SIGNATURE HAS BEEN ADDED

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ALL SETOUT TO ARCHITECT'S DRAWINGS. DIMENSIONS TO BE VERIFIED WITH THE ARCHITECT AND ON SITE BEFORE MAKING SHOP DRAWINGS OR COMMENCING WORK. NORTHROP ACCEPTS NO RESPONSIBILITY FOR THE USABILITY, COMPLETENESS OR SCALE OF DRAWINGS TRANSFERRED ELECTRONICALLY.

PLANS 1:200 0 2 4 6 8 10m

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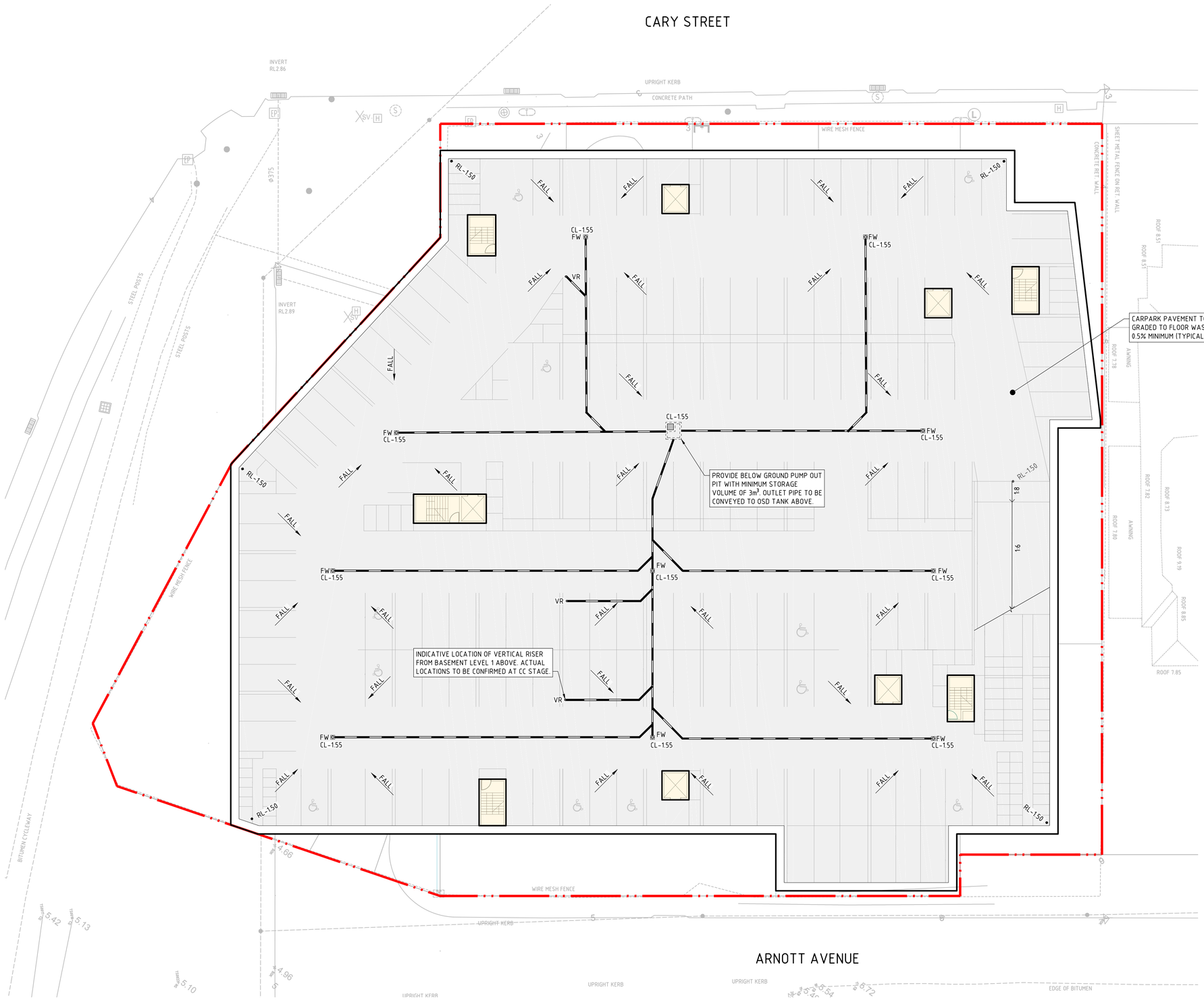
PROJECT
118 CARY STREET TORONTO, NSW, 2283

DRAWING TITLE
EROSION AND SEDIMENT CONTROL PLAN

JOB NUMBER **NL171556**
DRAWING NUMBER **C00DA**
REVISION **C**
DRAWING SHEET SIZE = A1

CARY STREET



LEGEND

- PROPOSED BOUNDARY LINE
- DENOTES PROPOSED CARPARK PAVEMENT. DETAILS TO BE PROVIDED AT CC STAGE.
- DENOTES BUILDING. REFER TO ARCHITECTS DRAWINGS FOR DETAILS.
- DENOTES PROPOSED STORMWATER PIPE. DETAILS TO BE PROVIDED AT CC STAGE.
- DENOTES PROPOSED PUMP OUT PIT. DETAILS TO BE PROVIDED AT CC STAGE.
- DENOTES EXISTING KERB INLET PIT
- FW CL-1.55 — DENOTES PROPOSED FLOOR WASTE AND COVER LEVEL. DETAILS TO BE PROVIDED AT CC STAGE.
- VR — DENOTES PROPOSED VERTICAL RISER. DETAILS TO BE PROVIDED AT CC STAGE.
- RL4.50 — PROPOSED SPOT HEIGHT
- FALL — PROPOSED DIRECTION OF GRADE

VERIFIER C.SMITH
JOB MANAGER K.SINCLAIR
DESIGNED R.JEANS
DRAWN A.GRIFFIN

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PROJECT
118 CARY STREET
TORONTO, NSW, 2283

DRAWING TITLE
STORMWATER MANAGEMENT AND LEVELS PLAN - BASEMENT 2

JOB NUMBER **NL171556**

DRAWING NUMBER **C10DA** | REVISION **C**

DRAWING SHEET SIZE = A1

D09015860

CARY STREET

CARPARK PAVEMENT TO BE GRADED TO FLOOR WASTES AT 0.5%MINIMUM (TYPICAL).

CONNECT BASEMENT LEVEL 1 FLOOR WASTES TO BASEMENT LEVEL 2 FLOOR WASTES.

PROPOSED ON-SITE DETENTION TANK. TANK OUTLET TO BE CONVEYED TO PROPOSED KERB INLET PIT IN CARY STREET, REFER TO DRAWING C12DA. REFER TO DRAWING C20DA FOR DETAIL.

PROPOSED PROPRIETARY STORMWATER FILTER SYSTEM. SPEL VAULT AND SPEL FILTER OR APPROVED EQUIVALENT.

PROPOSED GPT. SPEL ECOCEPTOR OR APPROVED EQUIVALENT.

INLET PIPE TO WATER QUALITY AND DETENTION PROVISIONS. ALL REUSE TANK OVERFLOW AND PODIUM LEVEL RUNOFF TO BE CONNECTED.

LEGEND

- PROPOSED BOUNDARY LINE
- DENOTES PROPOSED CARPARK PAVEMENT. DETAILS TO BE PROVIDED AT CC STAGE.
- DENOTES BUILDING. REFER TO ARCHITECTS DRAWINGS FOR DETAILS.
- DENOTES PROPOSED STORMWATER PIPE. DETAILS TO BE PROVIDED AT CC STAGE.
- DENOTES PROPOSED PROPRIETARY STORMWATER FILTER SYSTEM SPEL VAULT AND SPEL FILTER OR APPROVED EQUIVALENT
- DENOTES PROPOSED SPEL ECOCEPTOR OR APPROVED EQUIVALENT
- DENOTES EXISTING KERB INLET PIT
- FW CL1.45 — DENOTES PROPOSED FLOOR WASTE AND COVER LEVEL. DETAILS TO BE PROVIDED AT CC STAGE.
- VR — DENOTES PROPOSED VERTICAL RISER. DETAILS TO BE PROVIDED AT CC STAGE.
- DENOTES PROPOSED ON-SITE DETENTION TANK. DETAILS TO BE PROVIDED AT CC STAGE.
- RL4.50 — PROPOSED SPOT HEIGHT
- FALL — PROPOSED DIRECTION OF GRADE

ARNOTT AVENUE

NOT FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	ISSUED FOR INFORMATION	AG	CS	RJ	27.09.17
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B	ISSUED FOR DA APPROVAL	LS	CS	RJ	09.02.18
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PROJECT: **118 CARY STREET TORONTO, NSW, 2283**

DRAWING TITLE: **STORMWATER MANAGEMENT AND LEVELS PLAN - BASEMENT 1**

JOB NUMBER: **NL171556**

DRAWING NUMBER: **C11DA** REVISION: **C**

DRAWING SHEET SIZE = A1

VERIFIER C.SMITH
JOB MANAGER K.SINCLAIR
DESIGNED R.JEANS
DRAWN A.GRIFFIN

D09015860

CARY STREET

ARNOTT AVENUE

ENSURE FLOOD PROOF LAYOUT AND MATERIALS ARE PROVIDED ALONG CARY STREET DEVELOPMENT FRONTAGE UP TO 200mm ABOVE SPILL CREST TO TRAFFIC ISLAND LOCATED WITHIN CARY STREET. APPROXIMATE SPILL RL: 3.26. SPILL CREST HAS BEEN APPROXIMATED, SPILL POINT RL TO BE CONFIRMED PRIOR TO CONSTRUCTION.

PROVIDE INFRASTRUCTURE TO COUNCILS STANDARDS AS REQUIRED TO FACILITATE STORMWATER CONNECTION IN CARY STREET. DETAILS TO BE PROVIDED AT CC STAGE.

DRIVEWAY CROSSOVER TO BE CONSTRUCTED IN ACCORDANCE WITH LMCC STANDARDS.

EXISTING SERVICES TO BE REALIGNED AS REQUIRED.

ALL GRATED TRENCH DRAINS TO BE FITTED WITH SPEL HYDROCHANNEL OR EQUIVALENT.

CONNECT PROPOSED STORMWATER NETWORK TO EXISTING PIT WITHIN PUBLIC RESERVE. EXISTING PIT TO BE ADJUSTED AS REQUIRED. DETAILS TO BE PROVIDED AT CC STAGE AND S138 APPLICATION.

EXISTING KERB INLET PIT AND OUTLET PIPE TO BE REMOVED OR ADJUSTED AS REQUIRED.

PUBLIC RESERVED TO BE UPGRADED. REFER TO LANDSCAPE ARCHITECTS DRAWINGS FOR DETAILS.

ENSURE MINIMUM 1% FALL TO INLET PITS WITHIN RAISED LANDSCAPING AREA. DETAILS TO BE PROVIDED AT CC STAGE.

OUTDOOR PAVED AREA TO FALL AWAY FROM BUILDING AT MINIMUM 1% (TYPICAL).

PROVIDE MINIMUM 1% FALL THROUGHOUT LANDSCAPED AREA TO FACILITATE DRAINAGE AWAY FROM BUILDING AND MAJOR EVENT FLOW PATH. DETAILS TO BE PROVIDED AT CC STAGE.

PROVIDE MINIMUM 0.5% GRADE THROUGH COVERED LOW PAVING AREA TO DRAIN WIND BLOWN RAIN TO SOUTHERN LANDSCAPING AREA.

OSD OUTLET.

GRATED DRAIN TO DISCHARGE DIRECTLY TO OSD TANK BENEATH AND ACT AS EMERGENCY SPILL PROVISION IN CASE OF BLOCKAGE. ENSURE SURCHARGE FLOWS TO FLOW DOWN EXTERNAL SERVICE RAMP TO PREVENT WATER ENTERING BASEMENT LEVELS.

OSD TANK BELOW AND PROPRIETARY WATER QUALITY PROVISIONS BELOW. REFER TO DRAWING C11DA

DENOTES LOCATION OF ROOF OVER.

DRIVEWAY CROSSOVER TO BE CONSTRUCTED IN ACCORDANCE WITH LMCC STANDARDS.

ENSURE MINIMUM 1% FALL TO INLET PITS WITHIN RAISED LANDSCAPING AREA. OUTLET DETAILS TO BE PROVIDED AT CC STAGE.

PROVIDE PREFERENTIAL SPILL POINT ACROSS PEDESTRIAN PAVEMENT TOWARD PROPOSED LANDSCAPING AREA. MAJOR EVENT OVERLAND FLOW PATH TO BE PROVIDED TO CONVEY 100 YEAR ARI STORM EVENT FLOWS AROUND BUILDING FOOTPRINT THROUGH LANDSCAPING AREA. DETAILS TO BE PROVIDED AT CC STAGE.

PROVIDE NEW KERB INLET PIT WITHIN ARNOTT AVENUE LOWPOINT TO COUNCILS STANDARDS. OUTLET TO BE CONVEYED TO EXISTING PIT WITHIN PUBLIC RESERVE. DETAILS TO BE PROVIDED AT CC STAGE AND S138 APPLICATION

LEGEND

- PROPOSED BOUNDARY LINE
- DENOTES PROPOSED CARPARK PAVEMENT. DETAILS TO BE PROVIDED AT CC STAGE.
- DENOTES DRIVEWAY CROSSOVER TO BE CONSTRUCTED IN ACCORDANCE WITH LMCC STANDARDS.
- DENOTES BUILDING. REFER TO ARCHITECTS DRAWINGS FOR DETAILS.
- DENOTES PROPOSED COMMUNAL OUTDOOR AREA
- DENOTES PROPOSED LANDSCAPING. REFER TO LANDSCAPE ARCHITECTS DRAWINGS FOR DETAILS.
- DENOTES PROPOSED STORMWATER PIPE. DETAILS TO BE PROVIDED AT CC STAGE.
- DENOTES EXISTING STORMWATER PIPE.
- PIT CL 4.25 — DENOTES PROPOSED GRATED INLET PIT. DETAILS TO BE PROVIDED AT CC STAGE.
- DENOTES PROPOSED ACCESS HATCH
- DENOTES EXISTING KERB INLET PIT
- VR — DENOTES PROPOSED VERTICAL RISER. DETAILS TO BE PROVIDED AT CC STAGE.
- GTD — DENOTES PROPOSED GRATED TRENCH DRAIN. DETAILS TO BE PROVIDED AT CC STAGE
- DENOTES PROPOSED ON-SITE DETENTION TANK. DETAILS TO BE PROVIDED AT CC STAGE.
- RL4.50 — PROPOSED SPOT HEIGHT
- eRL5.58 — EXISTING SPOT HEIGHT
- FALL — PROPOSED DIRECTION OF GRADE
- DENOTES PROPOSED RETAINING WALL. DETAILS TO BE PROVIDED AT CC STAGE.
- FFL4.50 — DENOTES PROPOSED FINISHED FLOOR LEVEL.
- RWH = 1.00m — DENOTES APPROXIMATE PROPOSED RETAINING WALL HEIGHT.
- DENOTES EXISTING DISH DRAIN

NOT FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	ISSUED FOR INFORMATION	AG	CS	RJ	27.09.17
A	ISSUED FOR DA APPROVAL	AG	CS	RJ	29.11.17
B	ISSUED FOR DA APPROVAL	LS	CS	RJ	09.02.18
C	RE-ISSUED FOR DA APPROVAL	CH	CS	RJ	12.07.18

CLIENT: TORONTO INVESTMENTS NO.1

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PROJECT: 118 CARY STREET TORONTO, NSW, 2283

DRAWING TITLE: STORMWATER MANAGEMENT AND LEVELS PLAN - GROUND FLOOR

JOB NUMBER: NL171556

DRAWING NUMBER: C12DA

REVISION:

DRAWING SHEET SIZE = A1

VERIFIER: C.SMITH
JOB MANAGER: K.SINCLAIR
DESIGNED: R.JEANS
DRAWN: A.GRIFFIN

CARY STREET

ARNOTT AVENUE

Redacted

INVERT RL2.86

TURN LEFT

UPRIGHT KERB

CONCRETE PATH

NO STOPPING

PARKING SIGN

TORONTO CYCLEWAY

STEEL POSTS

STEEL POSTS

BITUMEN CYCLEWAY

SHEET METAL FENCE ON RET WALL

ROOF 8.51

ROOF 8.51

AWNING

ROOF 7.78

ROOF 7.82

ROOF 8.19

ROOF 8.85

ROOF 7.85

FLOOR WASTES TO BE PROVIDED THROUGHOUT PODIUM LEVEL AND ALL BALCONY AREAS. OUTLETS TO BE CONVEYED TO BELOW GROUND WATER QUALITY AND OSD TANK. DETAILS TO BE PROVIDED AT CC STAGE.

UPRIGHT KERB

UPRIGHT KERB

UPRIGHT KERB

BENCHMARK DRILL HOLE AND WING IN KERB RL6.61

EDGE OF BITUMEN

LEGEND

- PROPOSED BOUNDARY LINE
- DENOTES BUILDING. REFER TO ARCHITECTS DRAWINGS FOR DETAILS.
- DENOTES PROPOSED LANDSCAPING. REFER TO LANDSCAPE ARCHITECTS DRAWINGS FOR DETAILS.
- DENOTES PROPOSED COMMUNAL OUTDOOR AREA
- DENOTES PROPOSED COURTYARD AND BALCONY AREA.
- ∘DP — DENOTES PROPOSED DOWNPIPE. DETAILS TO BE PROVIDED AT CC STAGE.
- DENOTES PROPOSED 150Ø DOWNPIPE LINE. REFER TO STRUCTURAL ENGINEERS PLANS FOR DETAILS.
- T — DENOTES PROPOSED RAINWATER HARVESTING TANK. REFER TO DRAWING C20DA FOR DETAIL.
- FFL8.20 — DENOTES PROPOSED FINISHED FLOOR LEVEL.

VERIFIER C.SMITH

JOB MANAGER K.SINCLAIR

DESIGNED R.JEANS

DRAWN A.GRIFFIN

NOT FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
A	RE-ISSUED FOR DA APPROVAL	CH	CS	RJ	12.07.18

CLIENT
TORONTO INVESTMENTS NO.1

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PROJECT
118 CARY STREET
TORONTO, NSW, 2283

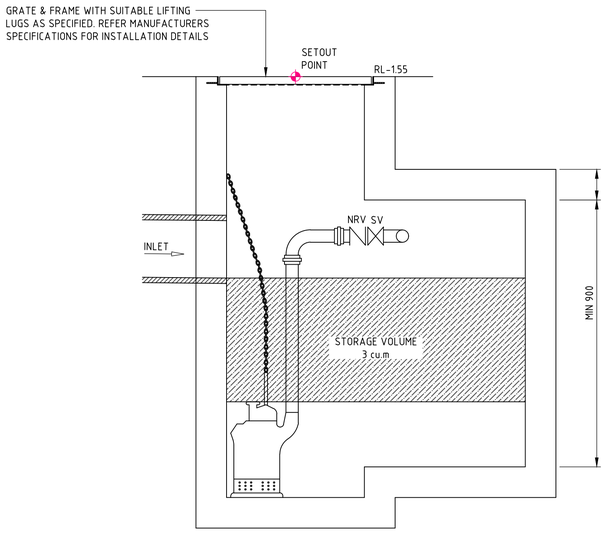
DRAWING TITLE
STORMWATER MANAGEMENT AND LEVELS PLAN - PODIUM

JOB NUMBER **NL171556**

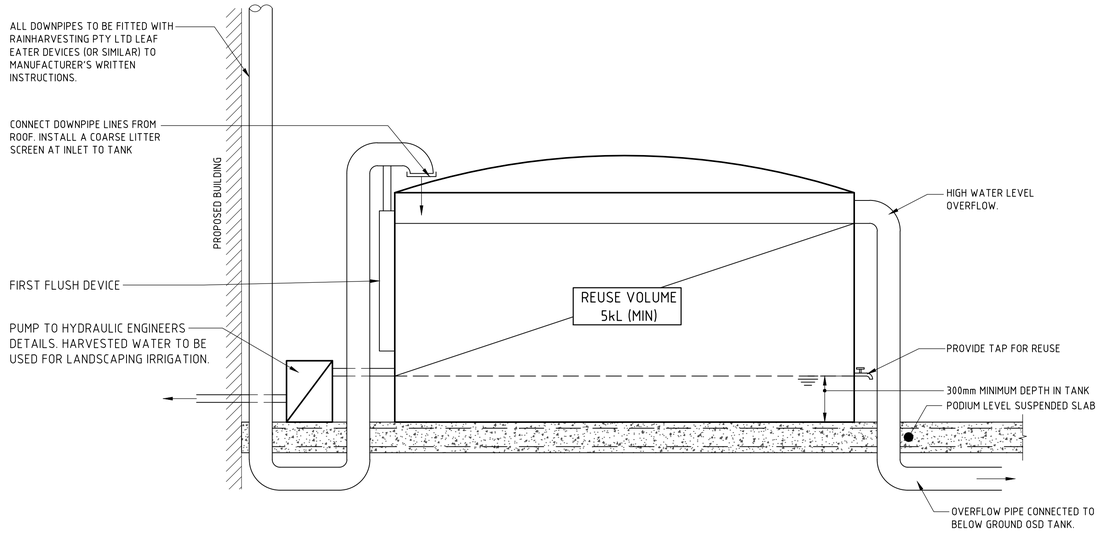
DRAWING NUMBER **C13DA**

REVISION **A**

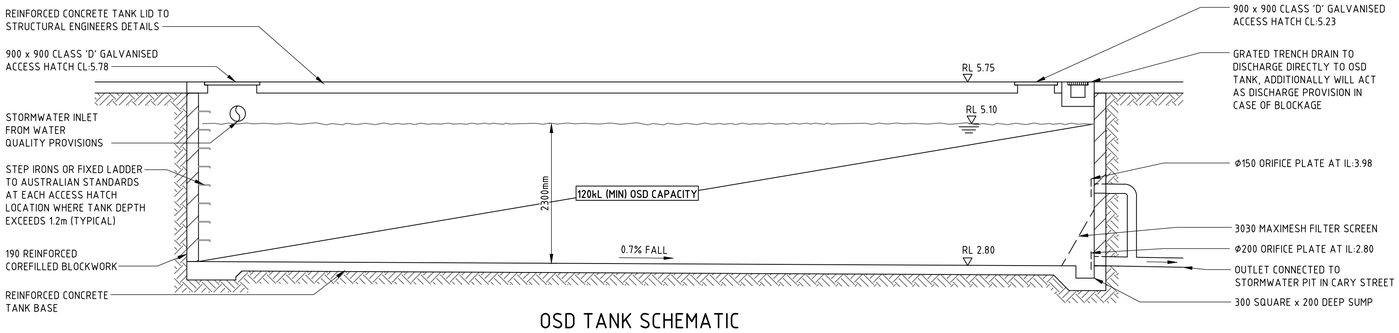
DRAWING SHEET SIZE = A1



PUMP-OUT PIT STRUCTURE



RAINWATER HARVESTING TANK



OSD TANK SCHEMATIC

VERIFIER C.SMITH

JOB MANAGER K.SINCLAIR

DESIGNED R.JEANS

DRAWN A.GRIFFIN

NOT FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
A	ISSUED FOR DA APPROVAL	AG	CS	RJ	29.11.17
B	RE-ISSUED FOR DA APPROVAL	CH	CS	RJ	12.07.18

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DETAILS 1:20 0 200 400 600 800 1000
DETAILS 1:50 0 0.5 1 1.5 2 2.5m

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PROJECT
118 CARY STREET TORONTO, NSW, 2283

DRAWING TITLE
CIVIL DETAILS

JOB NUMBER **NL171556**

DRAWING NUMBER **C20DA**

REVISION **B**

DRAWING SHEET SIZE = A1

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NL171556

11th July 2018

Lake Macquarie City Council
126-138 Main Road
Speers Point
NSW 2284

Dear Sirs/Madams,

Re: 118 Cary Street, Toronto Concept Stormwater Management Plan

Northrop Consulting Engineers have prepared a Concept Stormwater Management Plan for the proposed development at 118 Cary Street, Toronto (Lot 4-10 DP 2505, Lot 100 DP847314 and Lot 101 DP1110774). The proposed management plan has been developed in accordance with the Lake Macquarie City Council's (LMCC's) 2014 Development Control Plan (DCP), LMCC's Water Cycle Management Guidelines and relevant Australian Standards. This management plan should be read in conjunction with the attached drawings prepared by Northrop Consulting Engineers, C00DA – C20DA.

The site has a total area of 5,950 m^2 and is currently undeveloped grassed area which generally falls to a low point on the western boundary fronting Cary Street. The development proposes the construction of an eight-storey mixed-use building (2 basement levels, 6 levels above ground) incorporating car parking, commercial space and residential apartments, with primary vehicle access from Arnott Avenue and a service vehicle exit onto Cary Street. Pedestrian access is proposed from Cary street, Arnott Avenue and the footpath adjacent to Victory Parade.

Stormwater Management Summary

It is proposed that drip water from cars in the basement level carpark (levels B1 and B2) will be collected within a series of floor wastes that discharge to a pump out pit on Basement Level 2. Water collected in the pump out pit will be conveyed to the proposed gravity fed stormwater line on Ground Level. The podium stormwater runoff is proposed to be captured by a series of floor wastes and conveyed to the below ground on-site detention (OSD) tank located adjacent to Basement Level 1. Roof runoff is proposed to be collected and discharged to a rainwater reuse tank located on the podium level, where captured water will be reused for landscaping irrigation. Overflow from the reuse tank is proposed to be conveyed to the OSD tank below. It is proposed to provide an in-line GPT and proprietary filter chamber to polish runoff prior to discharging to Council stormwater assets. A series of grated trench drains will capture runoff from the proposed service access lane.

The low point created at the intersection of Bath and Arnott Street due to the development is proposed to be piped around the basement excavation and conveyed to the existing pit and pipe network currently located at the western end of Bath Street. An overland flow path is to be provided from this low point in case of pipe blockage.

Prepared	RJ	11/07/2017
Reviewed	CS	11/07/2017
Admin	LB	14/12/2017

Site Analysis

The proposed development areas consist of:

- Total site area = 5,950 m^2
- Total roof area to reuse tank = 3,149m^2
- Total Podium level to OSD tank = 1,650 m^2
- Podium level percent impervious = 75%
- Ground level area by-passing OSD = 966 m^2
- Ground level area by-passing OSD percent impervious = 39%
- Service Lane Area = 185 m^2
- Total Site Percent Impervious = 83%

In accordance with LMCC's water cycle management guidelines the Site Discharge Index:

Directly-connected impermeable area (DC)	= 0.39 X 966
	= 377 m^2
Site Discharge Index (SDI)	= 377 / 5950
	= 0.06

Stormwater Quantity

A lumped-node DRAINS model was developed to appropriately size an on-site detention tank to match post developed peak flows to that of the pre-developed scenario. A time of concentration of 15 minutes and 100% pervious area for the pre-developed scenario was used. Storm durations ranging from 5 minutes to 270 minutes were investigated. Figure 1 below shows the DRAINS model schematic.

Following new information received from Council on the 6th June 2018, water levels within Cary Street fronting the development have been observed at approximately RL 2.5. Tailwater conditions were therefore added to the DRAINS model during the Major storm event. Due to the raising of the tank IL to 2.80, tailwater conditions were seen to have a negligible affect on the DRAINS model.

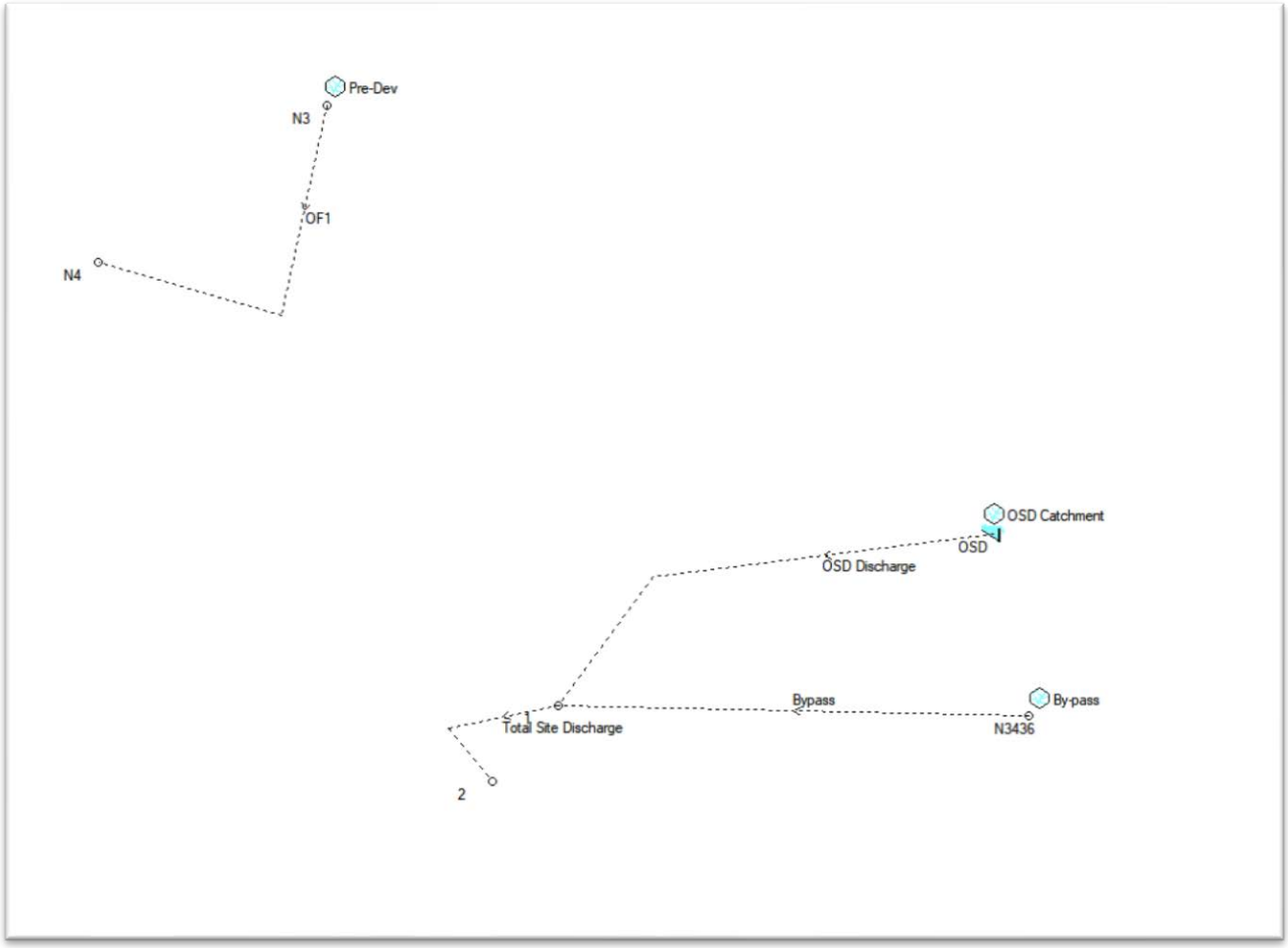


Figure 1 - DRAINS model schematic

The model's results are shown below in Table 1.

Table 1 - DRAINS Model Result Summary

ARI	**Pre-developed Peak Flows (m3/s)**	**Post-developed peak flows (m3/s)**
5	0.112	0.111
10	0.130	0.122
20	0.154	0.137
50	0.173	0.150
100	0.198	0.163

The DRAINS model set-up indicates the proposed 120m^3 detention tank and staged orifice discharge reduces post-developed peak flows to that of the pre-developed scenario, up to and including the 100-year ARI storm event.

DRAINS model can be provided at Council request.

Stormwater Quality

In order to minimise any adverse impacts upon the ecology of the downstream watercourses; stormwater treatment devices have been incorporated into the design of the development. Refer to design documentation for specific water quality treatment facilities. LMCC's DCP (2014) identifies the level of stormwater quality treatment to be provided for the proposed development (refer to Treatment Targets in Table 2).

The performance of the proposed stormwater management strategy was assessed against these targets using the conceptual software MUSIC (Version 6.2.1). The MUSIC model was developed using recommended parameters presented in the document "Draft NSW MUSIC Modelling Guidelines" (WBM, 2015) while complying with LMCC's MUSIC Link parameters. A schematic of the proposed treatment train can be seen below in Figure 2.

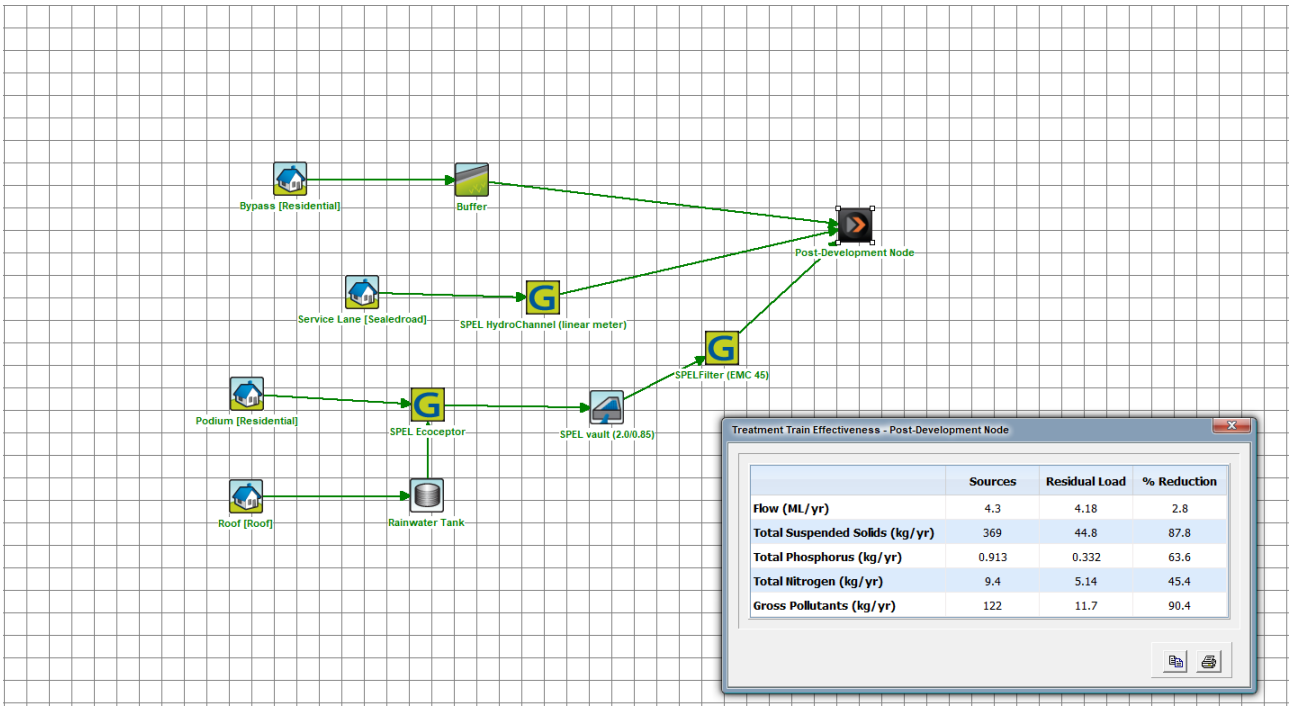


Figure 2 - MUSIC Model schematic

The results of the proposed treatment train can be seen below in Table 2.

Treatment train node summary:

- Rainwater tank – Proposed 5kL reuse tank. For the MUSIC model it has been assumed the full roof catchment is connected to the tank. A re-use demand of 150 kL/year has been assumed for the landscaping irrigation;
- SPEL Ecoceptor 4000 Series or approved equivalent;
- SPEL In-tank Filter Cartridges – SPEL cartridge filter system (10 cartridges) or approved equivalent; and
- SPEL Hydrochannel – Grated trench drain proprietary filter system or approved equivalent.

Table 2 - MUSIC model results

	Source Load (kg/yr)	Residual Loads (kg/yr)	Percentage Reduction	Target Objectives
Total Suspended Solids (TSS)	369	44.8	87.8 %	80 %
Total Phosphorous (TP)	0.913	0.332	63.6 %	45 %
Total Nitrogen (TN)	9.4	5.14	45.4 %	45 %
Gross Pollutants	122	11.7	90.4 %	70 %

Table 2 shows that the proposed stormwater management strategy is predicted to achieve the load reduction targets set out in the LMCC DCP 2014, as estimated by MUSIC.

MUSIC Link report has been submitted with this report and MUSIC model can be provided upon Council request.

Localised Flooding

As per information received from Council on 6th June 2018, during storm events in excess of the design major event (100-year ARI), flooding has been observed within Cary Street adjacent to the proposed development.

The existing inlet pit within Cary street has been identified as a localised low point and therefore ponding is expected in these larger events. The relief point for this area is seen to be the traffic island centrally located in Cary Street. The IL for this relief point has been estimated below.

- Pit CL 2.85
- 7.5m wide carriageway X 3.5% cross fall
- 0.15m traffic island kerb height

  - = 2.85 + 0.26 + 0.15
  - = 3.26

The development front along Cary street is therefore recommended to utilise a flood proof layout and flood materials 200mm above the spill crest, up to approximately RL 3.46. Further investigation and details to be provided during CC stage.

Given the results of the above investigations, it is reasoned that the development meets LMCC's requirements. In particular:

- Calculated Site Discharge Index of 0.06 satisfies LMCC's performance criteria of 0.1;
- In order to limit post-developed peak discharge rates to that of the pre-developed scenario and 120m^3 detention tank is proposed. The proposed storage volume was modelled in the run-off routing software DRAINS;
- The treatment of stormwater runoff for waterborne pollutants is achieved through the proposed treatment train as modelled by MUSIC. This includes the use of a rainwater tank, a proprietary gross pollutant trap, grated trench drain pit inserts and a cartridge treatment system; and
- Localised flooding within Cary Street is to be considered during the detailed design stage as to allow ponded water to preferentially spill across the Cary Street traffic island before entering any proposed basement levels or habitable floor levels.

We trust this meets your requirements, however should you require anything further, please do not hesitate to contact the undersigned.

Yours sincerely

Ross Jeans
BEng (Environmental)

Chris Smith
BEng (Civil) CPEng MIEAust NER

Attachment 1 – C00DA - C20DA Drawing Set
Attachment 2 – MUSIC Link Report

LAKE MACQUARIE CITY COUNCIL

MUSIC-*link* Report

Project Details		Company Details	
Project:	NL171556 - Cary St	**Company:**	Northrop
Report Export Date:	1/12/2017	**Contact:**	Ross Jeans
Catchment Name:	NL171556_DA	**Address:**	
Catchment Area:	0.598ha	**Phone:**	49431777
Impervious Area*:	83.12%	**Email:**	rjeans@northrop.com.au
Rainfall Station:			
Modelling Time-step:	6 Minutes		
Modelling Period:	1/01/1999 - 31/12/2008 11:54:00 PM		
Mean Annual Rainfall:	902mm		
Evapotranspiration:	1408mm		
MUSIC Version:	6.2.1		
MUSIC-link data Version:	6.22		
Study Area:	North Region		
Scenario:	North Region		

* takes into account area from all source nodes that link to the chosen reporting node, excluding Import Data Nodes

Treatment Train Effectiveness		Treatment Nodes		Source Nodes	
Node: Post-Development Node	**Reduction**	**Node Type**	**Number**	**Node Type**	**Number**
Flow	2.85%	Buffer Node	1	Urban Source Node	4
TSS	87.8%	Rain Water Tank Node	1		
TP	63.6%	Detention Basin Node	1		
TN	45.4%	Generic Node	4		
GP	90.4%				

Comments

Pervious area parameters have been based on a Sandy clay loam soil texture as per NSW MUSIC Modelling Guidelines 2015. Sandy clay loam soil texture adopted from a nearby Soil Profile Report by NSW Soil and Land Information System.

LAKE MACQUARIE CITY COUNCIL

Passing Parameters

Node Type	Node Name	Parameter	Min	Max	Actual
Buffer	Buffer	Proportion of upstream impervious area treated	None	None	1
Post	Post-Development Node	% Load Reduction	None	None	2.85
Post	Post-Development Node	GP % Load Reduction	70	None	90.4
Post	Post-Development Node	TN % Load Reduction	45	None	45.4
Post	Post-Development Node	TP % Load Reduction	45	None	63.6
Post	Post-Development Node	TSS % Load Reduction	80	None	87.8
Rain	Rainwater Tank	% Reuse Demand Met	80	None	81.57
Urban	Bypass	Area Impervious (ha)	None	None	0.037
Urban	Bypass	Area Pervious (ha)	None	None	0.059
Urban	Bypass	Total Area (ha)	None	None	0.097
Urban	Podium	Area Impervious (ha)	None	None	0.123
Urban	Podium	Area Pervious (ha)	None	None	0.041
Urban	Podium	Total Area (ha)	None	None	0.165
Urban	Roof	Area Impervious (ha)	None	None	0.317
Urban	Roof	Area Pervious (ha)	None	None	0
Urban	Roof	Total Area (ha)	None	None	0.317
Urban	Service Lane	Area Impervious (ha)	None	None	0.019
Urban	Service Lane	Area Pervious (ha)	None	None	0
Urban	Service Lane	Total Area (ha)	None	None	0.019

Only certain parameters are reported when they pass validation

LAKE MACQUARIE CITY COUNCIL

Failing Parameters

Node Type	Node Name	Parameter	Min	Max	Actual
Urban	Bypass	Groundwater Daily Baseflow Rate (%)	5	20	45
Urban	Bypass	Groundwater Daily Recharge Rate (%)	35	55	60
Urban	Bypass	Pervious Area Infiltration Capacity coefficient - a	175	215	250
Urban	Bypass	Pervious Area Infiltration Capacity exponent - b	2.4	4.7	1.3
Urban	Bypass	Pervious Area Soil Storage Capacity (mm)	170	210	108
Urban	Podium	Groundwater Daily Baseflow Rate (%)	5	20	45
Urban	Podium	Groundwater Daily Recharge Rate (%)	35	55	60
Urban	Podium	Pervious Area Infiltration Capacity coefficient - a	175	215	250
Urban	Podium	Pervious Area Infiltration Capacity exponent - b	2.4	4.7	1.3
Urban	Podium	Pervious Area Soil Storage Capacity (mm)	170	210	108
Urban	Roof	Groundwater Daily Baseflow Rate (%)	5	20	45
Urban	Roof	Groundwater Daily Recharge Rate (%)	35	55	60
Urban	Roof	Pervious Area Infiltration Capacity coefficient - a	175	215	250
Urban	Roof	Pervious Area Infiltration Capacity exponent - b	2.4	4.7	1.3
Urban	Roof	Pervious Area Soil Storage Capacity (mm)	170	210	108
Urban	Service Lane	Groundwater Daily Baseflow Rate (%)	5	20	45
Urban	Service Lane	Groundwater Daily Recharge Rate (%)	35	55	60
Urban	Service Lane	Pervious Area Infiltration Capacity coefficient - a	175	215	250
Urban	Service Lane	Pervious Area Infiltration Capacity exponent - b	2.4	4.7	1.3
Urban	Service Lane	Pervious Area Soil Storage Capacity (mm)	170	210	108

Only certain parameters are reported when they pass validation

John Carr
13 Renwick Street Toronto 2283
Phone (02) 4959 1653 (mob.) 0411 550 303

Heritage Design
ABN 72 840 384 366
Email – john.carr.heritage@hotmail.com

9 July 2018

Toronto Developments No. 1 Pty Ltd
C/- Stephen Coon
Mark Lawler Architects
35 Smith Street
CHARLESTOWN NSW 2290

Dear Stephen,

RE: TORONTO MIXED USE DEVELOPMENT AT CARY STREET & ARNOTT AVE - DA/419/2018 - HERITAGE RESPONSE TO QUESTIONS.

Following Lake Macquarie City Council's letter of 6 June 2018, two issues relating to heritage were raised. The first was the need to incorporate the Statement of Heritage Impact's recommendation to include further colours into the scheme. The second was to add some comments regarding the interpretation of the former railway line.

Both of these items are addressed in this response for council's consideration.

Interpretation of the former railway:
Given the former railway remains are outside the boundary of the subject site and following previous extensive works to both the railway removal and the widening of Cary Street over number of years, it was felt that the interpretation of the transport corridor was not required to be implemented as part of this development, despite the offer to augment the landscaping of the parkland immediately to the south of the development.

The recent and past works by Roads & Maritime Services to widen Cary Street and install co-ordinated traffic lights to improve the traffic flow did absolutely nothing by way of interpretation following removal of the railway track, other than to bury the end of the track in a grassed mound and transplant a couple of Canary Island Palms which were never part of the original tramway or railway.

Interpretation of the railway as such is not really needed as the Lake Macquarie & District Historical Society is based on the former Toronto Railway Station building just a few hundred metres down the track which is full of railway and local history memorabilia for both the tramway and railway.

Furthermore, it has come to our attention of Council’s own intention to extend Arnott Avenue through to the Victory Parade roundabout, over the top of the rail line. In addition to the RMS widening of Cary St, this revelation makes a mockery of any interpretation of the rail line as an extended Arnott Ave would also require widening and significant earthworks associated with the changes of levels to the immediate area thereby covering a section of the line in a second location only metres apart.

Additional colours:
Additional colours have been examined between Mark Lawler Architects and John Carr Heritage Design to resolve the issues presented by the difficulties associated with computer reproductions of colours. It was agreed the primary concern was associated with the podium level on Arnott Ave and the Bay Street end of the building. This presents the closest exposure to the Heritage Precinct and where lighter colours would have a greater affect due to brightness.

The colour of the podium and lower column elements has been changed to Taubmans Murkey Water T161-6W to reduce the brightness factor to this area. All other colours were reviewed and found to be acceptable given their location and orientation away form the precinct.

A sample of the proposed paint colour is attached below:

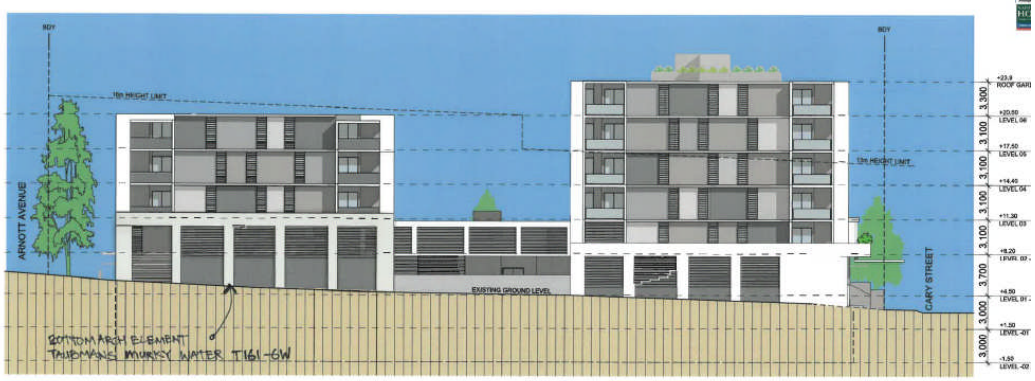
PAINT COLOUR DETAILS

MURKEY WATER

Save

COLOUR INFORMATION		**PRODUCT** INFORMATION	
BRAND:	TAUBMANS	AVAILABLE IN:	Endure Interior
REF:	T15 33.5 (T161-6)		Endure Exterior
RGB:	R151 G141 B126	TINTED BASE	NO
HEX:	H978D7E		
LRV:	27.7		

East Elevation (Arnott Avenue) 1:200



North Elevation (McDonalds) 1:200

Please let me know if you require any further information.

Yours faithfully,

John Carr
Heritage Architect
NSW Reg No. 4128

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Division of RAMTRANS Australia ABN: 45067491678 RPEQ: 19457

Transport Planning, Traffic Impact Assessments, Road Safety Audits, Expert Witness

26 July 2018 Reference: 18365.01FA

Mark Lawler Architects
35 Smith Street, Charlestown NSW 2290
Attention: Stephen Coon

SUPPLEMENTARY TRAFFIC AND PARKING ADVICE OF MIXED USE DEVELOPMENT AT 118 CARY STREET, TORONTO

Dear Stephen,

Reference is made to your request to provide Supplementary Traffic and Parking Advice in response to comments from both Lake Macquarie City Council and the Roads and Maritime Services regarding the proposed Mixed Use Development at 118 Cary Street, Toronto (Concept Site layout in **Annexure A**).

The comments from each authority are reproduced in *italics* and responded to in the following sections.

1 Lake Macquarie City Council Comments

1.1 Access and Servicing

The proposed vehicle access from Arnott Street and Commercial vehicle exit to Cary Street is not considered adequate with regard to:

a) Arnott Street is extremely narrow and should be widened to facilitate acceptable turning manoeuvres into the site for both passenger vehicles and Medium Rigid Vehicles.

b) The Commercial vehicle access onto Cary Street appears to be in conflict with the landscape area on the inside turning arc onto Cary Street. This area may also have a greater conflict with pedestrian movements (School Children) due to the proximity of the local primary school.

c) No Parking/Stopping will be required across the Cary Street frontage.

d) Arnott Street is narrow with high volumes of traffic produced at certain times by the yacht club. It is noted that the road design has not provided a turning area should someone enter the street by mistake. Turning provisions should be provided for without impacting on the adjoining club or residents.

Each of the above comments is responded to in sub-sections below.

1.1.1 Width of Arnott Street

Swept path testing has been undertaken, reproduced in **Annexure B** for reference, which demonstrates that the existing width of Arnott Street is sufficient to serve turning movements for all vehicles proposed to enter and exit the site. On this basis, no widening of this street is necessary. The driveway of the site will be splayed appropriately to accommodate the turning movements shown.

In addition to the lack of physical necessity for road widening, there are various other factors which contribute to the unwarranted and impractical nature of the request to widen Arnott Street:

- The driveway entry to the development is positioned as close as possible to the intersection of Arnott Street and Bay Street, reducing the amenity impacts of the proposal;
- The proposal meets the parking requirements of the DCP and there will be no impacts to on-street parking;
- Arnott Avenue is a residential access street, of a width consistent with Council's DCP (7.0m). Widening this street is therefore unnecessary within the bounds of Council's design plan. Further, the AMCORD residential design document providers a minimum width of 5.5m for residential access streets and designates streets with 7m width as minor collector streets. The existing width of Arnott Street is therefore more than adequate to serve the proposed development;
- Widening Arnott Street will increase traffic speeds along the road and encourage on-street parking, both of which will impact the amenity of residents.

1.1.2 Commercial Vehicle Exit

It has been advised that the landscaping areas will be adjusted to eliminate any conflict with service vehicles exiting the site. To remove the chance of any conflict with school pedestrian traffic, the loading and servicing operations of the site will be restricted to outside of school hours, such that no vehicles are exiting during school zone times.

1.1.3 No Parking/Stopping Requirement

"No Stopping" signage will be erected along the frontage of the site along Cary Street as required by Council.

1.1.4 Turning Area in Arnott Street

It is unclear what relationship the proposed development has with the observation that no turning bulb is provided within Arnott Street or Bath Street. This situation is existing and is it not the responsibility of the developer to make general improvements to the local road network.

1.2 Parking and Manoeuvring

The internal driveway and car parking area (turning movements) appear not to conform to the DCP 2014 and AS2890 requirements with regard to:

a) The applicant shall provide greater detail in regards to the access ramps. This shall include clearance details and transition lengths.
b) Manoeuvring for parking spaces as noted appears marginal. (Residential) Disabled parking bay 19 N/E corner, N/W corner, N/W corner, Disabled Circulating Areas shall not interfere with the reversing bay and angled bays.
c) The applicant shall provide the turning paths at each angled and 90 degree corner. Vehicles must be able to pass each other at the same time.
d) The blind aisles end treatment for the two N/E aisles is incorrect.
e) Disabled Shared Zones shall not be located within the travelling aisles.
f) Wheel Stops to be provided where parking is positioned against vertical walls.
g) How is the residential car parking secured from the commercial carpark.
h) The applicant shall provide a section through the low head height area S/W of the Commercial Carpark.

Each of the above comments is responded to in sub-sections below.

1.2.1 Architectural Changes

Greater detail regarding the access ramps will be provided by others.

1.2.2 Function of Parking

Swept Path Testing has been carried out on the residential spaces in the north-east and north-west corners of the basement car park. There is adequate space for a vehicle to enter and exit with spaces within 3 manoeuvres, where 5 are permitted by the Australian Standards. The fire stairs at the south-eastern corner of the site have been amended to provide additional manoeuvring area for the disabled space opposite. Swept path tests have been reproduced in **Annexure C** for reference.

1.2.1 Turning Paths

The carparking areas have been designed as per Australian Standards, which does not specify the requirement of two way passing around corners. In the experience of M^{C}Laren Traffic Engineering, few if any car parks have dimensions sufficient to enable two-way passing at all internal junctions and corners.

1.2.2 Shared Spaces

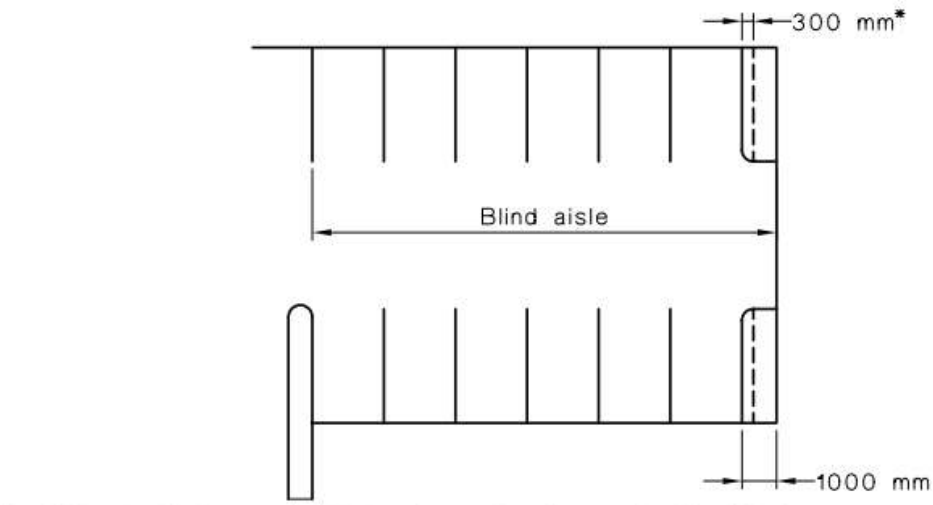
Clause 1.3.2 of *AS2890.6- Off-street parking for people with disabilities* defines shared areas as follows:

> *"1.3.2 Shared area*
>
> *An area adjacent to a dedicated space provided for access or egress to or from a parked vehicle and which may be shared with any other purpose that does not involve other than transitory obstruction of the area, e.g. a walkway, a vehicular aisle, dual use with another adjacent dedicated space."*

As such, the shared spaces as disabled within the plans in **Annexure A** meet Australian Standard requirements. Traffic flows within the residential car park will be of extremely low scale and the use of the aisles as disabled shared areas is acceptable.

1.2.3 Blind Aisle

As per *AS2890.1- Off-street car parking* states that a blind aisle must be a minimum of 1000mm from the edge of the nearest space, as shown in **Figure 1**.



*Additional widening required if there is a wall or fence at the side of the last space, see Clause 2.4.1(b)(ii).

DIMENSIONS IN MILLIMETRES

FIGURE 2.3 BLIND AISLE EXTENSION

FIGURE 1: AS2890.1 EXCERPT- BLIND AISLE EXTENSION

In accordance with the requirements of AS2890.1, all blind aisles within the proposed plans are of at least 1000mm in length. Dimensions of blind aisles are reproduced in **Annexure D** showing that each of the blind aisles proposed meets Australian Standards requirements.

1.3 Servicing

The proposed development has not achieved adequate facilities for service vehicle with regard to AS 2890.2 Park Facilities- Off Street commercial vehicle facilities

a) The applicant has not adequately demonstrated how vehicles will be off-loaded without interfering with the actual through lane for trucks.

b) The produced turning/ travelling arc for the commercial vehicle interferes with the landscape area on Cart Street. The path is also across the frontage of the adjoining lot on Arnott Street. The turning paths should be compliant without interfering with landscaping or adjoining properties.

c) The height of the loading bay and truck access is to be demonstrated on a longitudinal section.

Each of the above comments is responded to in sub-sections below.

1.3.1 Through Lane

The proposed loading dock shall be subject to a servicing and loading management plan which shall coordinate the arrival and departure time of service vehicles to the site so that queueing will be minimised. In the rare case that a vehicle arrives while another is being unloaded, queues will occur entirely internally and will not impact the surrounding traffic network.

1.3.2 Frontage Landscaping

The frontage landscaping on Cary Street is to be altered to allow commercial vehicle entry to the through lane. This will ensure landscaping will not be interfered with.

1.3.3 Loading Bay Section

A longitudinal section of the loading bay is to be provided by others.

2 RMS Comments

2.1 Traffic Impact Statement

The Traffic Impact Statement from McLaren dated 22 February 2018 does not correctly demonstrate the operation of the Cary Street and Bay Street intersection. Roads and Maritime have reviewed and undertaken the following amendments to the submitted SIDRA models:

- *The Cary Street northbound departure kerbside lane is not a continuous lane. It is a 70 metre short lane with parking.*
- *The Cary Street southbound approach kerbside lane is not a continuous lane. It is a 90 metre short lane with parking,*
- *Bay Street is not two 3.3 metre lanes on approach, it is one wide 4.8 metre lane,*
- *The intersection cycle time is not 50 seconds in the AM peak and 60 seconds in the PM peak. The cycle time is between 100 and 110 seconds.*
- *Running the models with the above parameters altered, the intersection with development operates at an overall Level of Service (LoS) F in the AM and PM.*
- *Roads and Maritime have reviewed options to minimise the impact from the development on the queue and delays at the intersection, and recommend that further consideration be given to Bay Street being widened to two lanes on approach to Cary Street, fronting the McDonalds site.*
- *Running the model with the additional lane on Bay Street results in improved delays, queue lengths and LoS to LoS C in the AM peak and LoS B in the PM peak.*
- *It is recommended that an updated Traffic Impact Statement be submitted, including modelling of the requested amendments plus 10 years of growth on the road network*

2.1.1 Intersection Geometry

The above recommended changes from RMS have been implemented to the SIDRA analysis, where agreed, with results summarised in **Annexure E** and movement summaries provided in **Annexure F**.

The SIDRA analysis has been informed by the existing operation of the intersection. As shown in **Annexure G**, the Bay Street approach to the intersection includes two detectors, a filter arrow and functions as a two-lane approach. Considering this current operation, no widening is necessary and the results of the SIDRA analysis reflect the true performance of the intersection.

2.1.2 Traffic Impact

A growth rate of 1% per year has been applied to through traffic along Cary Street as requested. The SIDRA results are summarised in **Table 1**.

TABLE 1- SIDRA RESULT SUMMARY

Intersection	Peak	Existing	Existing + Development	Existing with 10 Year Growth (1% per year)	Existing + Development with 10 Year Growth (1% per year)
Cary Street/ Bay Street Signalised	AM	LoS C	LoS C	LoS F	LoS F
	PM	LoS B	LoS B	LoS C	LoS F

At the Cary Street/ Bay Street signalled intersection, it can be seen that by applying a conservative 1% growth rate on the through traffic (northbound and southbound), the existing intersection will reach a Level of Service of **F** within ten years' time during the AM peak without the traffic associated with the subject proposal.

Therefore, whilst the addition of the traffic associated with the subject site will serve to increase delays at the intersection, improvement works will be required irrespective of the development to cater for through traffic.

3 Conclusion

In summary, the proposed development at 118 Cary Street Toronto achieves the following outcomes:

- The design of the proposed carparking facilities complies with the relevant Australian Standards and guidelines.
- The proposal provides adequate off-street parking to cater for the parking demand of the proposed development.
- All driveway accesses have been designed to allow for all vehicles to enter and exit in a forward direction under controlled conditions with no conflict on the existing roads.
- The proposal is within 400m walking distance to a major transport route, public transport services, and the main shopping centre and public amenities.
- The parking and vehicle activity associated with the proposal is not expected to adversely impact the parking demand or vehicle activity of the existing surrounding properties.

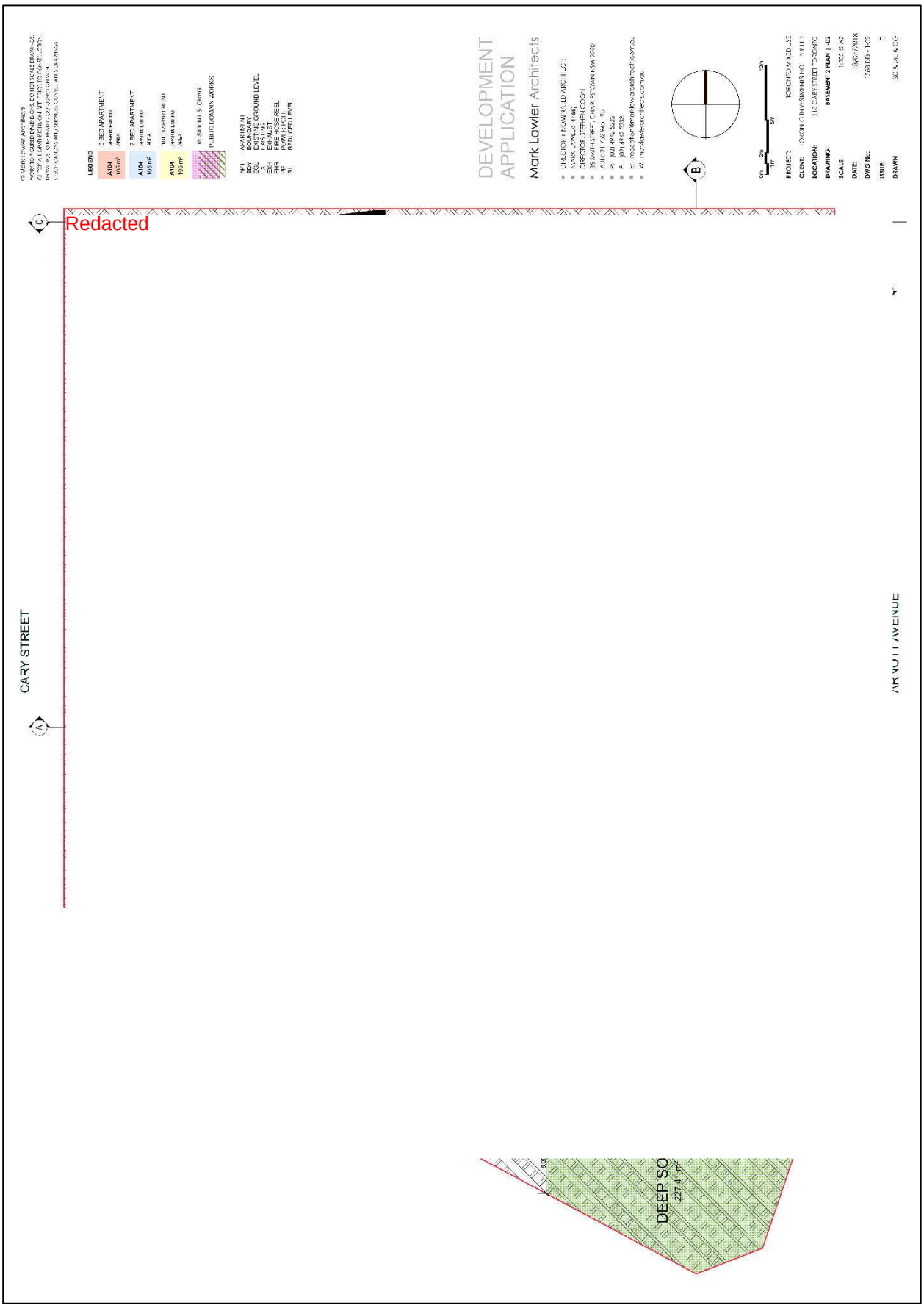
In conclusion, the traffic and parking arrangements for the proposal complies, will have negligible impact, and is accordingly supported.

Please contact the undersigned should you require further information or assistance.

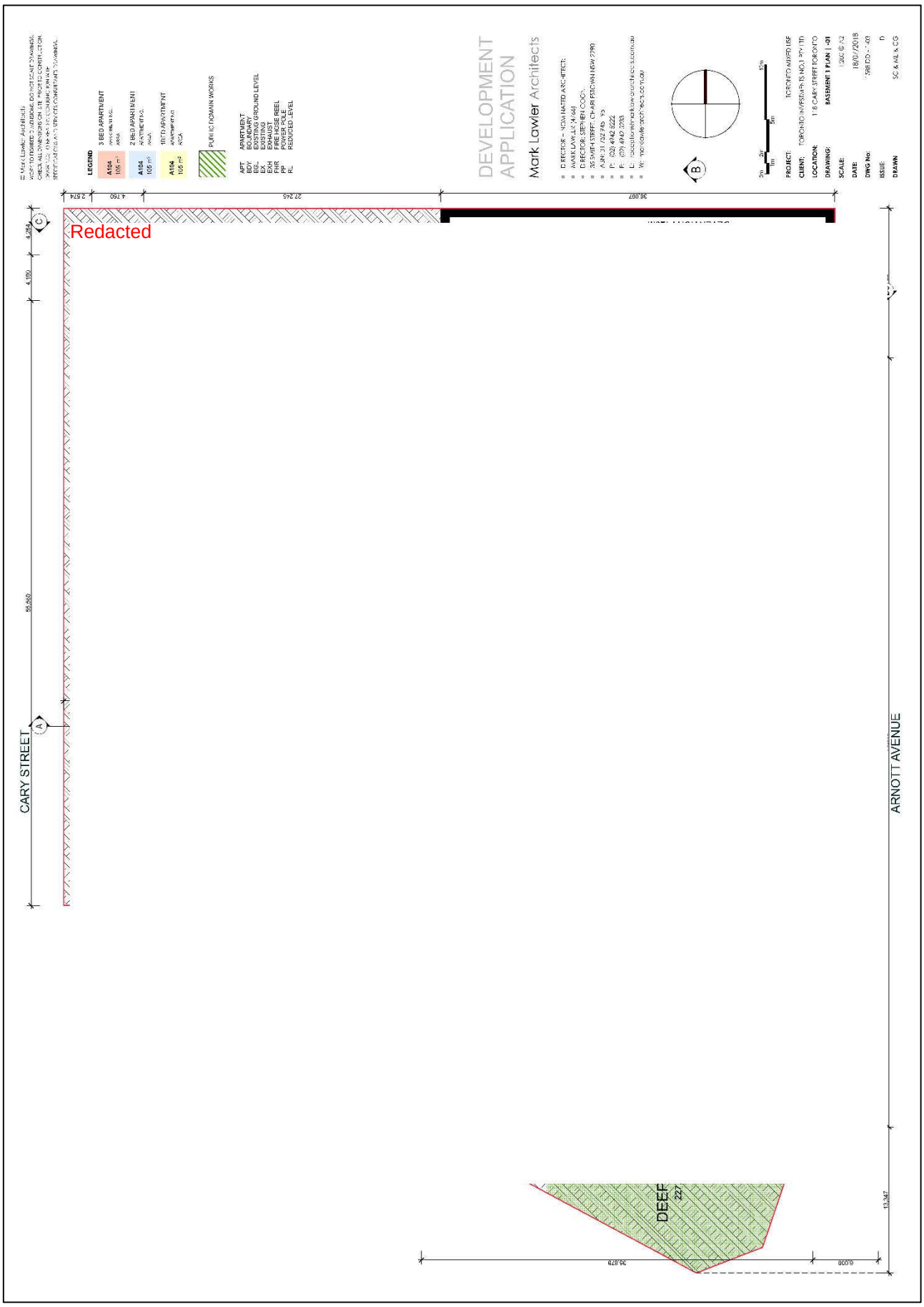
Yours faithfully
M^{c}Laren Traffic Engineering

Tom Heal
Traffic Engineer
BE Civil AMAITPM GradIEAust
RMS Accredited Level 1 Road Safety Auditor
RMS Accredited Work Zone Traffic Management Plan Designer and Inspector

ANNEXURE A: SITE PLANS



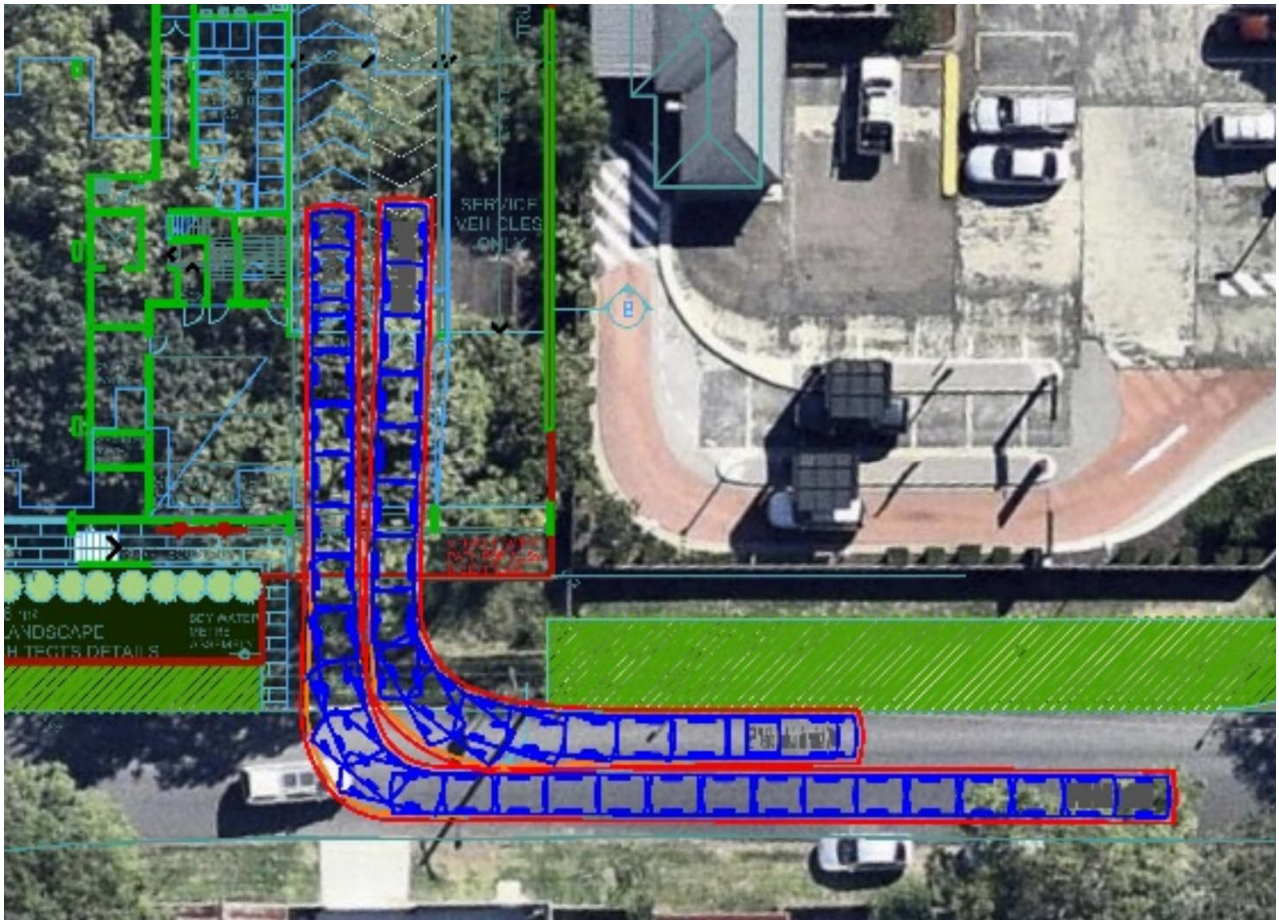
ANNEXURE A: SITE PLANS



ANNEXURE A: SITE PLANS

Redacted

ANNEXURE B: SWEPT PATH TESTING TO DRIVEWAY



B99 Passing B85 at driveway
Tested @ 10km/h on public road / 5km/h internally
SUCCESSFUL

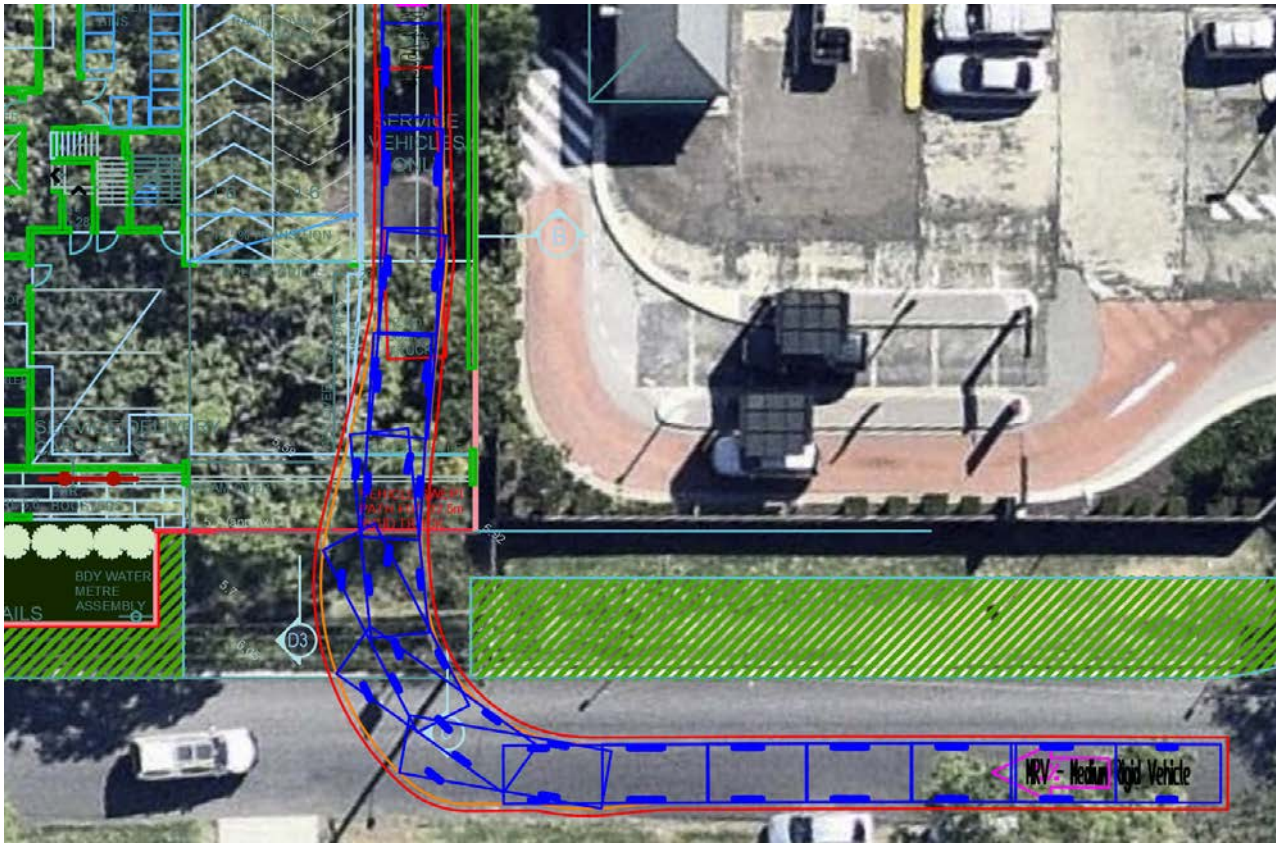
Orange – Vehicle body
Red – 300mm clearance

ANNEXURE B: SWEPT PATH TESTING TO DRIVEWAY

HRV Entering Site
Tested @ 10km/h on public road / 5km/h internally
SUCCESSFUL

Orange – Vehicle body
Red – 300mm clearance

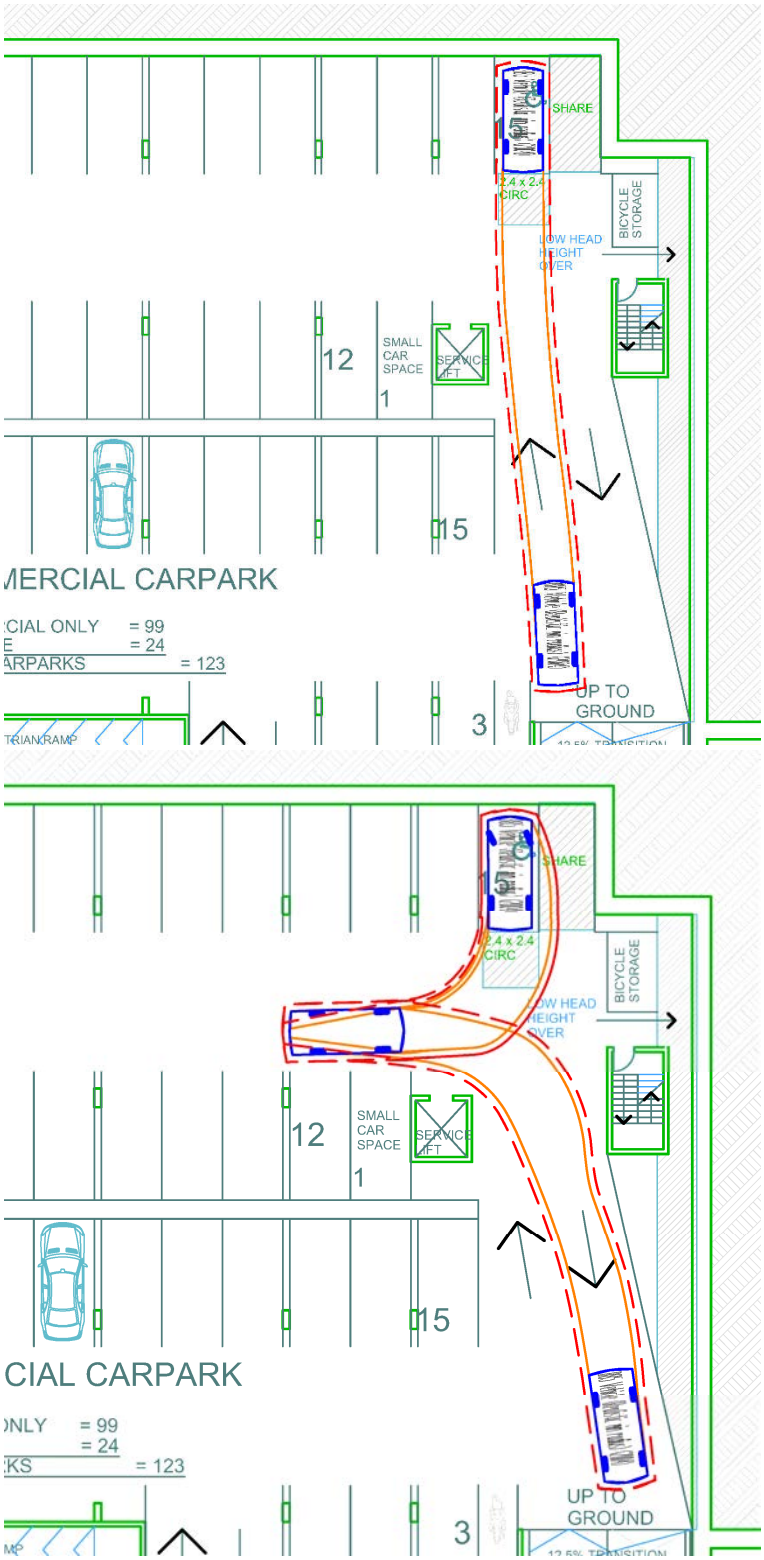
ANNEXURE B: SWEPT PATH TESTING TO DRIVEWAY



MRV Entering Site
Tested @ 10km/h on public road / 5km/h internally
SUCCESSFUL

Orange – Vehicle body
Red – 300mm clearance

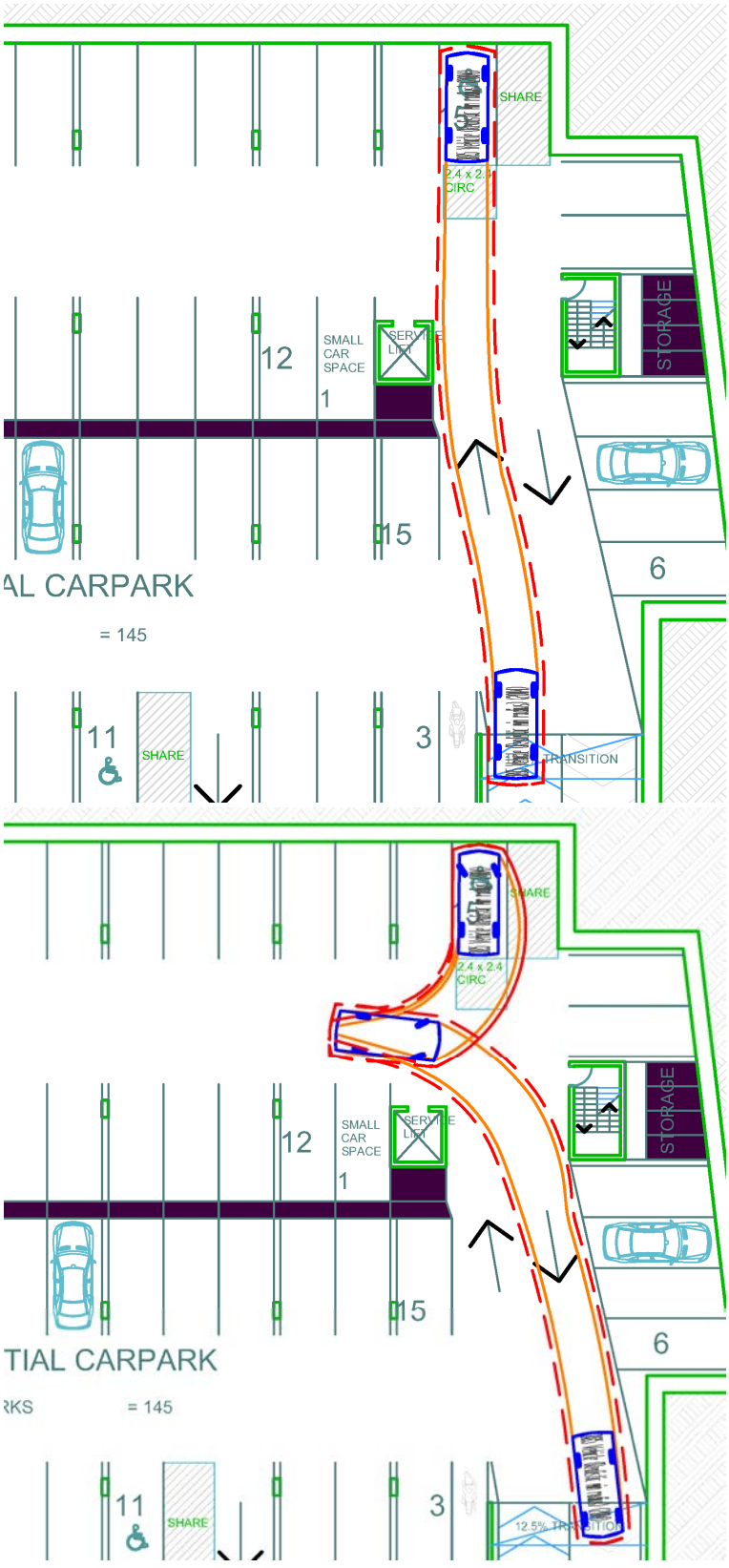
ANNEXURE C: SWEPT PATH TESTING TO PARKING SPACES



B85 ENTRY / EXIT into North-West Parking Space- Basement 1
Tested @ 5km/h
SUCCESSFUL – 1 Manoeuvre FORWARD IN / 2 Manoeuvres REVERSE OUT

Orange – Vehicle body
Red – 300mm clearance

ANNEXURE C: SWEPT PATH TESTING TO PARKING SPACES



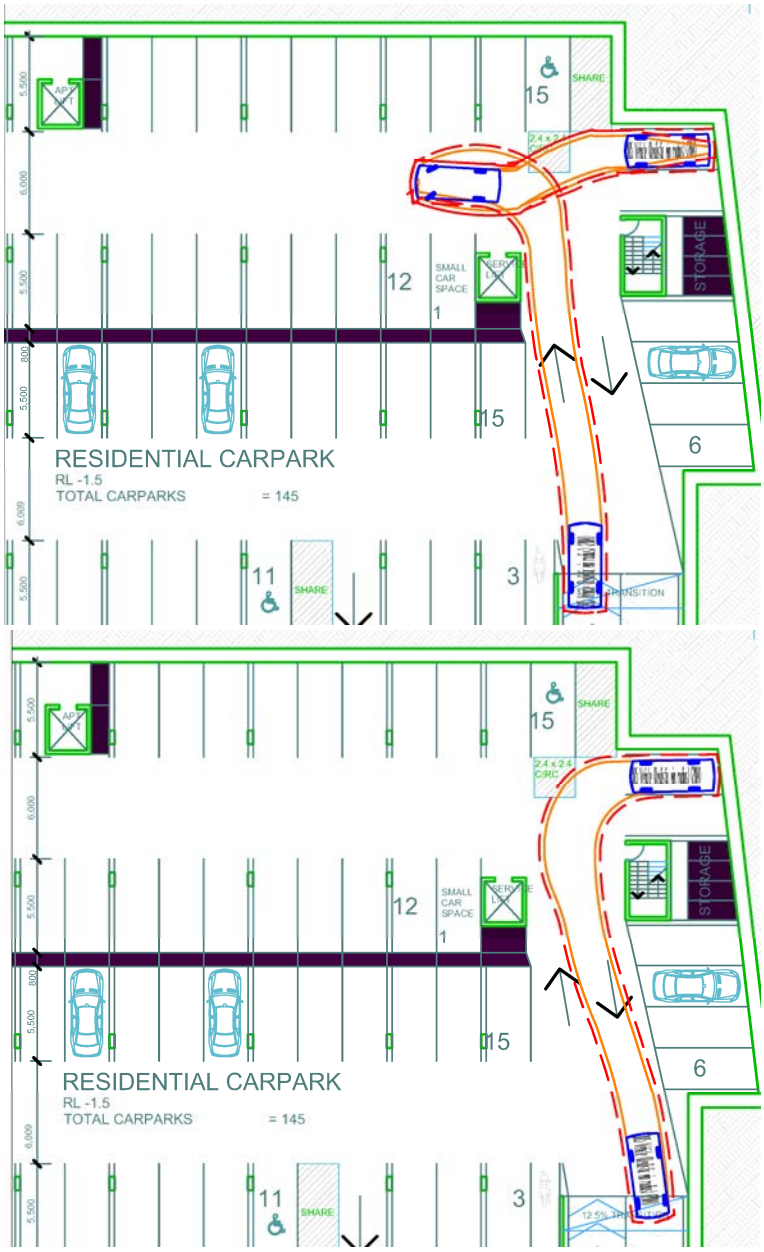
B85 ENTRY / EXIT into North-West Parking Space- Basement 2
Tested @ 5km/h
SUCCESSFUL – 1 Manoeuvre FORWARD IN / 2 Manoeuvres REVERSE OUT

Orange – Vehicle body

Red – 300mm clearance

Annexure C: Swept Path Testing to Parking Spaces

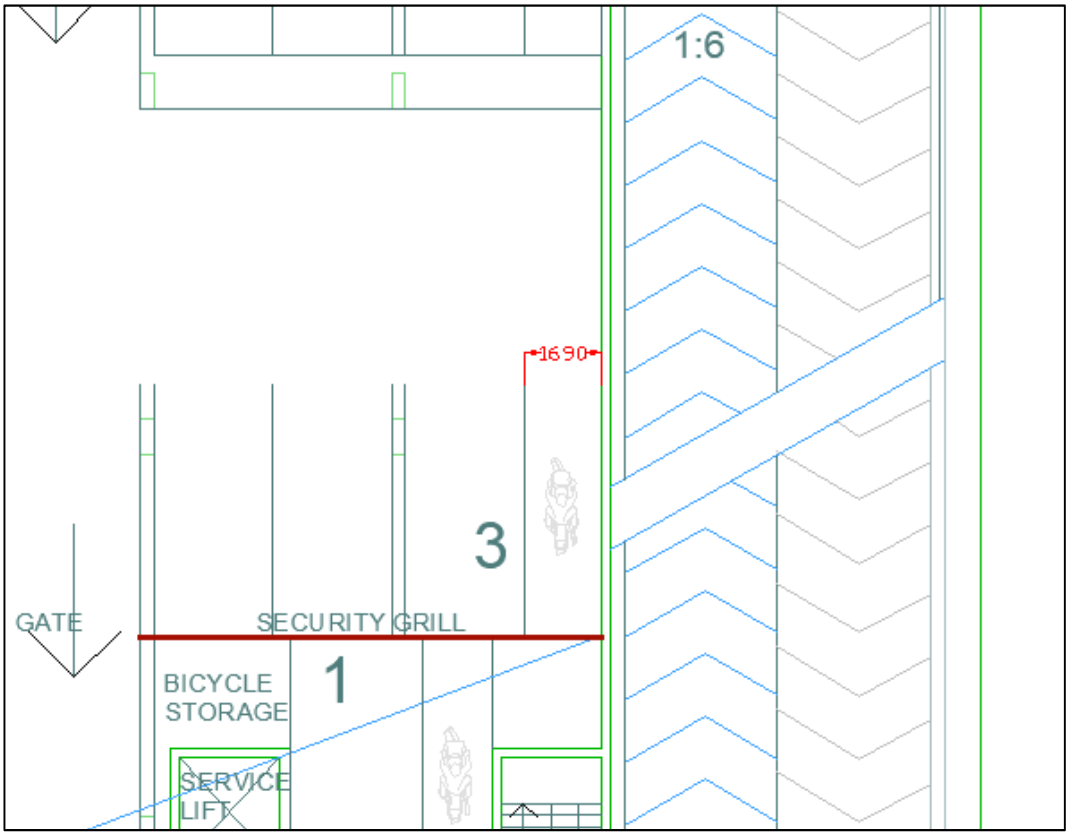
ANNEXURE C: SWEPT PATH TESTING TO PARKING SPACES



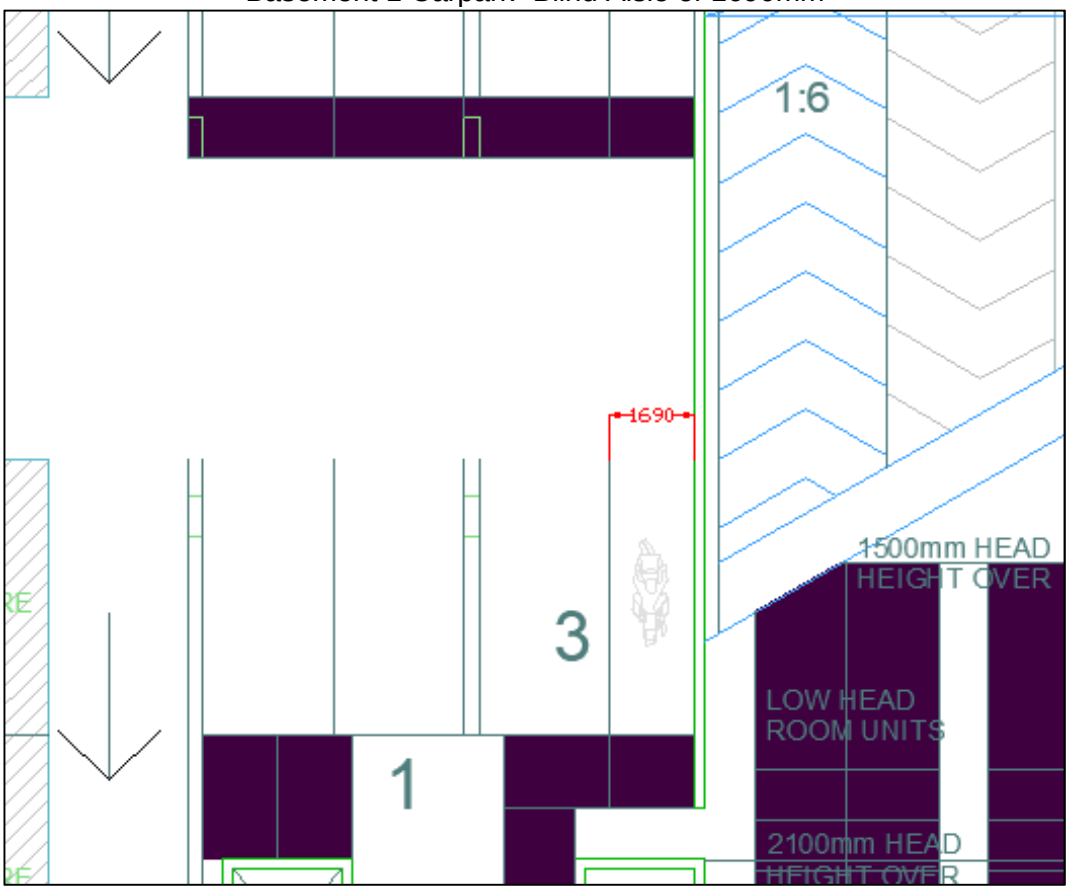
B85 ENTRY / EXIT into North-West Parking Space- Basement 2
Tested @ 5km/h
SUCCESSFUL – 2 Manoeuvres REVERSE IN / 1 Manoeuvre FORWARD OUT

Orange – Vehicle body
Red – 300mm clearance

ANNEXURE D: BLIND AISLE DIMENSIONS



Basement 1 Carpark- Blind Aisle of 1690mm



Basement 2 Carpark- Blind Aisle of 1690mm

ANNEXURE E: SIDRA RESULTS- SUMMARY

Intersection	Peak Hour	Degree of Saturation[1]	Average Delay[2] (sec/veh)	Level of Service[3]	Control Type	Worst Movement	95th Percentile Queue
EXISTING PERFORMANCE							
Arnott Av / Bay St	AM	0.06	1.7 (Worst: 6.1)	**A** (Worst: A)	Give Way	RT from Arnott Avenue	0.2 veh (1.2m) Bay Street
	PM	0.02	1.7 (Worst: 5.7)	**A** (Worst: A)		RT from Arnott Avenue	0.1 veh (0.6m) Bay Street
Cary St / Bay St	AM	0.89	31.1 (Worst: 52.3)	**C** (Worst: D)	Signals	RT from Bay Street	33.2 veh (232.7m) Cary Street
	PM	0.68	14.8 (Worst: 50.9)	**B** (Worst: D)		RT from Bay Street	22.2 veh (155.5m) Cary Street

Intersection	Peak Hour	Degree of Saturation[1]	Average Delay[2] (sec/veh)	Level of Service[3]	Control Type	Worst Movement	95th Percentile Queue
FUTURE PERFORMANCE							
Arnott Av / Bay St	AM	0.09	3.1 (Worst: 5.9)	**A** (Worst: A)	Give Way	RT from Arnott Avenue	0.4 veh (2.8m) Bay Street
	PM	0.10	4.4 (Worst: 6.2)	**A** (Worst: A)		RT from Arnott Avenue	0.5 veh (3.3m) Bay Street
Cary St / Bay St	AM	0.92	36.9 (Worst: 55.7)	**C** (Worst: D)	Signals	RT from Bay Street	40.1 veh (280.8m) Cary Street
	PM	0.88	26.6 (Worst: 52.3)	**B** (Worst: D)		RT from Bay Street	32.6 veh (228.4m) Cary Street

ANNEXURE E: SIDRA RESULTS- SUMMARY

Intersection	Peak Hour	Degree of Saturation[1]	Average Delay[2] (sec/veh)	Level of Service[3]	Control Type	Worst Movement	95th Percentile Queue
EXISTING PERFORMANCE- WITH GROWTH							
Arnott Av / Bay St	AM	0.07	1.8 (Worst: 6.2)	**A** (Worst: A)	Give Way	RT from Arnott Avenue	0.2 veh (1.5m) Bay Street
	PM	0.03	1.7 (Worst: 5.7)	**A** (Worst: A)		RT from Arnott Avenue	0.1 veh (0.7m) Bay Street
Cary St / Bay St	AM	1.07	116.5 (Worst: >70)	**F** (Worst: F)	Signals	RT from Cary Street	92.8 veh (649.4m) Cary Street
	PM	0.94	36.1 (Worst: 54.7)	**C** (Worst: D)		LT from Cary Street	44.7 veh (313.2m) Cary Street

Intersection	Peak Hour	Degree of Saturation[1]	Average Delay[2] (sec/veh)	Level of Service[3]	Control Type	Worst Movement	95th Percentile Queue
FUTURE PERFORMANCE – WITH GROWTH							
Arnott Av / Bay St	AM	0.11	3.2 (Worst: 6.2)	**A** (Worst: A)	Give Way	RT from Arnott Avenue	0.5 veh (3.4m) Bay Street
	PM	0.12	4.4 (Worst: 6.4)	**A** (Worst: A)		RT from Arnott Avenue	0.6 veh (4.1m) Bay Street
Cary St / Bay St	AM	1.13	140.2 (Worst: >70)	**F** (Worst: F)	Signals	RT from Cary Street	119.1 veh (833.9m) Cary Street
	PM	1.10	119 (Worst: >70)	**F** (Worst: F)		RT from Cary Street	93 veh (650.9m) Cary Street

ANNEXURE F: SIDRA OUTPUT REPORTS

Existing

Arnott/ Bay AM

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Arnott Avenue												
1	L2	21	0.0	0.021	5.8	LOS A	0.1	0.5	0.16	0.55	0.16	31.2
3	R2	8	0.0	0.021	6.1	LOS A	0.1	0.5	0.16	0.55	0.16	52.6
Approach		29	0.0	0.021	5.8	LOS A	0.1	0.5	0.16	0.55	0.16	37.2
East: Bay Street												
4	L2	7	0.0	0.044	5.5	LOS A	0.0	0.0	0.00	0.05	0.00	57.9
5	T1	78	0.0	0.044	0.0	LOS A	0.0	0.0	0.00	0.05	0.00	59.2
Approach		85	0.0	0.044	0.5	NA	0.0	0.0	0.00	0.05	0.00	59.1
West: Bay Street												
11	T1	74	0.0	0.057	0.1	LOS A	0.2	1.2	0.11	0.17	0.11	56.9
12	R2	31	0.0	0.057	5.3	LOS A	0.2	1.2	0.11	0.17	0.11	53.5
Approach		105	0.0	0.057	1.6	NA	0.2	1.2	0.11	0.17	0.11	55.9
All Vehicles		219	0.0	0.057	1.7	NA	0.2	1.2	0.08	0.17	0.08	52.9

Arnott/ Bay PM

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Arnott Avenue												
1	L2	7	0.0	0.005	5.6	LOS A	0.0	0.1	0.10	0.54	0.10	31.4
3	R2	1	0.0	0.005	5.7	LOS A	0.0	0.1	0.10	0.54	0.10	52.8
Approach		8	0.0	0.005	5.6	LOS A	0.0	0.1	0.10	0.54	0.10	34.1
East: Bay Street												
4	L2	1	0.0	0.018	5.5	LOS A	0.0	0.0	0.00	0.02	0.00	58.2
5	T1	35	0.0	0.018	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	59.7
Approach		36	0.0	0.018	0.2	NA	0.0	0.0	0.00	0.02	0.00	59.7
West: Bay Street												
11	T1	22	0.0	0.021	0.1	LOS A	0.1	0.6	0.09	0.25	0.09	56.0
12	R2	17	0.0	0.021	5.1	LOS A	0.1	0.6	0.09	0.25	0.09	52.7
Approach		39	0.0	0.021	2.3	NA	0.1	0.6	0.09	0.25	0.09	54.5
All Vehicles		83	0.0	0.021	1.7	NA	0.1	0.6	0.05	0.18	0.05	53.2

ANNEXURE F: SIDRA OUTPUT REPORTS

Cary/ Bay AM

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Arnott Avenue												
1	L2	114	0.0	0.083	5.3	LOS A	0.3	2.4	0.17	0.54	0.17	14.5
3	R2	9	0.0	0.083	5.9	LOS A	0.3	2.4	0.17	0.54	0.17	48.9
Approach		123	0.0	0.083	5.3	LOS A	0.3	2.4	0.17	0.54	0.17	17.1
East: Bay Street												
4	L2	6	0.0	0.043	5.5	LOS A	0.0	0.0	0.00	0.04	0.00	55.3
5	T1	78	0.0	0.043	0.0	LOS A	0.0	0.0	0.00	0.04	0.00	59.3
Approach		84	0.0	0.043	0.4	NA	0.0	0.0	0.00	0.04	0.00	59.0
West: Bay Street												
11	T1	74	0.0	0.089	0.2	LOS A	0.4	2.8	0.17	0.30	0.17	54.9
12	R2	83	0.0	0.089	5.3	LOS A	0.4	2.8	0.17	0.30	0.17	36.9
Approach		157	0.0	0.089	2.9	NA	0.4	2.8	0.17	0.30	0.17	49.1
All Vehicles		364	0.0	0.089	3.1	NA	0.4	2.8	0.13	0.32	0.13	38.0

Cary/Bay PM

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Arnott Avenue												
1	L2	95	0.0	0.064	5.6	LOS A	0.3	1.8	0.10	0.55	0.10	31.4
3	R2	5	0.0	0.064	6.2	LOS A	0.3	1.8	0.10	0.55	0.10	52.8
Approach		100	0.0	0.064	5.7	LOS A	0.3	1.8	0.10	0.55	0.10	32.4
East: Bay Street												
4	L2	5	0.0	0.021	5.5	LOS A	0.0	0.0	0.00	0.07	0.00	57.7
5	T1	35	0.0	0.021	0.0	LOS A	0.0	0.0	0.00	0.07	0.00	58.8
Approach		40	0.0	0.021	0.7	NA	0.0	0.0	0.00	0.07	0.00	58.6
West: Bay Street												
11	T1	22	0.0	0.097	0.1	LOS A	0.5	3.3	0.12	0.49	0.12	52.8
12	R2	148	0.0	0.097	5.1	LOS A	0.5	3.3	0.12	0.49	0.12	49.9
Approach		170	0.0	0.097	4.5	NA	0.5	3.3	0.12	0.49	0.12	50.2
All Vehicles		310	0.0	0.097	4.4	NA	0.5	3.3	0.10	0.45	0.10	43.3

ANNEXURE F: SIDRA OUTPUT REPORTS

Future

Arnott/ Bay AM

Movement Performance - Vehicles													
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Cary Street												
2	T1	1157	0.0	0.870	19.2	LOS B	33.2	232.7	0.68	0.74	0.89	45.2
3	R2	180	0.0	0.870	37.3	LOS C	33.2	232.7	0.96	1.10	1.34	30.0
Approach		1337	0.0	0.870	21.6	LOS B	33.2	232.7	0.72	0.79	0.95	43.4
East: Bay Street												
4	L2	160	0.0	0.187	22.0	LOS B	4.6	31.9	0.63	0.73	0.63	36.0
6	R2	105	0.0	0.514	52.3	LOS D	5.1	35.4	0.99	0.78	0.99	23.7
Approach		265	0.0	0.514	34.0	LOS C	5.1	35.4	0.77	0.75	0.77	29.9
North: Cary Street												
7	L2	62	0.0	0.890	46.1	LOS D	32.0	223.7	0.91	1.00	1.15	19.5
8	T1	1165	0.0	0.890	40.5	LOS C	32.0	223.8	0.91	1.00	1.15	35.9
Approach		1227	0.0	0.890	40.8	LOS C	32.0	223.8	0.91	1.00	1.15	35.0
All Vehicles		2829	0.0	0.890	31.1	LOS C	33.2	232.7	0.81	0.88	1.02	38.2

Arnott/ Bay PM

Movement Performance - Vehicles													
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Cary Street												
2	T1	833	0.0	0.680	9.9	LOS A	19.8	138.7	0.58	0.52	0.58	51.1
3	R2	106	0.0	0.680	21.6	LOS B	19.8	138.7	0.83	0.76	0.83	38.5
Approach		939	0.0	0.680	11.2	LOS A	19.8	138.7	0.61	0.55	0.61	50.0
East: Bay Street												
4	L2	106	0.0	0.197	33.9	LOS C	3.9	27.3	0.79	0.75	0.79	30.0
6	R2	61	0.0	0.299	50.9	LOS D	2.8	19.9	0.96	0.75	0.96	24.1
Approach		167	0.0	0.299	40.1	LOS C	3.9	27.3	0.85	0.75	0.85	27.5
North: Cary Street												
7	L2	28	0.0	0.619	19.6	LOS B	22.2	155.2	0.70	0.64	0.70	25.8
8	T1	1396	0.0	0.619	14.1	LOS A	22.2	155.5	0.70	0.64	0.70	48.6
Approach		1424	0.0	0.619	14.2	LOS A	22.2	155.5	0.70	0.64	0.70	48.1
All Vehicles		2530	0.0	0.680	14.8	LOS B	22.2	155.5	0.68	0.61	0.68	47.4

ANNEXURE F: SIDRA OUTPUT REPORTS

Cary/ Bay AM

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Cary Street												
2	T1	1157	0.0	0.918	26.1	LOS B	40.1	280.8	0.69	0.80	0.99	41.6
3	R2	206	0.0	0.918	51.8	LOS D	40.1	280.8	1.00	1.25	1.57	24.8
Approach		1363	0.0	0.918	30.0	LOS C	40.1	280.8	0.74	0.87	1.07	39.1
East: Bay Street												
4	L2	207	0.0	0.248	23.2	LOS B	6.2	43.4	0.66	0.75	0.66	35.3
6	R2	151	0.0	0.739	55.7	LOS D	7.7	54.1	1.00	0.86	1.16	22.8
Approach		358	0.0	0.739	36.9	LOS C	7.7	54.1	0.80	0.80	0.87	28.7
North: Cary Street												
7	L2	88	0.0	0.907	49.6	LOS D	34.1	239.0	0.91	1.03	1.19	18.9
8	T1	1165	0.0	0.907	44.0	LOS D	34.2	239.2	0.91	1.03	1.19	34.7
Approach		1253	0.0	0.907	44.4	LOS D	34.2	239.2	0.91	1.03	1.19	33.5
All Vehicles		2974	0.0	0.918	36.9	LOS C	40.1	280.8	0.82	0.93	1.10	35.5

Cary/Bay PM

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Cary Street												
2	T1	833	0.0	0.823	16.2	LOS B	23.9	167.4	0.60	0.62	0.74	46.9
3	R2	172	0.0	0.823	39.9	LOS C	23.9	167.4	0.99	1.08	1.34	28.7
Approach		1005	0.0	0.823	20.3	LOS B	23.9	167.4	0.67	0.70	0.85	43.9
East: Bay Street												
4	L2	150	0.0	0.252	32.1	LOS C	5.4	37.9	0.78	0.76	0.78	30.8
6	R2	105	0.0	0.514	52.3	LOS D	5.1	35.4	0.99	0.78	0.99	23.7
Approach		255	0.0	0.514	40.4	LOS C	5.4	37.9	0.87	0.77	0.87	27.4
North: Cary Street												
7	L2	93	0.0	0.875	33.7	LOS C	32.4	226.7	0.77	0.83	0.93	22.0
8	T1	1396	0.0	0.875	28.1	LOS B	32.6	228.4	0.77	0.83	0.93	40.9
Approach		1489	0.0	0.875	28.4	LOS B	32.6	228.4	0.77	0.83	0.93	39.6
All Vehicles		2749	0.0	0.875	26.6	LOS B	32.6	228.4	0.74	0.77	0.89	40.0

ANNEXURE F: SIDRA OUTPUT REPORTS

Existing Growth

Arnott/ Bay AM

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Arnott Avenue												
1	L2	25	0.0	0.026	5.8	LOS A	0.1	0.7	0.18	0.55	0.18	31.2
3	R2	10	0.0	0.026	6.2	LOS A	0.1	0.7	0.18	0.55	0.18	52.6
Approach		35	0.0	0.026	5.9	LOS A	0.1	0.7	0.18	0.55	0.18	37.2
East: Bay Street												
4	L2	8	0.0	0.053	5.5	LOS A	0.0	0.0	0.00	0.05	0.00	57.9
5	T1	94	0.0	0.053	0.0	LOS A	0.0	0.0	0.00	0.05	0.00	59.2
Approach		102	0.0	0.053	0.5	NA	0.0	0.0	0.00	0.05	0.00	59.0
West: Bay Street												
11	T1	89	0.0	0.069	0.1	LOS A	0.2	1.5	0.13	0.17	0.13	56.8
12	R2	37	0.0	0.069	5.3	LOS A	0.2	1.5	0.13	0.17	0.13	53.4
Approach		126	0.0	0.069	1.7	NA	0.2	1.5	0.13	0.17	0.13	55.8
All Vehicles		263	0.0	0.069	1.8	NA	0.2	1.5	0.09	0.17	0.09	52.9

Arnott/ Bay PM

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Arnott Avenue												
1	L2	8	0.0	0.006	5.6	LOS A	0.0	0.2	0.11	0.54	0.11	31.3
3	R2	1	0.0	0.006	5.7	LOS A	0.0	0.2	0.11	0.54	0.11	52.8
Approach		10	0.0	0.006	5.7	LOS A	0.0	0.2	0.11	0.54	0.11	34.0
East: Bay Street												
4	L2	1	0.0	0.022	5.5	LOS A	0.0	0.0	0.00	0.02	0.00	58.2
5	T1	42	0.0	0.022	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	59.7
Approach		43	0.0	0.022	0.2	NA	0.0	0.0	0.00	0.02	0.00	59.7
West: Bay Street												
11	T1	26	0.0	0.026	0.1	LOS A	0.1	0.7	0.10	0.25	0.10	56.0
12	R2	20	0.0	0.026	5.1	LOS A	0.1	0.7	0.10	0.25	0.10	52.7
Approach		47	0.0	0.026	2.3	NA	0.1	0.7	0.10	0.25	0.10	54.5
All Vehicles		100	0.0	0.026	1.7	NA	0.1	0.7	0.06	0.18	0.06	53.2

ANNEXURE F: SIDRA OUTPUT REPORTS

Cary/ Bay AM

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Cary Street												
2	T1	1273	0.0	1.071	90.7	LOS F [11]	92.8	649.4	0.69	1.08	1.53	22.1
3	R2	180	0.0	1.071	181.4	LOS F [11]	92.8	649.4	1.00	1.80	2.66	8.8
Approach		1453	0.0	1.071	102.0	LOS F [11]	92.8	649.4	0.73	1.17	1.67	19.8
East: Bay Street												
4	L2	160	0.0	0.191	22.7	LOS B	4.6	32.5	0.64	0.73	0.64	35.6
6	R2	105	0.0	0.471	51.0	LOS D [11]	5.0	34.8	0.98	0.78	0.98	24.0
Approach		265	0.0	0.471	33.9	LOS C	5.0	34.8	0.77	0.75	0.77	29.9
North: Cary Street												
7	L2	62	0.0	1.034	153.9	LOS F [11]	73.2	512.5	1.00	1.86	2.27	9.8
8	T1	1282	0.0	1.034	148.3	LOS F [11]	73.4	513.5	1.00	1.87	2.27	17.3
Approach		1344	0.0	1.034	148.6	LOS F [11]	73.4	513.5	1.00	1.87	2.27	17.0
All Vehicles		3061	0.0	1.071	116.5	LOS F [11]	92.8	649.4	0.85	1.44	1.86	18.7

Cary/ Bay PM

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Cary Street												
2	T1	916	0.0	0.775	13.8	LOS A	24.4	170.6	0.64	0.61	0.69	48.5
3	R2	106	0.0	0.775	29.2	LOS C	24.4	170.6	0.94	0.92	1.04	33.9
Approach		1022	0.0	0.775	15.4	LOS B	24.4	170.6	0.67	0.64	0.72	47.3
East: Bay Street												
4	L2	106	0.0	0.190	33.0	LOS C	3.8	26.9	0.78	0.75	0.78	30.4
6	R2	61	0.0	0.274	49.7	LOS D [11]	2.8	19.6	0.95	0.75	0.95	24.4
Approach		167	0.0	0.274	39.1	LOS C	3.8	26.9	0.84	0.75	0.84	27.9
North: Cary Street												
7	L2	28	0.0	0.940	54.7	LOS D [11]	44.7	312.9	0.76	1.00	1.15	18.1
8	T1	1536	0.0	0.940	49.1	LOS D [11]	44.7	313.2	0.76	1.00	1.14	33.2
Approach		1564	0.0	0.940	49.2	LOS D [11]	44.7	313.2	0.76	1.00	1.14	32.9
All Vehicles		2753	0.0	0.940	36.1	LOS C	44.7	313.2	0.73	0.85	0.97	36.8

ANNEXURE F: SIDRA OUTPUT REPORTS

Future Growth

Arnott/ Bay AM

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Arnott Avenue												
1	L2	137	0.0	0.101	5.4	LOS A	0.4	2.9	0.19	0.55	0.19	14.5
3	R2	11	0.0	0.101	6.2	LOS A	0.4	2.9	0.19	0.55	0.19	48.8
Approach		148	0.0	0.101	5.4	LOS A	0.4	2.9	0.19	0.55	0.19	17.0
East: Bay Street												
4	L2	7	0.0	0.052	5.5	LOS A	0.0	0.0	0.00	0.04	0.00	55.3
5	T1	94	0.0	0.052	0.0	LOS A	0.0	0.0	0.00	0.04	0.00	59.3
Approach		101	0.0	0.052	0.4	NA	0.0	0.0	0.00	0.04	0.00	59.0
West: Bay Street												
11	T1	89	0.0	0.107	0.2	LOS A	0.5	3.4	0.19	0.30	0.19	54.8
12	R2	100	0.0	0.107	5.3	LOS A	0.5	3.4	0.19	0.30	0.19	36.7
Approach		188	0.0	0.107	2.9	NA	0.5	3.4	0.19	0.30	0.19	49.0
All Vehicles		437	0.0	0.107	3.2	NA	0.5	3.4	0.15	0.32	0.15	38.0

Arnott/ Bay PM

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Arnott Avenue												
1	L2	114	0.0	0.078	5.7	LOS A	0.3	2.2	0.11	0.55	0.11	31.3
3	R2	6	0.0	0.078	6.4	LOS A	0.3	2.2	0.11	0.55	0.11	52.8
Approach		120	0.0	0.078	5.7	LOS A	0.3	2.2	0.11	0.55	0.11	32.4
East: Bay Street												
4	L2	6	0.0	0.025	5.5	LOS A	0.0	0.0	0.00	0.07	0.00	57.7
5	T1	42	0.0	0.025	0.0	LOS A	0.0	0.0	0.00	0.07	0.00	58.8
Approach		48	0.0	0.025	0.7	NA	0.0	0.0	0.00	0.07	0.00	58.6
West: Bay Street												
11	T1	26	0.0	0.117	0.1	LOS A	0.6	4.1	0.14	0.49	0.14	52.8
12	R2	178	0.0	0.117	5.2	LOS A	0.6	4.1	0.14	0.49	0.14	49.8
Approach		204	0.0	0.117	4.5	NA	0.6	4.1	0.14	0.49	0.14	50.2
All Vehicles		372	0.0	0.117	4.4	NA	0.6	4.1	0.11	0.45	0.11	43.3

ANNEXURE F: SIDRA OUTPUT REPORTS

Cary/ Bay AM

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Cary Street												
2	T1	1273	0.0	1.129	131.0	LOS F [11]	119.1	833.9	0.68	1.21	1.83	17.7
3	R2	206	0.0	1.129	275.5	LOS F [11]	119.1	833.9	1.00	2.15	3.41	6.3
Approach		1479	0.0	1.129	151.2	LOS F [11]	119.1	833.9	0.73	1.34	2.05	15.3
East: Bay Street												
4	L2	207	0.0	0.253	23.9	LOS B	6.3	44.2	0.67	0.75	0.67	34.9
6	R2	151	0.0	0.678	53.4	LOS D [11]	7.5	52.5	1.00	0.83	1.08	23.4
Approach		358	0.0	0.678	36.3	LOS C	7.5	52.5	0.81	0.79	0.84	28.9
North: Cary Street												
7	L2	88	0.0	1.039	160.8	LOS F [11]	76.7	536.7	1.00	1.89	2.33	9.5
8	T1	1282	0.0	1.039	155.2	LOS F [11]	76.9	538.2	1.00	1.91	2.33	16.8
Approach		1370	0.0	1.039	155.5	LOS F [11]	76.9	538.2	1.00	1.91	2.33	16.3
All Vehicles		3206	0.0	1.129	140.2	LOS F [11]	119.1	833.9	0.85	1.52	2.03	16.3

Cary/ Bay PM

Movement Performance - Vehicles

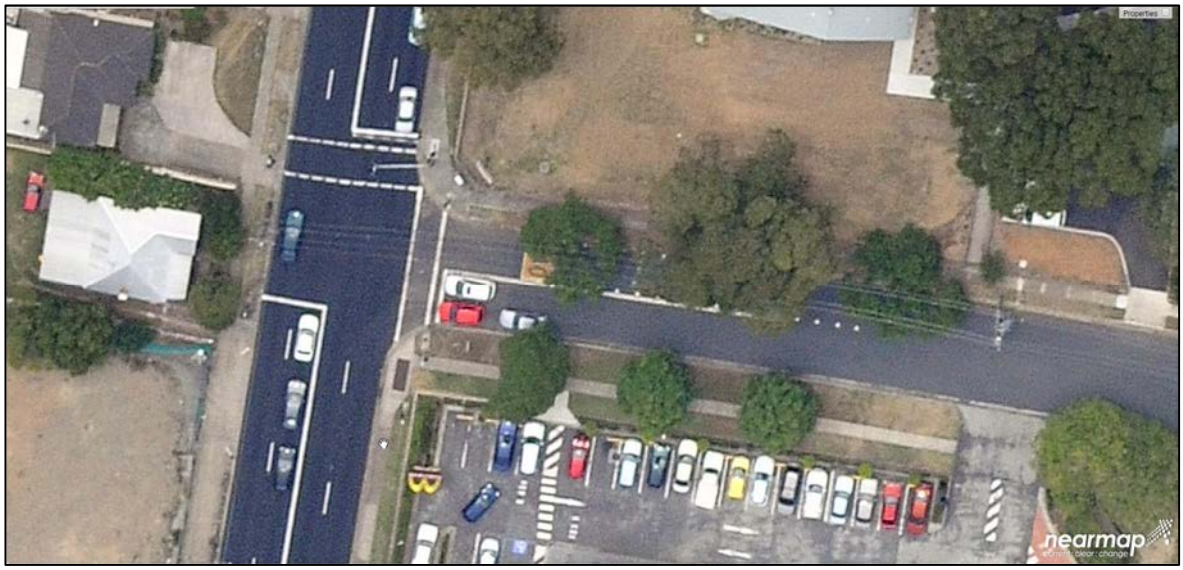
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Cary Street												
2	T1	916	0.0	1.096	66.0	LOS E [11]	57.6	403.5	0.57	0.75	1.19	26.6
3	R2	172	0.0	1.096	219.0	LOS F [11]	57.6	403.5	1.00	1.71	3.12	7.4
Approach		1088	0.0	1.096	90.2	LOS F [11]	57.6	403.5	0.64	0.90	1.49	21.2
East: Bay Street												
4	L2	150	0.0	0.261	33.0	LOS C	5.5	38.5	0.79	0.77	0.79	30.4
6	R2	105	0.0	0.471	51.0	LOS D [11]	5.0	34.8	0.98	0.78	0.98	24.0
Approach		255	0.0	0.471	40.4	LOS C	5.5	38.5	0.87	0.77	0.87	27.4
North: Cary Street												
7	L2	93	0.0	1.037	155.9	LOS F [11]	92.7	649.1	1.00	1.85	2.26	9.7
8	T1	1536	0.0	1.037	150.3	LOS F [11]	93.0	650.9	1.00	1.88	2.26	17.2
Approach		1629	0.0	1.037	150.6	LOS F [11]	93.0	650.9	1.00	1.88	2.26	16.8
All Vehicles		2972	0.0	1.096	119.0	LOS F [11]	93.0	650.9	0.86	1.43	1.86	18.6

ANNEXURE G: IMAGES OF SIGNALISED INTERSECTION FUNCTIONALITY

STREET VIEW – TWO DETECTORS IN BAY STREET EVIDENT

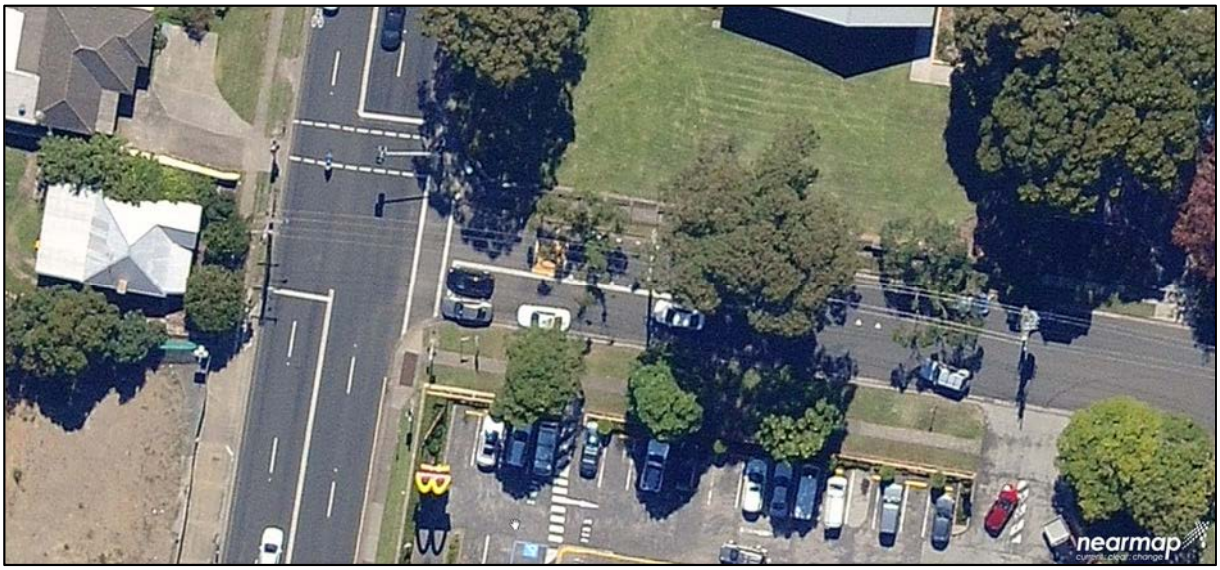
AERIAL ON 4 MAY 2016

ANNEXURE G: IMAGES OF SIGNALISED INTERSECTION FUNCTIONALITY



AERIAL ON 11 FEBRUARY 2011

AERIAL ON 18 JUNE 2011



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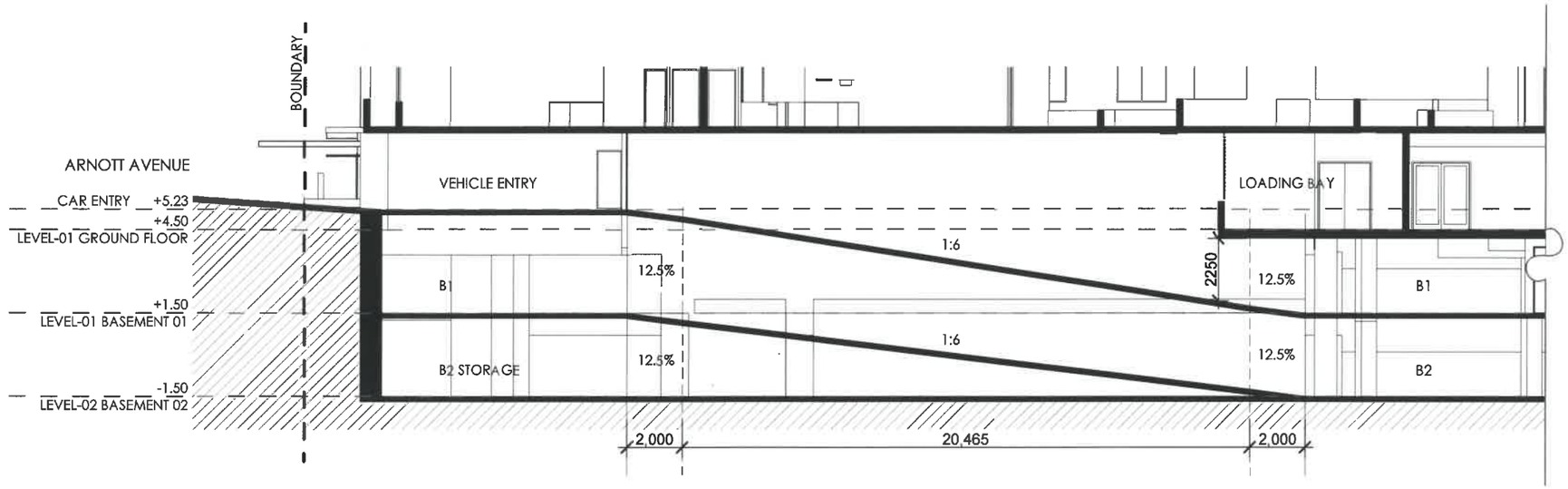

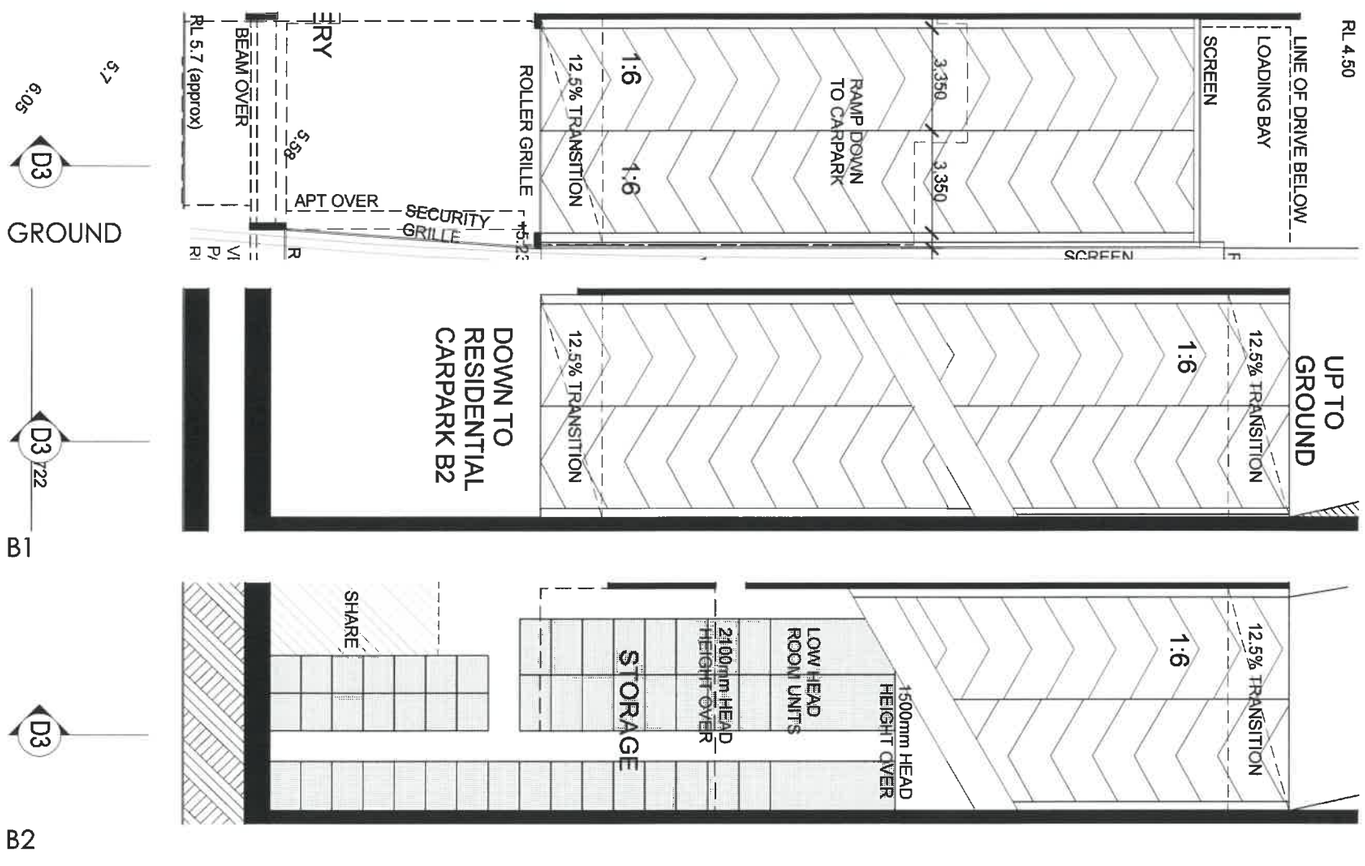

10.a.i

DEVELOPMENT APPLICATION

Mark Lawler Architects©

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DIRECTOR: STEPHEN COON
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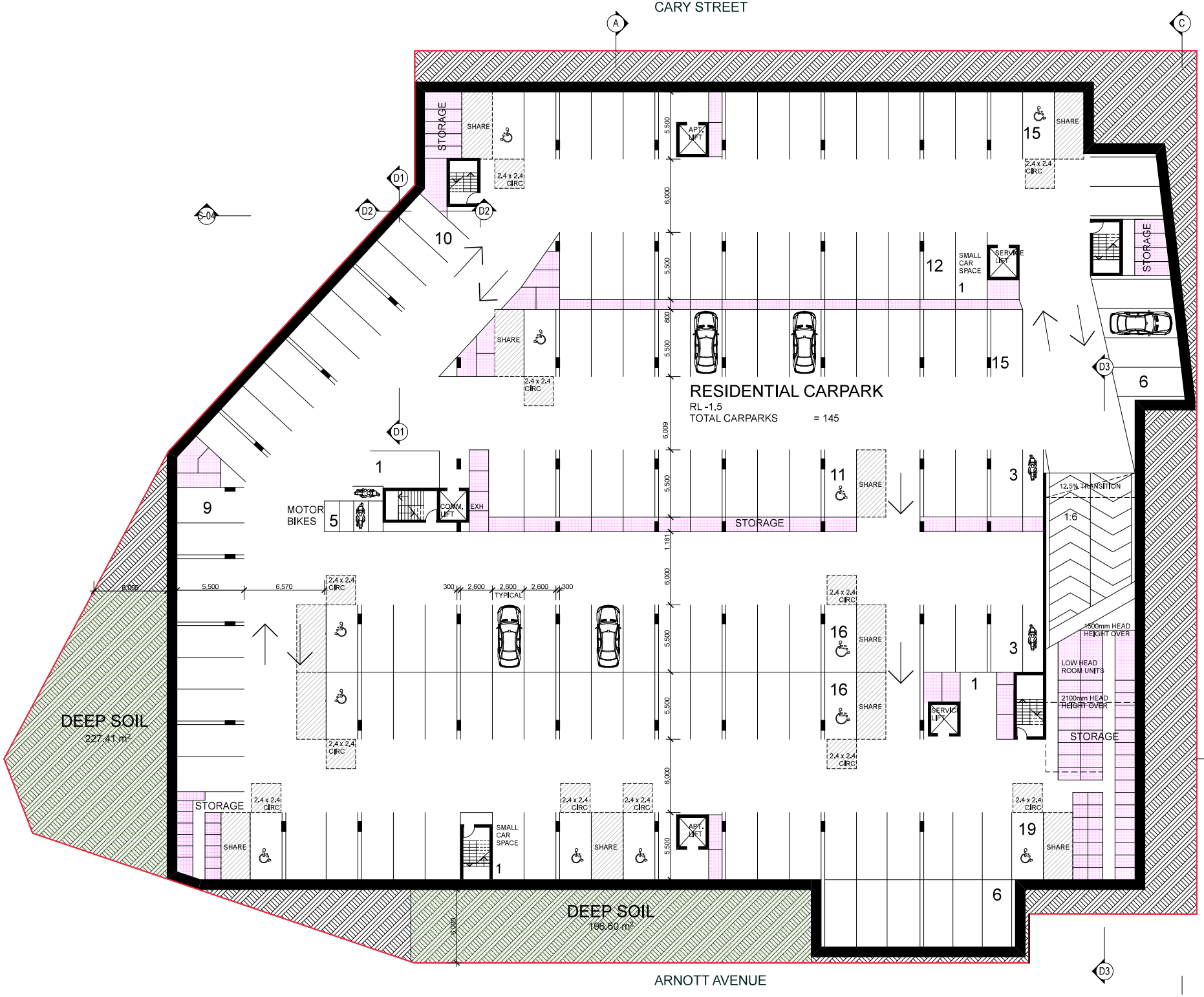
W: marklawlerarchitects.com.au

PROJECT:	TORONTO MIXED USE	**LOCATION:**	118 CARY STREET TORONTO
CLIENT:	TORONTO INVESTMENTS NO.1 PTY LTD		
DRAWING:	3-05 SECTION THROUGH DRIVEWAY RAMPS	**DWG No:**	1588 DD - 3-05
SCALE:	1:200 @A3	**ISSUE:**	D
DATE:	14/06/2018	**DRAWN**	SC & ML & CG



LEGEND

- A104 105 m² — 3 BED APARTMENT (APARTMENT NO. / AREA)
- A104 105 m² — 2 BED APARTMENT (APARTMENT NO. / AREA)
- A104 105 m² — 1BED APARTMENT (APARTMENT NO. / AREA)
- RESIDENT STORAGE
- PUBLIC DOMAIN WORKS

APT	APARTMENT
BDY	BOUNDARY
EGL	EXISTING GROUND LEVEL
EX	EXISTING
EXH	EXHAUST
FHR	FIRE HOSE REEL
PP	POWER POLE
RL	REDUCED LEVEL

D09015860

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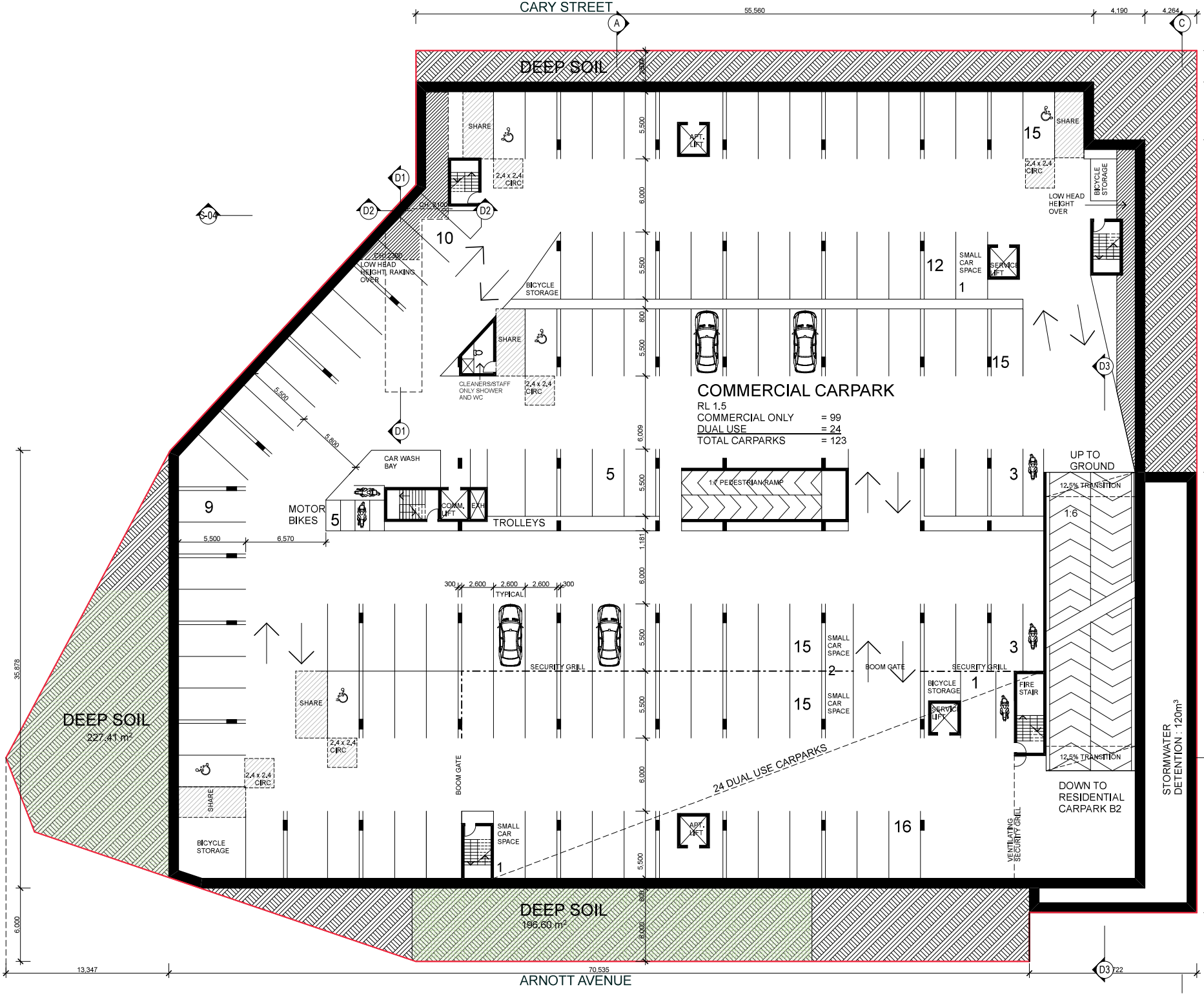
0m 1m 2m 5m 10m

PROJECT:	TORONTO MIXED USE
CLIENT:	TORONTO INVESTMENTS NO.1 PTY LTD
LOCATION:	118 CARY STREET TORONTO
DRAWING:	BASEMENT 2 PLAN | -02
SCALE:	1:200 @ A2
DATE:	18/07/2018
DWG No:	1588 DD - 1-02
ISSUE:	D
DRAWN	SC & ML & CG



LEGEND

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- A104 105 m² — 2 BED APARTMENT (APARTMENT NO. / AREA)
- A104 105 m² — 1BED APARTMENT (APARTMENT NO. / AREA)
- PUBLIC DOMAIN WORKS

APT	APARTMENT
BDY	BOUNDARY
EGL	EXISTING GROUND LEVEL
EX	EXISTING
EXH	EXHAUST
FHR	FIRE HOSE REEL
PP	POWER POLE
RL	REDUCED LEVEL

D09015860

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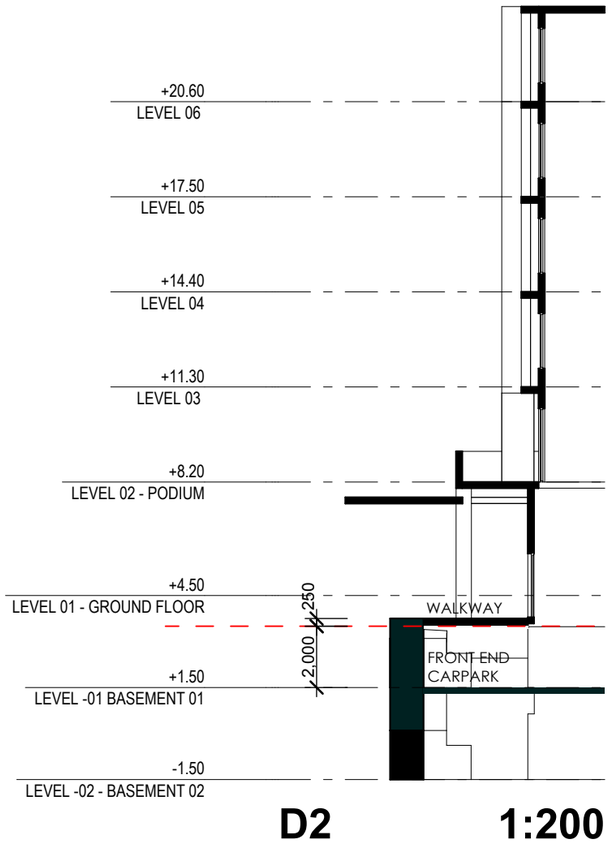
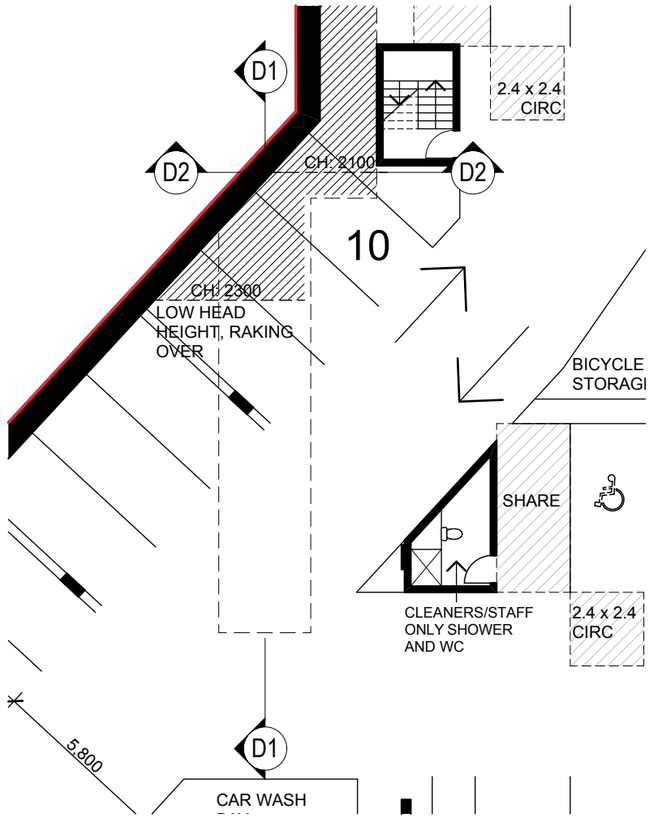
0m 1m 2m 5m 10m

PROJECT:	TORONTO MIXED USE
CLIENT:	TORONTO INVESTMENTS NO.1 PTY LTD
LOCATION:	118 CARY STREET TORONTO
DRAWING:	**BASEMENT 1 PLAN	-01**
SCALE:	1:200 @ A2
DATE:	18/07/2018
DWG No:	1588 DD - 1-03
ISSUE:	D
DRAWN	SC & ML & CG



D2 1:200

D1 1:200



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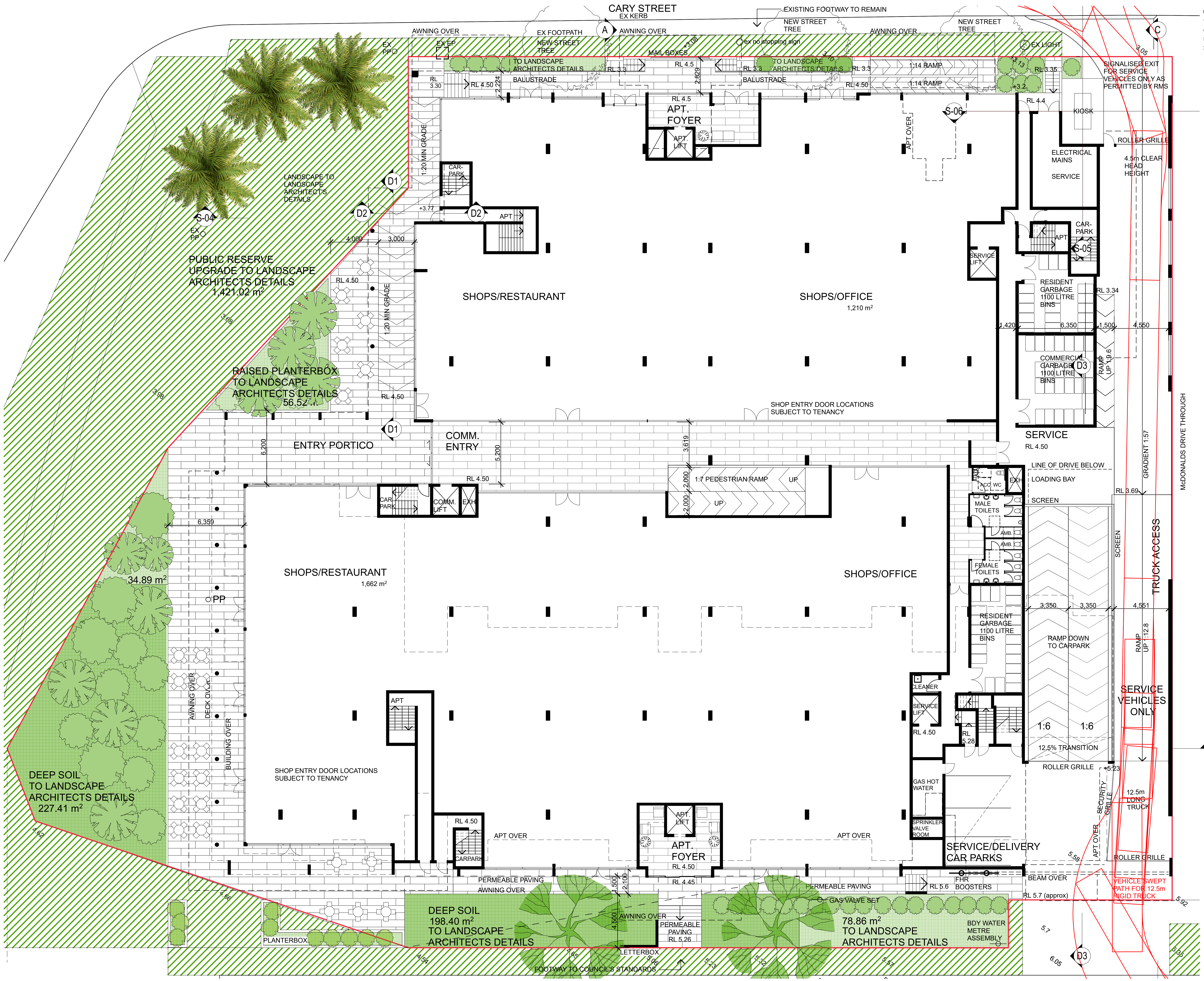
PROJECT:	TORONTO MIXED USE	**LOCATION:**	118 CARY STREET TORONTO
CLIENT:	TORONTO INVESTMENTS NO.1 PTY LTD		
DRAWING:	SECTIONS LOW HEAD ROOM	**DWG No:**	1588 DD - 3-04
SCALE:	1:200 @A3	**ISSUE:**	D
DATE:	12/06/2018	**DRAWN**	SC & ML & CG


CARY STREET
EX KERB
EXISTING FOOTWAY TO REMAIN
NEW STREET TREE
AWNING OVER
EX FOOTPATH
EX EP
EX PP
MAIL BOXES
ex no stopping sign
TO LANDSCAPE ARCHITECTS DETAILS
BALUSTRADE
1:14 RAMP
EX LIGHT
SIGNALISED EXIT FOR SERVICE VEHICLES ONLY AS PERMITTED BY RMS
KIOSK
ROLLER GRILLE
4.5m CLEAR HEAD HEIGHT
ELECTRICAL MAINS
SERVICE
APT. FOYER
APT. LIFT
APT OVER
CAR-PARK
APT
1:20 MIN GRADE
LANDSCAPE TO LANDSCAPE ARCHITECT'S DETAILS
PUBLIC RESERVE UPGRADE TO LANDSCAPE ARCHITECTS DETAILS 1,421.02 m²
RAISED PLANTERBOX TO LANDSCAPE ARCHITECTS DETAILS 56.52 m²
SHOPS/RESTAURANT
SHOPS/OFFICE
1,210 m²
SHOP ENTRY DOOR LOCATIONS SUBJECT TO TENANCY
ENTRY PORTICO
COMM. ENTRY
COMM. LIFT
EXH
1:7 PEDESTRIAN RAMP
UP
SERVICE LIFT
RESIDENT GARBAGE 1100 LITRE BINS
COMMERCIAL GARBAGE 1100 LITRE BINS
RAMP UP 1:9.6
SERVICE
RL 4.50
LINE OF DRIVE BELOW
LOADING BAY
SCREEN
ACC. WC
MALE TOILETS
AMB.
FEMALE TOILETS
GRADIENT 1:57
McDONALDS DRIVE THROUGH
TRUCK ACCESS
RAMP DOWN TO CARPARK
RAMP UP 1:12.8
SERVICE VEHICLES ONLY
1:6
12.5% TRANSITION
12.5m LONG TRUCK
SECURITY GRILLE
CLEANER
GAS HOT WATER
SPRINKLER VALVE ROOM
SERVICE/DELIVERY CAR PARKS
BEAM OVER
FHR BOOSTERS
RL 5.7 (approx)
VEHICLE SWEPT PATH FOR 12.5m RIGID TRUCK
SHOPS/RESTAURANT
1,662 m²
34.89 m²
PP
AWNING OVER
DECK OVER
BUILDING OVER
DEEP SOIL TO LANDSCAPE ARCHITECTS DETAILS 227.41 m²
PLANTERBOX
CARPARK
PERMEABLE PAVING
DEEP SOIL 198.40 m² TO LANDSCAPE ARCHITECTS DETAILS
PERMEABLE PAVING RL 5.26
LETTERBOX
FOOTWAY TO COUNCIL'S STANDARDS
GAS VALVE SET
78.86 m² TO LANDSCAPE ARCHITECTS DETAILS
BDY WATER METRE ASSEMBLY

WORK TO FIGURED DIMENSIONS. DO NOT SCALE DRAWINGS. CHECK ALL DIMENSIONS ON SITE PRIOR TO CONSTRUCTION. DRAWINGS TO BE READ IN CONJUNCTION WITH SPECIFICATIONS AND SERVICES CONSULTANTS DRAWINGS.

LEGEND

A104 105 m²	3 BED APARTMENT APARTMENT NO. AREA
A104 105 m²	2 BED APARTMENT APARTMENT NO. AREA
A104 105 m²	1BED APARTMENT APARTMENT NO. AREA
	PUBLIC DOMAIN WORKS

APT	APARTMENT
BDY	BOUNDARY
EGL	EXISTING GROUND LEVEL
EX	EXISTING
EXH	EXHAUST
FHR	FIRE HOSE REEL
PP	POWER POLE
RL	REDUCED LEVEL

D09015860

DEVELOPMENT APPLICATION

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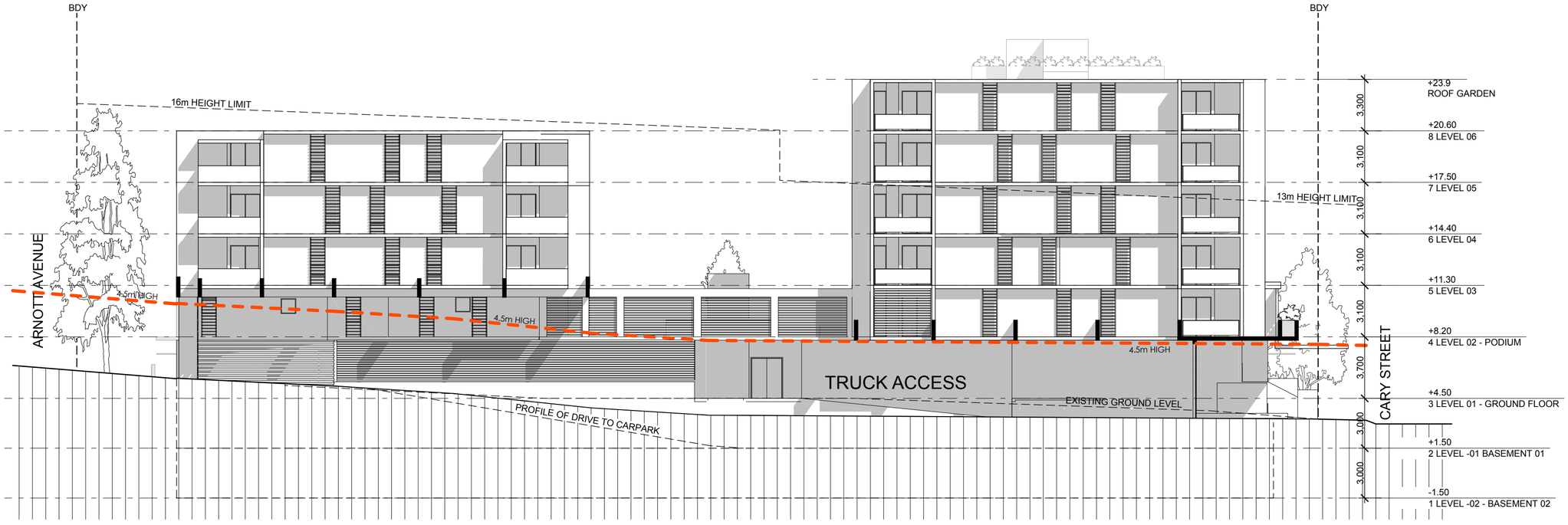
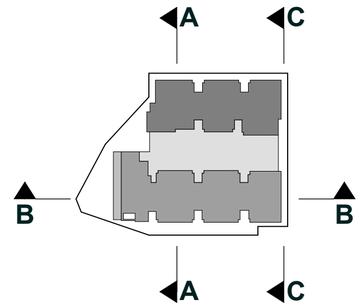
0m 2m 10m
1m 5m

PROJECT:	TORONTO MIXED USE
CLIENT:	TORONTO INVESTMENTS NO.1 PTY LTD
LOCATION:	118 CARY STREET TORONTO
DRAWING:	**GROUND PLAN - LEVEL 01**
SCALE:	1:200 @ A2
DATE:	2/08/2018
DWG No:	1588 DD - 1-04
ISSUE:	D
DRAWN	SC & ML & CG



Section C **1:200**



KEY PLAN

DEVELOPMENT APPLICATION

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PROJECT:	TORONTO MIXED USE
CLIENT:	TORONTO INVESTMENTS NO.1 PTY LTD
LOCATION:	118 CARY STREET TORONTO
DRAWING:	**SECTION**
SCALE:	1:200 @ A2
DATE:	12/06/2018
DWG No:	1588 DD - 3-02
ISSUE:	D
DRAWN	SC & ML & CG

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PHOTO TAKEN 12/07/18 ARNOTT AVE

D09015860

D09015860

PHOTO TAKEN 12/07/18 SHOWING LARGE TELSTRA TELECOMMUNICATION PIT LOCATED ON THE CORNER OF BAY STREET & ARNOTT AVENUE

SITE WASTE MINIMISATION AND MANAGEMENT

MIXED USE DEVELOPMENT INCLUDING RESIDENTIAL FLAT BUILDING AND GROUND FLOOR COMMERCIAL

114-120 CARY STREET, TORONTO, 1, 2 & 5 BATH STREET, TORONTO and 10-12 BAY STREET, TORONTO

Prepared for Submission to:
LAKE MACQUARIE COUNCIL

Prepared by:

de Witt Consulting
planning surveying
project management

ABN 23 104 067 405

7 Canberra Street
PO Box 850 Charlestown NSW 2290
P 02 4942 5441
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E admin@dewittconsulting.com.au

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August 2018

Introduction

This Waste Management Plan has been prepared in support of a development application (DA) seeking consent for a Mixed Use Development at Cary Street, Bath Street and Bay Street, Toronto.

Demolition/Excavation

The site is generally vacant with limited vegetation. However should material be required to be demolished or removed the following will apply.

All demolition materials will be progressively removed from the site as they are demolished to avoid double handling and on-site storage problems. Any sorting or processing of dismantled material will be carried out off site, at a site established by the demolition sub-contractor.

It is relevant to note that all demolition/dismantling will be carried out in accordance with AS 2601-2001, The Demolition of Structures and by the required licenced contractors. All dismantling will occur within the confines of the existing site however, any potential runoff during storing of materials within the site will be confined to the site. Furthermore, the relevant services will be disconnected during demolition/dismantling where required. All of this works will be associated with the proposed service station and provide the necessary connections to the new service station. The type of waste generated will be that associated with the demolition such as electrical cables, hand rails, paint and flooring removal and the like. Quantities of such material are unclear at this time; this will be considered through more detailed investigation once a contractor has been engaged and at construction design phase.

Where possible demolition waste from existing structures on the site will be separated by materials. This will allow reuse and recycling opportunities to be identified by material type and appropriately managed as part of the process. In this regard the following general strategies are proposed to give effect to waste minimisation:

- brick work or concrete will be broken up and reused or taken to a recycling facility where it can be processed for re-use
- internal infrastructure of facilities, if still suitable will be retained.
- useable timber will, to the extent possible, be separated from the general waste and made available for recycling opportunities off site
- fibrous cement sheeting, lagging, or any other material that may contain asbestos, will be inspected and if found to be contaminated it will be removed by a licensed contractor to landfill in accordance with the relevant guidelines and controls.

Any waste collected during the dismantling will be disposed of offsite to the appropriate waste management facility and or recycled where possible.

It should be noted that as a contractor has not been appointed, a quantity assessment has not been completed, nor detail of final destinations confirmed.

During Construction

When the relevant building contractor is appointed they will be required to prepare a Construction Management Plan which will include various operational components of construction, but also relate to Waste Minimisation and Management. In order to reduce waste and also costs only appropriate levels and amounts of materials will be obtained. Should oversupply occur and where the appropriate discussions between parties has occurred, materials may be returned or utilised on alternative sites to ensure waste is minimised.

Throughout construction, waste will be carefully managed to ensure impacts on the adjoining drainage area is minimal. This will include being located (where possible) away from such areas where impacts on adjoining residents might be adverse from dust etc. The exact location will be determined through the construction phase.

Waste Strategy - Ongoing

Ongoing waste will be managed by occupants of each proposed unit at a central waste collection area. Collection will occur on site via the truck service lane and loading area along the northern edge of the site. All accesses from bin storage rooms to the loading area are minimum 1.6 metres wide. The loading area is 6 x 7 metre area with a 1.5 metre wide ramp to the truck lane. These dimensions accommodate the 1240 x 1070mm 1100L bins. As shown in Appendix 15 the ground floor includes space for resident waste in the form of resident and commercial 1,100 litre bin storage area. Waste will be managed by a private contractor once the building is occupied.

Ongoing waste management will be managed by the occupants and Strata group. The private waste contractor will facilitate effective and ongoing waste management.

Conclusion

Toronto Investments No.1 Pty Ltd and the design team have considered demolition and construction activities and operation of the site. Furthermore, the design has been responsive to the natural and built environment. The relevant contractors have not yet been appointed for construction purposes nor has the detailed design documentation required to accurately establishing waste levels during construction.

Access Solutions NSW Pty Ltd
disability access consultants

ACA AUSTRALIA Accredited Member

12th July 2018

Stephen Coon
Mark Lawler Architects
35 Smith Street
Charlestown
NSW 2290

Dear Stephen

You have asked me to write a letter to amend what I have stated regarding use of service lifts in my Disability Access Report for Toronto mixed development at 118 Cary Street, Toronto, NSW, 2283, dated 28th November 2017.

On page 4 under the heading 'Lifts' I have stated that "... two service lifts are provided for staff only...". This is incorrect as service lifts are also intended for the use of residents to transport their garbage from the unit to the garbage collection room on the ground floor.

Yours sincerely

Bill Casey
Disability Access Consultant

Master Disability Studies (dist)

ACAA ACCREDITED MEMBER Bill Casey: 9

☎ 1300 328 002
Sydney – GPO Box 1353, Sydney, NSW 2001 **Newcastle** – PO Box 282 Hamilton, NSW 2300
@ admin@accesssoltions.com.au accesssolutions.com.au

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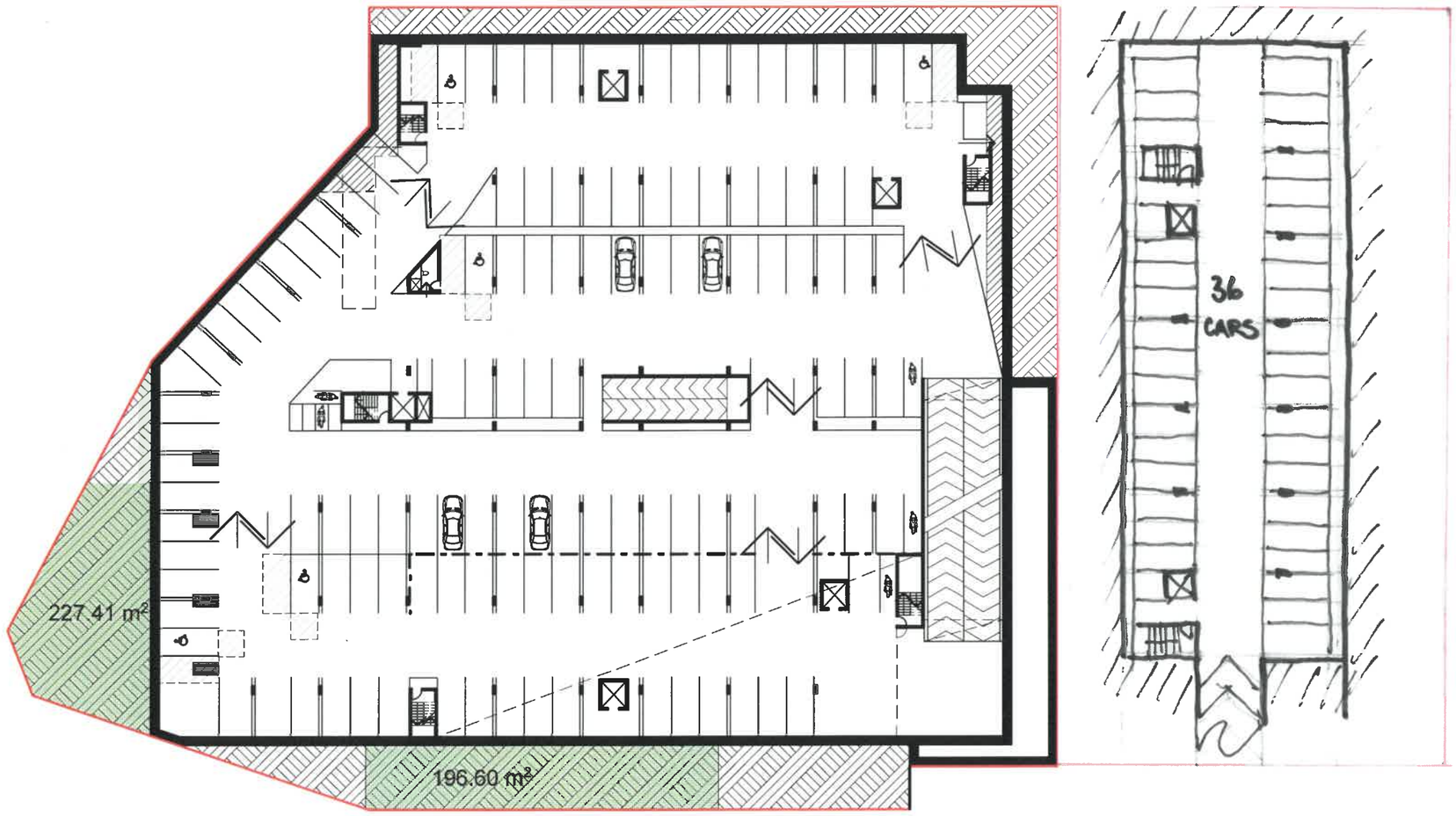

McDONALDS SITE DEVELOPMENT POTENTIAL

Mark Lawler Architects©

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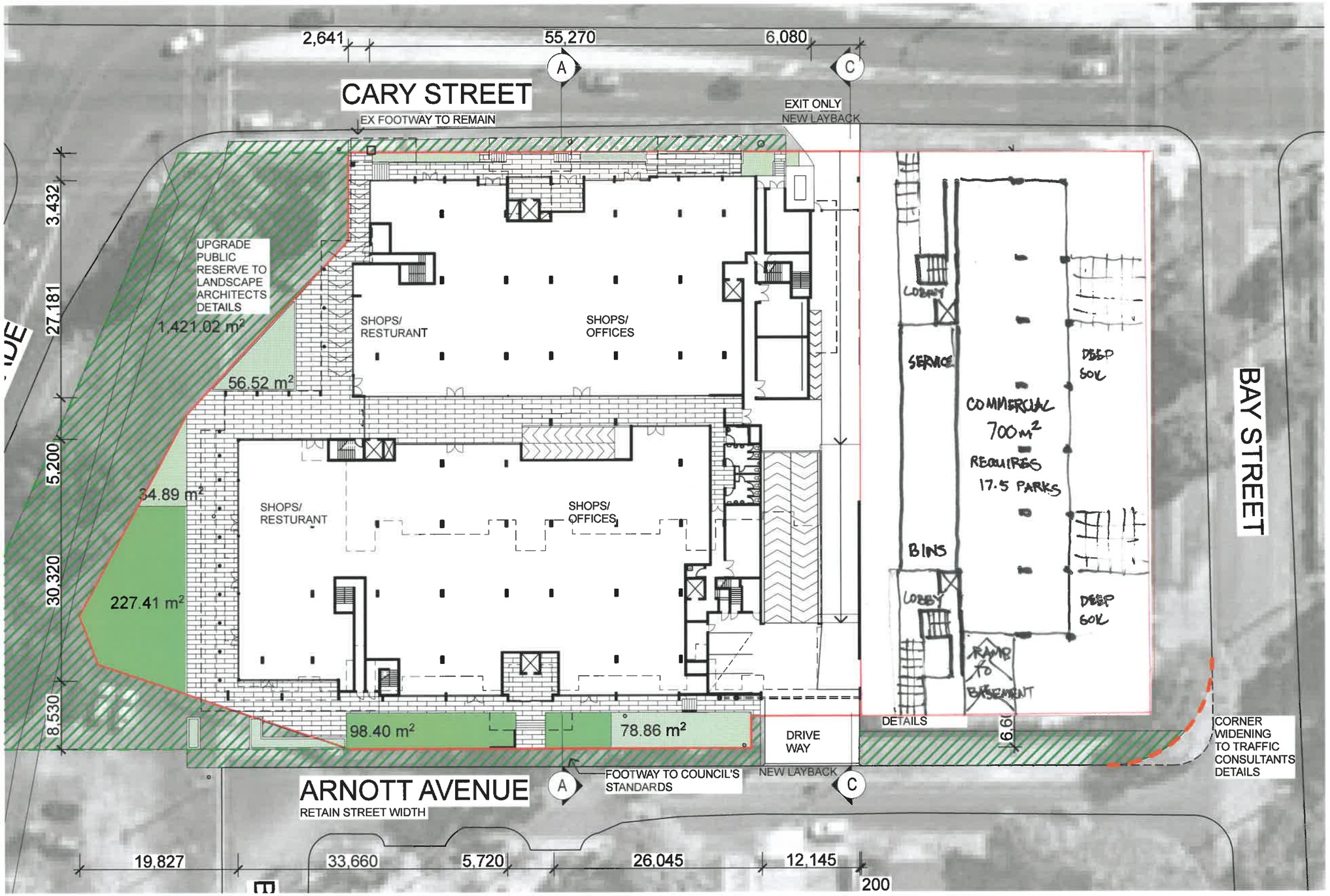
PROJECT:	TORONTO MIXED USE	**LOCATION:**	118 CARY STREET TORONTO
CLIENT:	TORONTO INVESTMENTS NO.1 PTY LTD		
DRAWING:	McDONALDS BASEMENT	**DWG No:**	1588 DD - 1-19
SCALE:	1:500 @A3	**ISSUE:**	D
DATE:	18/07/2018	**DRAWN**	SC & ML & CG



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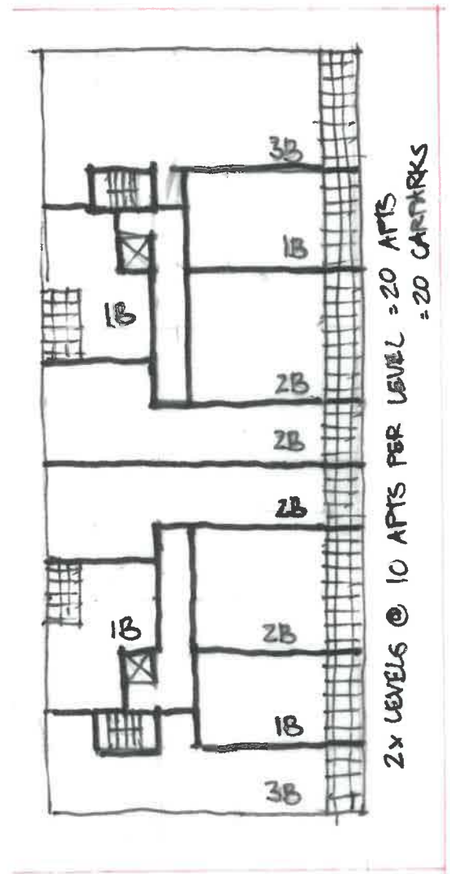
W: marklawlerarchitects.com.au

PROJECT:	TORONTO MIXED USE	**LOCATION:**	118 CARY STREET TORONTO
CLIENT:	TORONTO INVESTMENTS NO.1 PTY LTD		
DRAWING:	McDONALDS LEVEL 01	**DWG No:**	1588 DD - 1-20
SCALE:	1:500, 1:1 @A3	**ISSUE:**	D
DATE:	18/07/2018	**DRAWN**	SC & ML & CG

Redacted



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McDONALDS SITE DEVELOPMENT POTENTIAL

Mark Lawler Architects©

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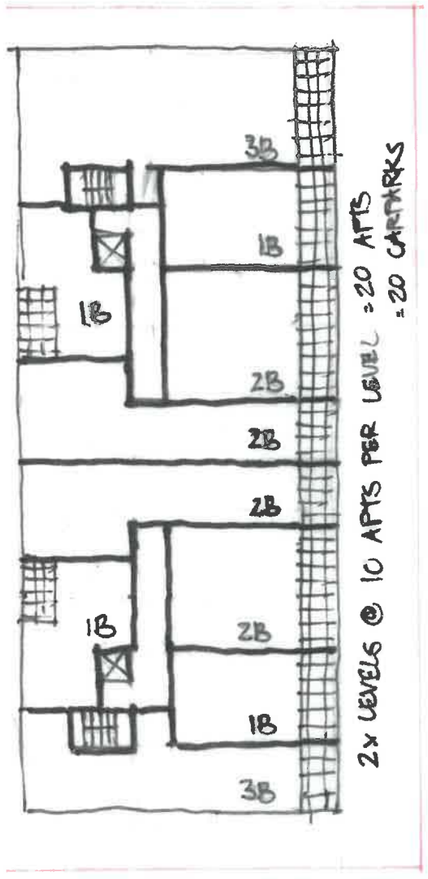
PROJECT:	TORONTO MIXED USE	**LOCATION:**	118 CARY STREET TORONTO
CLIENT:	TORONTO INVESTMENTS NO.1 PTY LTD		
DRAWING:	McDONALDS LEVEL 02	**DWG No:**	1588 DD - 1-21
SCALE:	1:1, 1:500 @A3	**ISSUE:**	D
DATE:	18/07/2018	**DRAWN**	SC & ML & CG

Redacted



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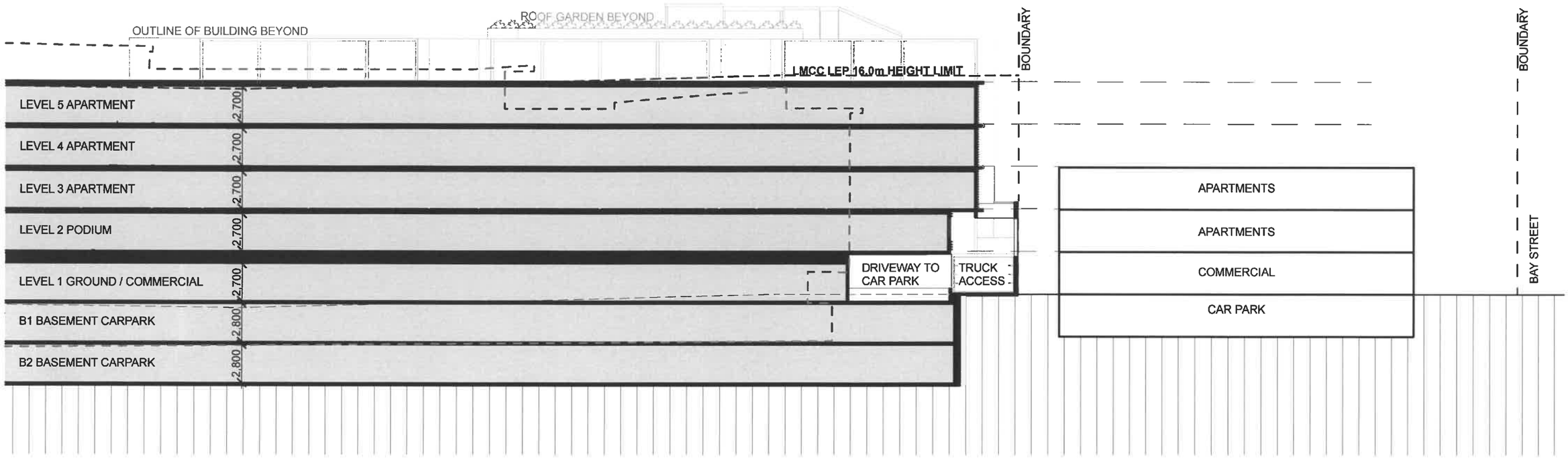
PROJECT:	TORONTO MIXED USE	**LOCATION:**	118 CARY STREET TORONTO
CLIENT:	TORONTO INVESTMENTS NO.1 PTY LTD		
DRAWING:	McDONALDS LEVEL 03	**DWG No:**	1588 DD - 1-22
SCALE:	1:1, 1:500 @A3	**ISSUE:**	D
DATE:	18/07/2018	**DRAWN**	SC & ML & CG



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PROJECT:	TORONTO MIXED USE	**LOCATION:**	118 CARY STREET TORONTO
CLIENT:	TORONTO INVESTMENTS NO.1 PTY LTD		
DRAWING:	McDONALDS SECTION	**DWG No:**	1588 DD - 1-23
SCALE:	1:300 @A3	**ISSUE:**	D
DATE:	18/07/2018	**DRAWN**	SC & ML & CG