ORDINARY COUNCIL MEETING

ATTACHMENTS BOOKLET

Part 2 - Item 9.3 - Attachments 12-19

Under Separate Cover

Tuesday, 6 December 2022

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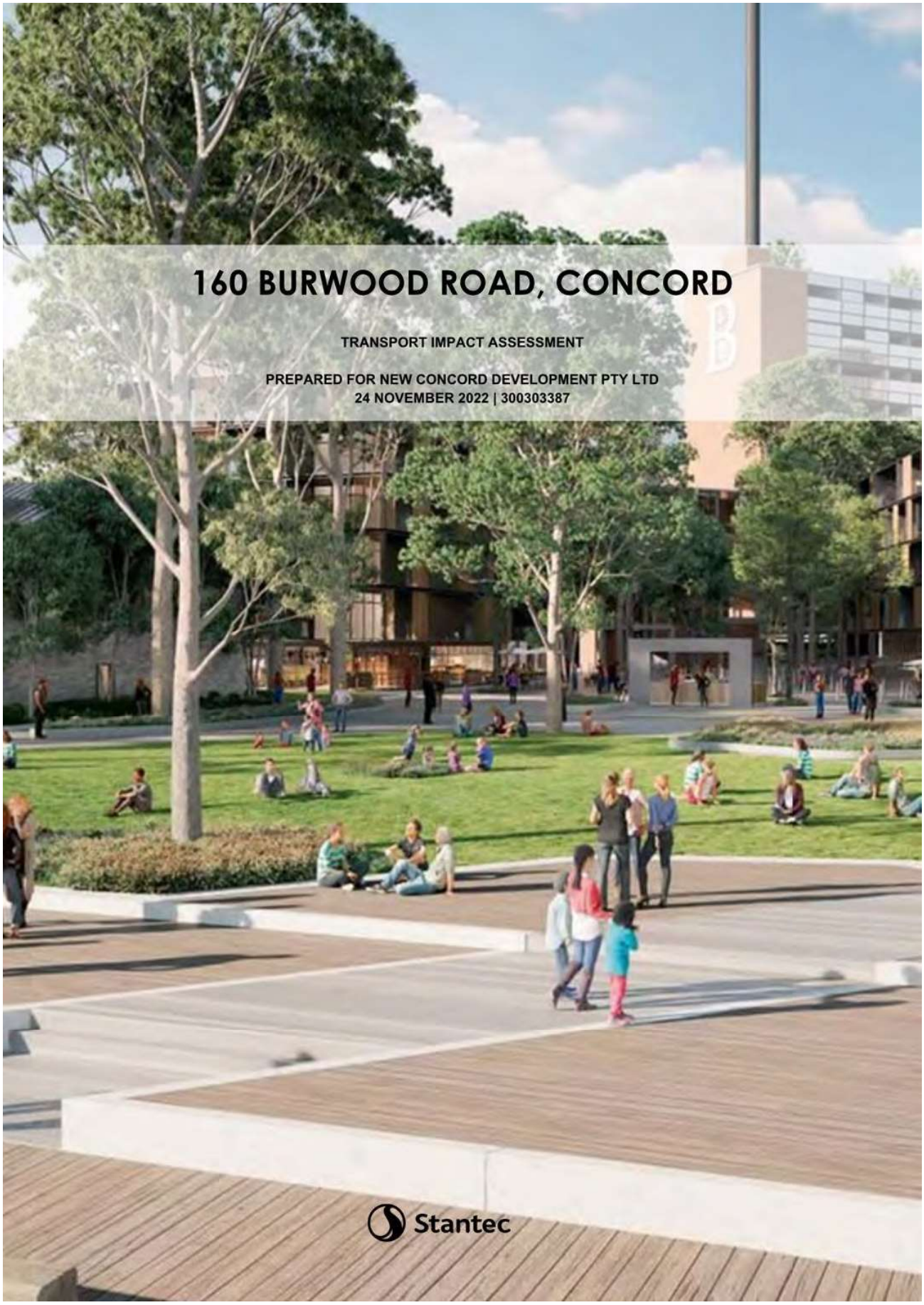
160 BURWOOD ROAD, CONCORD
TRANSPORT IMPACT ASSESSMENT
PREPARED FOR NEW CONCORD DEVELOPMENT PTY LTD
24 NOVEMBER 2022 | 300303387
Stantec

160 Burwood Road, Concord

Revision	Date	Description	Author	Quality Check	Approver
A	29/04/2022	Final	Mackenzie Brinums	Brett Maynard	Brett Maynard
B	04/11/2022	Updated to address Council and TfNSW comments	Mackenzie Brinums	Rhys Hazell	Brett Maynard
C	10/11/2022	Updated to address additional Council comments	Mackenzie Brinums	Rhys Hazell	Brett Maynard
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Project Number: 300303387

160 Burwood Road, Concord

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Project Number: 300303387

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Executive Summary

A planning proposal has been lodged with City of Canada Bay Council for a mixed-use redevelopment of the Bushells factory site located at 160 Burwood Road in Concord.

The planning proposal seeks to facilitate the urban renewal of the subject site from an industrial site into a mixed-use, riverside village offering a mix of land uses that are complimentary to the existing surrounding residential area. It provides approximately 400 new dwellings (including 10 per cent as affordable housing), comprising a mix of shop top housing and residential flat buildings up to six storeys and terrace housing up to three storeys. A maximum 7,000 square metres of retail/ commercial uses will be provided (including a 1,000-square-metre small-format supermarket), together with a minimum 3,000 square metres of light industry/ urban services uses that will be primarily located in the Bushells Factory building, which is proposed for heritage listing and adaptive re-use. The 10,000 square metres of non-residential uses will create approximately 281 new jobs. The proposed uses will be supported by 5,900 square metres of new public open space, including a new plaza and foreshore park to Exile Bay, and publicly accessible internal streets including a vehicular connection between Burwood Road and Zoeller Street.

It should be noted that the evolution and assessment of the proposal itself has occurred over several years and has incorporated feedback from several of the transport stakeholders including Council and Transport for NSW. During the course of design development and Council consultation for the project, Stantec has formally assessed a range of yield options from 360-680 apartments and 4,000 to 8,000 square metres of non-residential uses, in addition to community facilities. Accordingly, this transport impact assessment has been updated to reflect the current scheme as approved by the City of Canada Bay Local Planning Panel to proceed to public exhibition.

The strategic value of the site is a unique large waterfront landholding offering transport accessibility from both the water and a direct road connection (Burwood Road) to the arterial road network (Parramatta Road). While the site is not located within the various centres and precincts that have been identified, it is in a high residential amenity location and a comprehensive transport strategy has been identified including:

- Easy access to existing bus services (Route 466 in particular adjacent to the site providing connection between Cabarita and Burwood at up to five services per hour, which operates between Ashfield and Cabarita Park via Burwood Road).
- On-site car share pod with a minimum of 10 car share vehicles up completion of the full redevelopment.
- Fleet of e-bikes (or best available technology at the time) for fast and easy connection to local destinations including the future Metro West station.
- Travel demand management for existing and future local residents through the provision of new on-site facilities and services as part of the proposal.
- Integrated walking and cycling links within the public domain and open space, improving local walking and cycling connectivity.

- Series of minor and realistic road network improvement measures to address both existing and future traffic conditions.

A peer review of the proposal completed by Jacobs concluded that current regular route bus services along Burwood Road should be sufficient to meet the demands of the site.

Staging of the development is expected to align with surrounding public infrastructure projects such as Sydney Metro West, considering the required timeframe for the rezoning itself, concept master plan approval, staged development applications and construction.

Detailed traffic analysis (using recent 2022 survey data as agreed with Council) at a suitable level of detail for the Planning Proposal stage has been prepared noting that there will be ongoing changes in local and regional traffic patterns in the coming years due to significant public infrastructure works including WestConnex, Parramatta Road Urban Transformation Corridor and Sydney Metro West.

Specifically, it is noted that:

- Conservatively high residential trip generation rates have been used to ensure appropriate sensitivity testing of the surrounding road network. Retail traffic generation rates are based on Stantec's experience with local retail in a mixed-use development environment, noting that a major supermarket would not be provided (something that is an anchor characteristic of local/ smaller shopping centres that exhibit higher traffic generation rates).
- Reduced car travel throughout the day/ week can be expected from the surrounding existing local area for convenience retail and food/ beverage related trips as a result of the proposed commercial/ retail uses, which will benefit the broader area.
- To address select local traffic constraints, a series of improvement opportunities have been identified which can all be accommodated within the existing road alignments. The modifications are also limited to the loss of some existing on-street parking and only during peak periods.
- With the potential mitigation measures identified, the assessed key intersections surrounding the site are expected to continue operating satisfactorily.
- A green travel plan should be implemented for the proposed development, consistent with current best practice, in order to reduce road network peak period wherever possible.

The TIA recommends that car parking for the future land uses be provided in accordance with the requirements of the City of Canada Bay DCP, while noting that there may be an opportunity to share (part of) the residential visitor parking provision with the retail parking, as well as reducing the overall visitor parking provision to be more consistent with typical high-density developments. On-street parking restrictions (resident parking scheme and/or short-term parking to be developed with Council at the DA stage) are proposed to manage the potential demand for all-day parking, noting that short-term use of on-street parking along the site frontage is appropriate and consistent with local area traffic management principles. There is no reason to expect a detrimental impact on local resident parking on this basis, noting that most local residents have off-street parking for more than one vehicle.

160 Burwood Road, Concord

In summary, the proposal has the potential to make a positive contribution to the surrounding area by way of a new retail precinct, with cafes, restaurants and cultural spaces. Appropriate traffic solutions are available to manage future background traffic growth along with the proposal.

1 Introduction

1.1 Background and Proposal

It is understood that a Planning Proposal has been lodged with City of Canada Bay Council to amend the current planning controls for the current Bushells factory site located at 160 Burwood Road in Concord. The Proposal seeks to amend the planning controls in the Canada Bay Local Environment Plan 2013 from IN1 (Industrial) to B4 (Residential – Mixed Use) as delineated in the Canada Bay Local Environmental Plan 2013. In rezoning the site, the proposal seeks to increase the permissible height limit and introduce a site-specific floor-space ratio.

An indicative development yield for the site comprises some 384 residential apartments set above 6,747 square metres gross floor area (GFA) of lower level non-residential land uses.

Stantec was engaged by New Concord Development Pty Ltd to undertake a transport impact assessment for the proposed development. This transport impact assessment has been updated from the Planning Proposal submission to reflect the scheme as approved by the City of Canada Bay Local Planning Panel to proceed to public exhibition.

1.2 Purpose of this Report

This report sets out an assessment of the anticipated transport implications of the proposed development, including consideration of the following:

- existing traffic and parking conditions surrounding the site
- suitability of the proposed parking in terms of supply (quantum) and layout
- service vehicle requirements
- pedestrian and bicycle requirements
- the traffic generating characteristics of the proposed development
- suitability of the proposed access arrangements for the site
- the transport impacts of the development proposal on the surrounding road network.

1.3 References

In preparation of this assessment and report references have been made to the following:

- an inspection of the site and its surrounds
- traffic surveys completed in October 2022 as referenced in the context of this report
- Canada Bay Local Environmental Plan (LEP) 2013
- The City of Canada Bay Development Control Plan (DCP) 2020
- Transport for NSW Guide to Traffic Generating Developments 2002
- other documents and data as referenced in this report.

2 Strategic Context

2.1 Overview

The following key strategies and plans have influenced development opportunities in local and regional area, together with real effects on future travel demand and mode splits.

A trigger for significant change in the inner west is the implementation of WestConnex and Sydney Metro West. WestConnex assists in reducing demand and improving travel times for vehicles along Parramatta Road and other east-west roads near the site, while Sydney Metro West will improve travel time, reliability and reduce costs compared a range of other travel modes and reinforce the link to key employment areas including Sydney CBD and Parramatta. The service will also alleviate some of the demand on the existing T1 Western Line.

2.2 The Greater Sydney Region Plan 2018

The Greater Sydney Commission (GSC) is an independent organisation that leads metropolitan planning for Greater Sydney. It has prepared the Greater Sydney Region Plan which outlines how Greater Sydney will manage growth and guide infrastructure delivery. The plan has been prepared in conjunction with the NSW Government's Future Transport 2056 Strategy and informs Infrastructure NSW's State Infrastructure Strategy.

The GSC's vision is to create three connected cities; a Western Parkland City west of the M7, a Central River City with Greater Parramatta at its heart and an Eastern Harbour City. By integrating land use, transport links and infrastructure across the three cities, more people will have access within 30-minutes to jobs, schools, hospitals and services.

The Greater Sydney Region Plan is a 20-year plan with a 40-year vision and has four key focuses; infrastructure and collaboration, liveability, productivity and sustainability. The Greater Sydney Structure Plan 2056 is shown indicatively in Figure 1.

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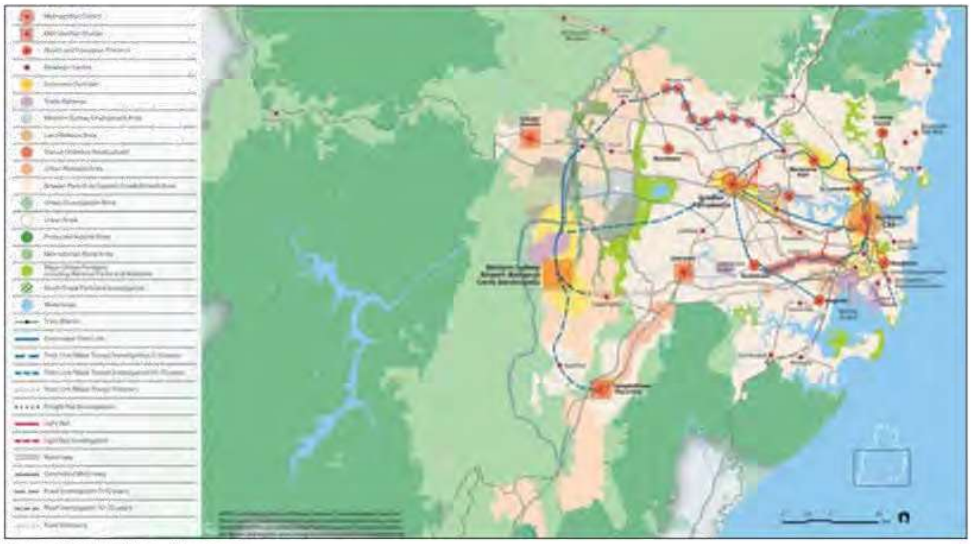
Figure 1: Greater Sydney Structure Plan 2056 – The Three Cities



Source: Greater Sydney Commission

2.3 Future Transport 2056

Future Transport 2056 provides a 40-year strategy for how transport will be planned, amended and forecasted within NSW, both regional and metropolitan, for the expected 12 million residents within the state. Future Transport 2056 follows from the 2012 Long Term Transport Master Plan which listed over 700 transport projects, the majority of which are completed or in progress. It also ties in with Greater Sydney Region Plan and the subsequent district plans to support the three cities metropolis vision.

Future Transport 2056 is supported by two key documents, Greater Sydney Services and Infrastructure Plan and Regional NSW Services and Infrastructure Plan, which provide guidance and planning for these areas.

From a metropolitan view, Future Transport 2056 and associated plans include the 30-minute city where jobs and services are within 30 minutes of residents with Greater Sydney. Strategic transport corridors to move people and goods are outlined between metropolitan and strategic centres, clusters and surrounds. The Movement and Place framework is also emphasised to support liveability, productivity and sustainability.

The plan introduces several initiatives that relate to the road hierarchy and transport network within the site:

- New Infrastructure:
    - WestConnex
    - Parramatta Light Rail
    - Long Term Future Mass Transit Link from Macquarie Park to Hurstville via Rhodes.

- The Parramatta Road public transport upgrade
- The Parramatta River Ferries upgrade project
- Priority Cycleway links in inner Sydney.

2.4 The Eastern City District Plan

The Eastern City District Plan follows from the Metropolis of Three Cities article with a focus on the Eastern District of Sydney which contains the site. It presents a 20-year plan to manage growth in the context of economic, social and environmental matters to achieve the 40-year plan outlined both in Future Transport and Metropolis of Three Cities. The article serves as a bridge between regional and local planning.

The Plan introduces several planning priorities, including:

- E3: Providing services and social infrastructure to meet peoples' chancing needs
- E5: Providing housing supply, choice and affordability with access to jobs, services and public transport
- E10: Planning for integrated land use and transport planning, whereby an indicator is a maximum 30-minute access to a metropolitan centre/cluster. The relevant cluster for the site is the Sydney CBD.

2.5 WestConnex

The WestConnex project comprises of approximately 33km of new and expanded toll roads which will provide high quality connections between Sydney's west, CBD, south and airport. Currently the largest transport project in Australia, WestConnex is a priority strategic project for Sydney that aims to ease congestion, create jobs and connect communities. The project is being delivered in stages due for completion in 2023, some elements of the WestConnex project are described as follows:

- Stage 1 (M4 Widening and M4 East Extension): as part of this stage, the M4 was widened to four lanes in each direction between Parramatta and Homebush. The M4 East component of Stage 1 involved the construction of a new 5km twin tunnel along the Parramatta Road corridor between the M4 at North Strathfield and City West Link at Haberfield → opened July 2019.
- Stage 2 (New M8): this stage involved the duplication of the M5 East, creating new twin tunnels with three lanes in each direction between Beverly Hills to St Peters → opened July 2020.
- Stage 3 (M4 – M5 Link): this stage of WestConnex will connect the M4 with the M5 through a new tunnel comprising three lanes in each direction → due to open in 2023.
- Stage 4 (Rozelle Interchange): this stage involves a new interchange, largely underground, connection the M4 – M5 Link to the Anzac and Iron Cove Bridges and the future Western Harbour Tunnel and Beaches Link → due to open in 2023.

The WestConnex project will:

- Provide quicker, more reliable trips between Western Sydney and the Port Botany/ Sydney Airport precinct to support Sydney's urban freight task.

- Help distribute traffic across the wider road network, removing bottlenecks and relieving congestion for local trips.
- Provide better connections along the M4 Western Motorway and M5 corridors to cater for the forecast growth in employment and population along these routes.
- Allow urban revitalisation and increase opportunities for active and public transport along and across Parramatta Road.

The WestConnex project has and will continue to increase capacity along M4 Western Motorway and Parramatta Road corridor. It is anticipated that through traffic currently using Parramatta Road will be re-assigned to the new WestConnex link, increasing capacity for Parramatta Road. In addition, it is likely that additional capacity will be generated for parallel east-west routes such as Gipps Street and Crane Street.

An overview of the WestConnex project is illustrated in Figure 2.

Figure 2: WestConnex overview

Base image source: https://www.westconnex.com.au/explore-westconnex/interactive-map/ accessed February 2022

2.6 Sydney Metro West

The NSW Government has committed to building a new metro railway line from Sydney CBD to Greater Parramatta via the Bays Precinct in Rozelle and Sydney Olympic Park. The project will focus on the corridor between the Parramatta River and existing T1 Western Line, servicing key existing centres and growth areas. Stage 1 (Northwest) of Sydney Metro commenced operations in May 2019, with Stage 2 (City and Southwest) under construction and due for completion in 2024. Sydney Metro West will likely service five key precincts:

- Westmead – which is becoming one of the largest health, education, research and training precincts in Australia

- Parramatta – where the number of jobs is expected to double over the next 20 years to 100,000
- Sydney Olympic Park – where 34,000 jobs and more than 23,000 residents will be located by 2030
- The Bays Precinct – Sydney's new innovation hub where 95 hectares of land is being regenerated
- The Sydney CBD – allowing easy access to the existing public transport network and Sydney Metro Northwest and Sydney Metro City and Southwest.

The NSW Government anticipated the new railway line would be completed and operational in the second half of the 2020's. It will directly benefit the future residents and employees of the surrounding Parramatta area. The NSW Transport Minister confirmed that Sydney West Metro must be built before 2031 to alleviate the severe overcrowding on the existing T1 Western Line which is already operating at 135 per cent seating capacity during peak periods.

Near the site, a new intermediate station at North Burwood is proposed on the corner of Burwood Road and Parramatta Road, with entrances on both the north and south sides of Parramatta Road.

The Sydney Metro West study area is shown in Figure 3, while the construction plan for the North Burwood metro station is shown in Figure 4.

Figure 3: Sydney Metro West study area

Source: sydneymetro.info/sites/default/files/2021-09/Westmead_to_the_Bays accessed February 2022

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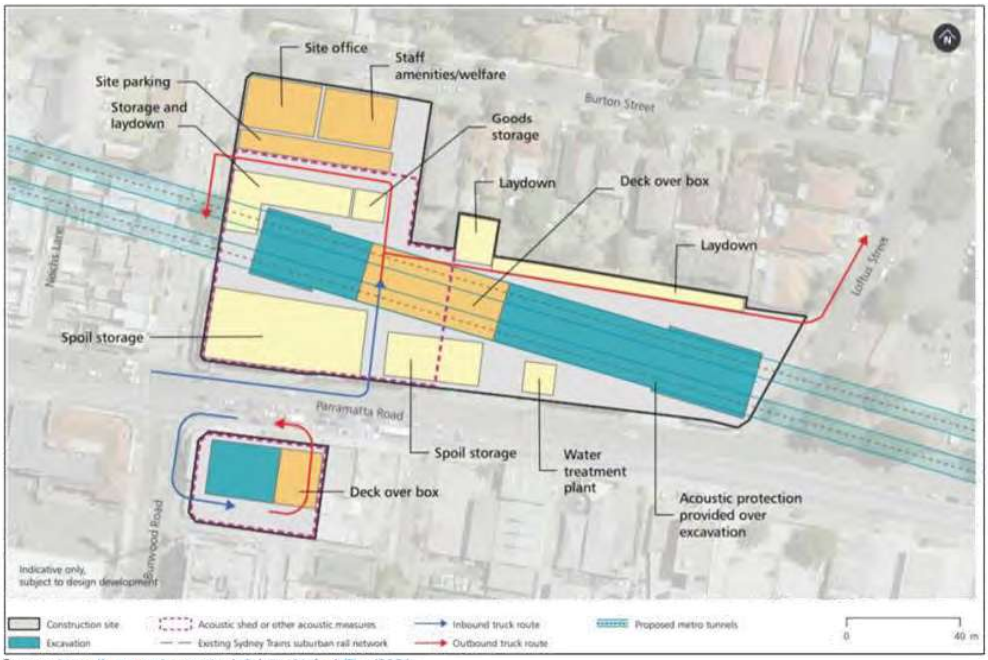
2 Strategic Context

Figure 4: North Burwood metro station location and construction plan



Source: https://www.sydneymetro.info/sites/default/files/2021-09/Westmead_to_the_Bays_and_Sydney_CBD_Environmental_Impact_Statement_summary_final_1.pdf accessed February 2022

3 Existing Conditions

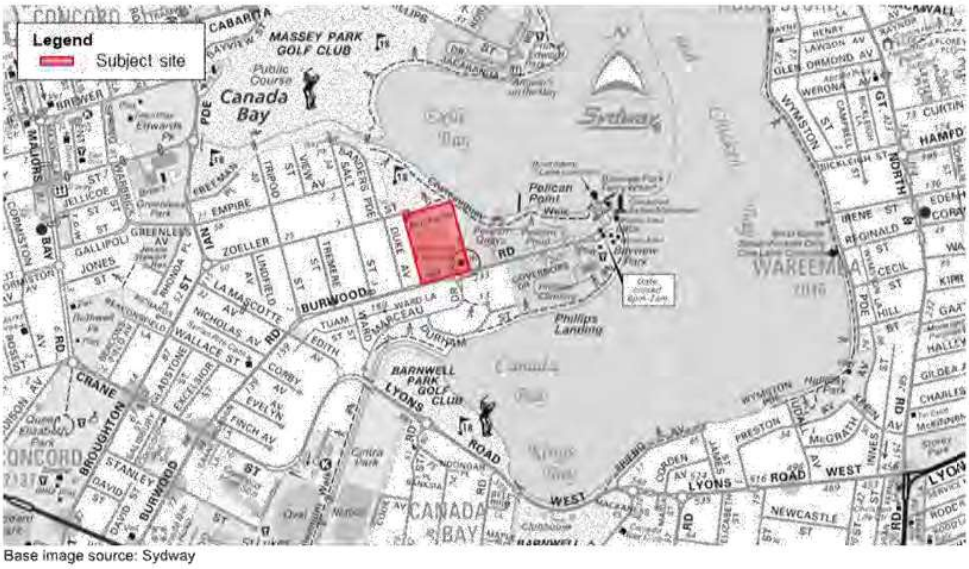
3.1 Location

The subject site is located at 160 Burwood Road, Concord and is Lot 5 of DP129325. The site of approximately four hectares in area has a southern frontage of 170 metres to Burwood Road and a northern frontage of 10 metres to Zoeller Street. The site also has a boundary to Exile Bay in the north-east.

The site is currently classified as IN1 – General Industrial under the City of Canada Bay LEP 2013. The site is currently occupied by factory premises (in existence for a significant period of time). The surrounding properties predominantly include low and medium density residential uses. Exile Bay is located to the north-east of the site and Bayview Park and Ferry Wharf are located on the point to the east.

It is understood that the current factory site is coming to the end of its economic life. The site's peninsula location, limited road access for heavy vehicles and proximity to adjoining residential areas, represent significant constraints for the operation of ongoing industrial activity. The location of the subject site and its surrounding environs is shown in Figure 5.

Figure 5: Site location and environs



Base image source: Sydway

3.2 Surrounding Road Network

The surrounding road network has been outlined in Table 1 and shown in Figure 6.

Table 1: Road network outline

Road name	Classification	Properties
Parramatta Road	State Road	• East-west alignment

160 Burwood Road, Concord
3 Existing Conditions

Road name	Classification	Properties
		• 16.4m road width • 23.0m road reserve • Three lanes either direction • 60km/h speed zoning • Parking is not permitted on either side of the road
Gipps Street	State Road	• East-west alignment • 12.4m road width • 18.3m road reserve • One lane in either direction • 60km/h speed zoning • Parking is permitted either side of the road
Burwood Road	Mainly a local road, however between Crane Street and Parramatta Road is a Regional Road	• North-south alignment • 12.8m road width • 19.9m road reserve • One to two lanes of traffic in either direction • 50km/h speed zoning, with a section subject to 40km/h school zoning • Parking is subject to zone and time either side of the road
Broughton Street/ Ian Parade	Mainly a local road, however Broughton Street between Crane Street and Parramatta Road is a Regional Road	• North-south alignment • 12.1m road width • 19.4m road reserve • One lane of traffic in either direction • 50km/h speed zoning • Parking is permitted either side of the road
Crane Street	Regional Road	• East-west alignment • 12.6m road width • 19.0m road reserve • Two lanes of traffic in either direction • 50km/h speed zoning • Parking is primarily not permitted on either side of the road
Zoeller Street	Local road	• East-west from the Ian Parade/ Broughton Street/ Zoeller Street roundabout to cul-de-sac 590m to the west • 12.7m road width • 19.7m road reserve • One lane of traffic in either direction • 50km/h speed zoning • Parking is permitted either side of the road

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Figure 6: Road network diagram

Base image source: https://roads-waterways.transport.nsw.gov.au/classification/map/cartomap accessed 2 February 2022

3.3 Traffic Volumes

Traffic movement counts at the following key intersections were completed on a typical weekday and Saturday in October 2022:

1. Burwood Road/ Crane Street
2. Burwood Road/ Gipps Street
3. Burwood Road/ Parramatta Road
4. Broughton Street/ Zoeller Street/ Ian Parade
5. Broughton Street/ Crane Street
6. Broughton Street/ Gipps Street
7. Broughton Street/ Parramatta Road.

The weekday AM and PM peak hours were found to occur from 8:00am to 9:00am and 5:15pm to 6:15pm respectively with the Saturday peak being 12:00pm to 1:00pm. A summary of the existing traffic volumes during the respective peak hours is included in Appendix A.

It is noted that several iterations of traffic surveys have been completed at the key intersections near the site, with the previous most recent being in 2019. By way of comparison, the 2022 data indicates there has been an increase in traffic volumes of between zero and five per cent at Intersections 2 to 4 since 2019. Traffic volumes at Intersections 1 and 5 along Crane Street have reduced over the same period. Intersections 6 and 7 were not included as part of the 2019 survey scope with no comparison possible.

3.4 Intersection Operation

The operation of the key intersections within the study area have been assessed using SIDRA Intersection (SIDRA), a computer-based modelling package which calculates intersection performance.

The commonly used measure of intersection performance, as defined by the Transport for NSW, is vehicle delay. SIDRA determines the average delay that vehicles encounter and provides a measure of the level of service.

Table 2 shows the criteria that SIDRA adopts in assessing the level of service.

Table 2: SIDRA level of service criteria

Level of Service (LOS)	Average Delay per vehicle (secs/veh)	Traffic Signals, Roundabout	Give Way & Stop Sign
A	Less than 14	Good operation	Good operation
B	15 to 28	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
C	29 to 42	Satisfactory	Satisfactory, but accident study required
D	43 to 56	Near capacity	Near capacity, accident study required
E	57 to 70	At capacity, at signals incidents will cause excessive delays	At capacity, requires other control mode
F	Greater than 70	Extra capacity required	Extreme delay, major treatment required

Intersections were modelled as a network within SIDRA, with the models calibrated based on SCATS phasing data and on-site observations of queues and delay during the weekday and Saturday peak hours. Table 3 presents a summary of the existing operation of the key study intersections.

Table 3: 2022 intersection operating conditions

Intersection	Peak	Degree of saturation (DOS)	Average delay (sec)	Average queue (m)	Level of service (LOS)
Broughton Street/ Zoeller Street/ Ian Parade	AM	0.27	19	5	B
	PM	0.17	11	3	A
	Saturday	0.20	12	3	A
Broughton Street/ Crane Street	AM	0.57	25	56	B
	PM	0.73	28	77	B
	Saturday	0.74	28	78	B
Burwood Road/ Crane Street	AM	0.60	34	66	C
	PM	0.68	34	79	C
	Saturday	0.74	36	83	C
Burwood Road/ Gipps Street	AM	0.75	30	79	C
	PM	0.82	28	91	B
	Saturday	0.59	24	67	B
Burwood Road/ Parramatta Road	AM	0.61	17	88	B
	PM	0.60	16	94	B
	Saturday	0.58	15	87	B
Broughton Street/ Gipps Street	AM	0.86	26	85	B
	PM	0.67	26	78	B
	Saturday	0.72	29	77	C
Boughton Street/ Parramatta Road	AM	0.71	14	119	A
	PM	0.70	15	115	B
	Saturday	0.74	20	142	B

The results presented in Table 3 indicate that all intersections currently operate well within the weekday and Saturday peak hours at a LOS C or better. Average queues are generally manageable and do not impact the operations of the upstream or downstream intersections, noting again that the SIDRA model considers the intersections as a network and therefore also analyses the interaction between the study intersections.

3.5 Car Parking

Unrestricted kerbside parking is permitted on all roads in the vicinity of the site. There is a considerable on-street parking supply located on surrounding roads including Burwood Road, which provides parallel parking near the site and some 45-degree angle parking to the east. During the weekday afternoon peak, the car parking demand is low to moderate with demand increasing throughout the afternoon, typically associated with residents returning home.

3.6 Sustainable Transport

3.6.1 PUBLIC TRANSPORT

The site is well serviced by the surrounding bus network, with the 466 and 502 bus routes stopping adjacent to the site on Burwood Road, while several other services are within a short walk further south along Burwood Road or northwest on Ian Parade. A summary of the available bus stops near the site is provided in Table 4.

Table 4: Schedule of bus network

Route number	Route description	Location of nearest bus stop	Distance to nearest bus stop	Frequency (peak / off-peak)
410	Macquarie Park to Hurstville	Burwood Road and Crane Street	800m	10 mins/ 15 mins
464	Mortlake to Ashfield	Outside site on Burwood Road	800m	15 mins peak and off peak
466	Cabarita to Burwood	Burwood Road and Crane Street	0m	20 mins peak only
502	Cabarita Wharf to Drummoyne and City Town Hall	Burwood Road and Crane Street	800m	10 mins/ 30 mins

Services to the closest train station (Burwood Station) take approximately 11 minutes from the Marceau Drive/ Burwood Road bus stop via the 466 bus route. This service runs approximately every 20 minutes during peak time.

The surrounding bus network is shown in Figure 7.

Figure 7: Surrounding bus network

Base image source: https://transportnsw.info/document/5670/21569_ts_r6_network_map_20211205.pdf accessed February 2022

The site is also located adjacent to the Transport for NSW On Demand public transport service area (see Figure 7), which allow users to book a vehicle and be picked up from either home or a convenient nearby location, and dropped off at a local transport hub or point of interest. It is easy to book using an app, online or by phone. In future, there is potential for coverage to expand to cover the site as demand for the service increases.

Burwood Station is located approximately 2.3 kilometres south of the site and services the T2 Inner West and Leppington Line and T9 Northern Line. The station provides frequent heavy rail services during peak and off-peak periods.

The Bayview Park Wharf is located to the east of the site. This terminal was removed from Sydney Ferries timetables in 2013 due to low patronage.

3.6.2 ACTIVE TRANSPORT

Pedestrian paths are located on all major roads within the immediate road network, providing good pedestrian connectivity. Pedestrian crossings are available at all signalised intersections along Burwood Road in the vicinity of the site. The available pedestrian paths provide good access to local parks and shops, with the relatively flat topography in the immediate vicinity of the site providing good walking and cycling conditions.

The City of Canada Bay prepared the Interim Bike Network Map, detailing on and off-road cycling routes in the local area.

The site is well located in the local cycling network, although there are no formal bicycle routes on Burwood Road. An on-road bike lane on Queens Road/ Gipps Street connects Concord with suburbs to the east. This route is accessed from off-road routes located within a short distance to the south of the site. A cycle route also connects Concord with Homebush Bay to the northwest through a number of on-street cycle paths. This route can be accessed from Salt Street located in close proximity to the west of the site.

The City of Canada Bay existing and planned future bike network map is shown in Figure 8.

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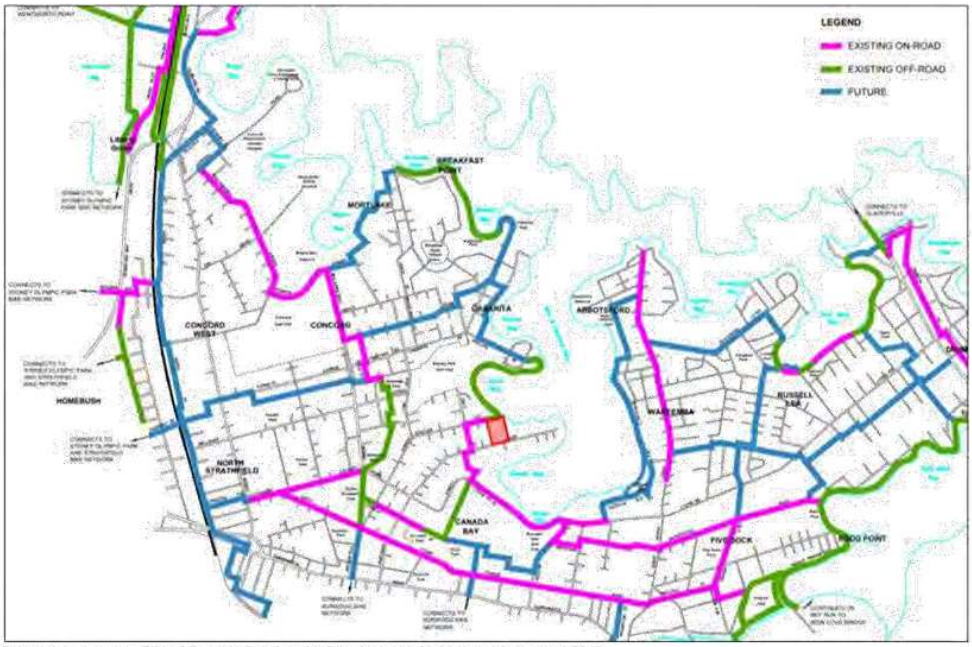
Figure 8: City of Canada Bay existing bike network map



Base image source: City of Canada Bay Interim Bike Network Map, dated 8 January 2019

3.7 Local Car Share Initiatives

GoGet (along with other car share providers) has become increasingly common throughout Sydney and is now recognised as a viable transport option for drivers throughout Sydney. They are now a well-utilised service especially in the inner suburbs due to limited parking availability and the expense involved in parking close to the Sydney CBD. GoGet offer a viable alternative to the private car for trips where distances are short and are likely to be of benefit to future tenants and commercial residents of the proposed development.

Research suggests that a single car share vehicle can replace at least 10 private vehicles and (on average) services 23 members. On this basis, the provision of car share vehicles on-site has the potential to significantly reduce private car ownership and/or usage.

GoGet car share pods located close to the site are shown in Figure 9, with the closest pods located near Majors Bay Road to the west of the site. The existing local area has limited demand for car share given the lower residential density and availability of off-street car parking. However, car share pods within a higher density residential development could be a catalyst for car share usage in the area.

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Figure 9: Surrounding GoGet pods

Source: https://www.goget.com.au/ accessed February 2022

3.8 Existing Travel Behaviour

The 2016 Australian Bureau of Statistics journey to work data for the existing residents in the local area surrounding the site is provided in Table 5. The results for the surrounding travel zone have been benchmarked against Sydney Greater Metropolitan Region (GMR).

Table 5: ABS journey to work data – Concord

Mode of travel	Surrounding Concord area mode share	GMR mode share
Car, driver	73%	61%
Car, passenger	4%	5%
Train	8%	19%
Bus	10%	7%
Ferry	1%	1%
Walk	2%	5%
Bicycle	1%	1%
Motorcycle	1%	1%
Total	**100%**	**100%**

Note: Includes SA1:12001138327

Table 5 indicates that despite the relatively close proximity of the site to the Sydney CBD, the existing residents surrounding the site have a higher private vehicle mode share (73 per cent) compared with the average for the wider Sydney GMR (61 per cent). Public transport uptake is slightly lower than the wider Sydney GMR noting the surrounding area is limited to bus services unless connecting at Burwood or Strathfield stations. Active travel modes such as walking and cycling is similar to the wider Sydney GMR at around five per cent.

4 Development Proposal

4.1 Land Uses

The proposal incorporates a new mixed-use development along with new internal roads and open space. The proposed future development indicatively includes:

- Retention of the iconic Bushells building including 'B' signage and chimney stack, together with key elements of the existing industrial building fabric.
- 384 apartments, with 10 per cent of the development (approximately 40 apartments) proposed for affordable housing.
- Retention of sight lines to the iconic Bushells building.
- Significant areas of public open space, including through-site access to a new waterfront public park and beach access to Exile Bay.
- A range of cultural and community infrastructure and recreational facilities.
- Approximately 6,700 square metres of retail hub with a mix of convenience shopping, specialty food, cafes and dining for residents and nearby locals.

A summary of the proposed land uses is shown in Figure 6.

Table 6: Indicative development schedule

Land use	Description	Size
Residential	Affordable (mix)	40 dwellings
	1-bedroom	69 dwellings
	2-bedroom	206 dwellings
	3-bedroom	69 dwellings
	Subtotal	**384 dwellings**
Non-residential	Retail and restaurant	6,747m^2 GFA
	Urban services	3,531m^2 GFA
	Subtotal	**10,278m^2 GFA**

4.2 Vehicle Access

Vehicle access to the site is proposed via access points on Burwood Road and Zoeller Street.

The access point to Burwood Road would form a fourth leg (northern approach) to the existing Burwood Road/ Marceau Drive roundabout. The site access to Zoeller Street would form a standard unsignalised access point. A new internal road link is proposed to run parallel to Duke Street (50 metres to the east) and would form unsignalised intersections at each end with Burwood Road and Zoeller Street.

Further detail on the design of the access points will be provided as part of future Development Application(s) for the site.

4.3 Car Parking

It is proposed to provide four separate basement car parks corresponding to the west, east and central (north and south) precincts of the site. There is potential for extra car parking spaces to be provided as indented parking on the new internal access roads which would likely serve the retail and recreational facilities.

Further car parking layout details would be provided as part of any future Development Application.

4.4 Other Considerations

4.4.1 PEDESTRIAN FACILITIES

Pedestrian paths will be provided throughout the site and will link key destinations within the site to the external road network and public realm. A shared pedestrian and vehicle zone is proposed to the south of the existing Bushells building, with pedestrian paths to be provided along both sides of the internal road network. Retail and community spaces are proposed to be located to activate street frontages. The main pedestrian entrances to the village centre will be located along Burwood Road.

4.4.2 BICYCLE FACILITIES

The development plans do not yet show bicycle end-of-trip facilities. Notwithstanding, it is intended that appropriate bicycle facilities will be provided on-site to encourage cycling as a viable mode of transport.

4.4.3 LOADING AREAS

Further design of on-site loading and servicing facilities dock will be considered as part of any future Development Application however it is anticipated that much of the loading activity would occur on-street in loading zones on the proposed internal roads.

4.4.4 MODE SHARE TARGETS

As previously mentioned in Section 3.8, the most recently available Journey to Work data for existing residents surrounding the site shows that residents have a higher private vehicle mode share than the wider Sydney GMR, while public transport and active transport is similar or lower than the wider Sydney GMR.

With the development of the site improving convenient links with the existing walking and cycling network, and potential improvements to the public transport network in the area (particularly with onset of Sydney Metro West services), it is anticipated that there will be less reliance on private vehicles and a higher uptake of sustainable travels modes. This is due to residents and staff associated of the proposed development generating more demand, potentially modified services and improved facilities which in-turn organically increases the potential uptake of these transport modes. Facilitating through site links will also improve connections and permeability for the surrounding area, with existing residents afforded shorter walking routes between Burwood Road and Zoeller Street in particular

On this basis, target travel mode shares for the site have been developed and shown in Table 7.

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4 Development Proposal

Table 7: Future mode share targets for the site and relevant travel zones

Travel mode	Existing mode share	Short term future mode share targets	Long term future mode share targets
Vehicle (as driver or passenger)	78%	70%	60%
Public Transport (train, metro, bus and ferry)	19%	25%	30%
Walk or Cycle	3%	5%	10%
Total	**100%**	**100%**	**100%**

It is noted that the above mode share targets are considered indicative initial guides, with achievable mode shares identified for the short turn and more aggressive long term mode shift targets able to be investigated as part of future sustainable travel planning for the site. Longer term mode share targets would be reliant on implementation of targeted green travel initiatives for future residents and staff.

The following potential measures and initiatives could be investigated to encourage more sustainable travel modes:

1. Developing a Travel Access Guide (TAG) for all residents and staff and made publicly available to all visitors. The document would be based on facilities available at the site and include details on the surrounding public transport services and active transport initiatives. The TAG would be updated as the surrounding transport environment changes.
2. Providing public transport information boards/ apps to inform residents, staff and visitors of alternative transport options (the format of such information/ communication strategy would be based on the TAG).
3. Providing car share pods on-site or on-street nearby and promoting the availability of such facilities for trips that require the use of private vehicles.
4. Providing quality bicycle facilities including secure bicycle parking for staff, bicycle racks/ rails for visitors and shower and change room facilities.
5. Encouraging staff that drive to work and park on surrounding roads to carpool through creation of a carpooling club or registry/ forum.
6. Regularly promoting ride/ walk to work days.
7. Providing a regular newsletter to all residents and staff bringing the latest news on sustainable travel initiatives in the area.

Again, it is highlighted these mode share targets are initial guides only to provide an estimate on the mode shifts that could be achieved as part of future sustainable travel planning for the site. Future sustainable travel planning is typically completed during the Development Application stage, or post development approval prior to occupation once tenant and resident requirements are known.

5 Car Parking Assessment

5.1 Car Parking Requirements

The car parking requirements for different development types are set out in the City of Canada Bay DCP 2020. For the purpose of the planning proposal, it has been assumed that all affordable housing units are single bedroom units.

A review of the car parking requirements for the proposed yields is provided in Table 8.

Table 8: Car parking requirements

Land use	Description	Size	Car parking rate	Car parking requirement
Residential	1-bedroom	109 dwellings	1 space per dwelling	109
	2-bedroom	206 dwellings	1 spaces per dwelling	206
	3-bedroom	69 dwellings	1.5 spaces per dwelling	104
	Visitors	384 dwellings	0.2 spaces per dwelling	77
Non-residential [1]	Retail shops, cafés and restaurant	6,747m² GFA	1 space per 40m² GLFA for shops 1 space per 6m² of service area or 1 space per 4 seats (whichever is greater) for restaurants, cafes, take-away food & drink premises	169[2]
Total				**665**

[1] It is assumed that the proposed recreational facilities would largely service residents of the development and/or the local area and therefore no specific parking demand has been assigned. Any minor demand could be accommodated by retail parking.
[2] At this stage all non-residential facilities have been assessed as retail shop land uses and it has conservatively been assumed GLFA is equal to GFA.

Based on the above, the proposed development is required to provide a minimum of 665 car parking spaces. Parking associated with the non-residential uses can be refined as part of any future Development Application, once the likely non-residential tenants and/or operation of the floor space is known. Notwithstanding, parking will be provided in-line with the requirements of the City of Canada Bay DCP.

It is also noted that there may be an opportunity to provide a shared car parking pool for the retail, other non-residential and residential visitor parking demands. In this regard, it is noted that residential visitor demands typically peak in the evening, whilst retail demands typically peak during the day. More specifically, it is commonly accepted that daytime residential visitor demands are 50 per cent of the evening demands.

Therefore, it could be appropriate that a reduction (based on a temporal profile of car parking demand) in residential visitor parking could be applied. Moreover, visitor parking is typically provided at a rate of one space per five to seven apartments for high density developments (Transport for

NSW, 2002), noting that this typically represents an over-supply for larger developments with integrated basements and further justifying a reduction in visitor parking.

Future Development Application(s) for the site would need to justify any proposed visitor parking reduction.

5.2 Retail/ Restaurant Demand

Given the desirable location and scale of the development, there is potential for the retail or restaurant uses (depending on the tenant(s) secured) to become a regionally significant site that may attract a large number of patrons at key times of the day/ week. If this were to occur, there are a number of measures outlined below that could be implemented to aid efficient use of the on-site car parking and to ensure the impact to existing on-street car parking demand is minimal. The surrounding road network provides appropriate regional road connections to the east, west and south in particular, supporting any regional demand generated.

5.2.1 ON-STREET RESIDENT PARKING SCHEME

As previously mentioned, there is a large supply of on-street unrestricted car parking spaces in the vicinity of the development. To protect the amenity of the surrounding area, the introduction of timed parking in conjunction with a resident parking scheme should be investigated. This could be restricted to one side of the road, or implemented on both sides, depending on the residential and visitor demand.

It is understood that Council may not be supportive of such parking restrictions, however they may be necessary to protect the amenity of local residents and should be considered further during future Development Application(s) for the site, noting that typical resident parking permit policies may need to be adjusted to suit local neighbourhood characteristics.

5.2.2 CAR PARK SUPPORTING TECHNOLOGY

For a development of this size, there are other measures that can be undertaken to improve the efficiency and utilisation of the car spaces, particularly for visitors to the site. A parking guidance system with dynamic signage may be appropriate to aid drivers to find a vacant car space, with the option of individual bays having car parking sensors, or areas/ levels having sensors.

5.2.3 PAID PARKING/ TIME RESTRICTIONS

The implementation of paid parking and/ or time restricted parking could also be considered as a car parking demand management tool, as regularly implemented in public car park facilities and shopping centres. Entrance treatments should be designed to meet requirements for card consoles. Any such parking management would also need to consider on-street parking in the immediate local area.

6 Sustainable Transport

6.1 Bicycle End of Trip Facilities

6.1.1 REQUIREMENTS

Bicycle parking for the site should be provided in accordance with the requirements of the City of Canada Bay DCP 2020, as summarised in Table 9. Bicycle parking provisions would be refined as part of any future Development Application.

Table 9: Bicycle parking requirements

Use	Size/ No.	DCP bicycle parking/ storage rate	Bicycle requirements
Residential	384 dwellings	1 bicycle storage space/ dwelling	384 storage spaces
		1 bicycle parking space/ 12 dwellings	32 parking spaces
Non-residential	6,747m^2 GFA	1 bicycle storage space/ 300m^2	22 storage spaces
		1 bicycle parking space/ 500m^2	13 parking spaces
		Total	**406 bicycle storage spaces and 45 bicycle parking spaces**

[1] At this stage all non-residential facilities have been assumed as retail land use.

Table 9 indicates that based on the indicative yield, any future development at the site should provide 406 bicycle storage spaces and 45 visitor bicycle parking spaces.

6.1.2 CYCLIST AND PEDESTRIAN ACCESS

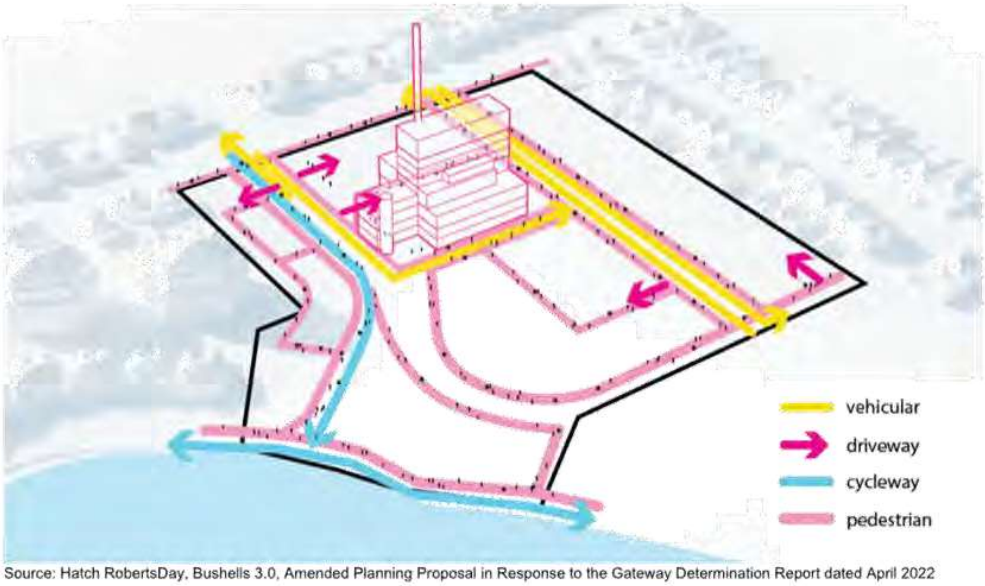
Cyclist and pedestrian access to the new uses would be provided from the future internal road network as well as from the surrounding road network, including Burwood Road, Zoeller Street and to the existing foreshore walkway.

The form of the potential active transport corridor has not yet been determined but could include continuation of the existing footpath by way an on-road mixed traffic bicycle facility or separated cycleway or similar. The make-up of the future facility would need to be determined in consultation with Council, TfNSW and local residents as part of any future Development Application, with consideration to TfNSW Cycleway Design Toolbox requirements. It should be noted that the proposed through site link to the south of the Bushells building would also provide an east-west link for pedestrians and/ or cyclists.

The facility would contribute to encouraging residents, customers and staff of the development to walk or cycle between the site and nearby transport nodes.

A summary of the proposed walking and cycling connections through the site are shown indicatively in Figure 10, again noting that the form and design of the cycling connections will be developed further in consultation with Council and TfNSW as part of future Development Application(s) on the site.

Figure 10: Movement and access summary



Source: Hatch RobertsDay, Bushells 3.0, Amended Planning Proposal in Response to the Gateway Determination Report dated April 2022

6.1.3 FUTURE BICYCLE ROUTE FACILITIES

It is understood from consultation with Transport for NSW that the Parramatta Road Urban Transformation has an associated proposed cycleway along Patterson Street, Gipps Street and Queens Road. The cycleway is included in the Urban Amenity Improvement Plan and is currently in planning and could involve significant changes to intersection arrangements.

A shared bicycle and pedestrian path facility would be constructed along Burwood Road between Gipps Street and Bayview Park to provide a high-quality connection to this proposed facility.

While this route is still to be implemented, The River Run off-road walking and cycling path under the City of Canada Interim Bike Network Map, as detailed in Section 3.6.2, will allow for a complete foreshore connection linking the site between Breakfast Point, Cabarita and Abbotsford. Once complete, the site will have a good active transport connection and would help to achieve an increase in active transport uptake.

6.1.4 ELECTRIC BICYCLES

There is potential to provide a fleet of electric bicycles (or the best available technology at the time) as part of the development for use by residents. Electric bicycles can offer a quick, convenient and inexpensive self-operated ride to a train station, a bus stop or a specific destination. The benefit of providing electric alternatives is they require little or no physical effort and can be used by nearly anyone. Provision of a number of electric bicycles would allow residents to utilise the existing and planned future cycling paths to connect with surrounding railways stations, as well as the future Sydney Metro West station which could potentially be located at North Burwood. This will in turn reduce any unnecessary vehicle trips associated with first and last kilometre of residents' journeys.

6.2 Car Share Vehicles

As discussed in Section 3.7, research suggests that a single car share vehicle can replace at least 10 private vehicles and (on average) services 23 car share members. On this basis, the provision of car share vehicles on-site has the potential to significantly reduce private car ownership and/or usage, along with the corresponding reduction in road network peak period travel.

The Green Building Council of Australia recommends one car share vehicle per 70 residents. At an average of (say) two residents per dwelling, this would represent a potential future supply of 11 car share vehicles for 384 dwellings. It is recommended that as part of the likely staged development construction, an initial pod of two vehicles is provided, with additional vehicles added in response to the occupation of subsequent development stages and/or in response to demand. A suitable objective would be to provide a minimum of 10 car share vehicles up completion of the full redevelopment.

6.3 Public Transport

6.3.1 REGULAR ROUTE BUS SERVICES

Direct and convenient pedestrian links from the development to the existing bus stops on Burwood Road and Zoeller Street would be provided as part of the development. As previously mentioned, while there are several bus stops within close proximity to the site, the frequency of buses servicing the site and variety of routes from the site could provide a greater level of service.

The main local destinations for public transport patrons from the site are likely to be Burwood Railway Station and the Majors Bay Road shopping precinct, as well as connections to the east including Victoria Road. For residents of the new development travelling to the Burwood Station, the 466 bus from the bus stop adjacent to the site which provides a 15 to 30-minute frequency service. With the development potentially accommodating around 1,000 residents living on the site, the demand on the bus service is likely to increase, resulting in a demand for greater frequency of service in the peak hour to encourage public transport use.

Residents wanting to travel to the Majors Bay Road shopping strip via public transport can catch the 466 bus and connect with a second bus connecting with the shopping strip, or alternatively walk around 10 minutes to the Crane Street bus stop and catch the 502 bus.

As discussed, the 466 bus provides a connection to Burwood Station where commuters can transfer to the T9 Northern Line or T2 Inner West Line and Leppington Line, providing connections to other parts of Sydney including the CBD.

The utilisation of the 466 bus should be monitored to assess whether the frequency of this service needs to be increased and extended into off-peak periods.

6.3.2 FERRY

Historically, Sydney Ferries serviced the Bayview Park Wharf as part of the Parramatta River services. The Bayview Park wharf is located between the Abbotsford and Cabarita Wharves. The Bayview Park wharf was previously serviced by two weekday morning and two afternoon services.

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The Sydney's Ferry Future document was released in May 2013 and outlines a 20-year plan for the ferry network. The document identifies a number of initiatives to improve the operation and capacity of the ferry network.

The document includes a review of 30 potential new locations that could be served by the ferry network, including the Bayview Park Wharf.

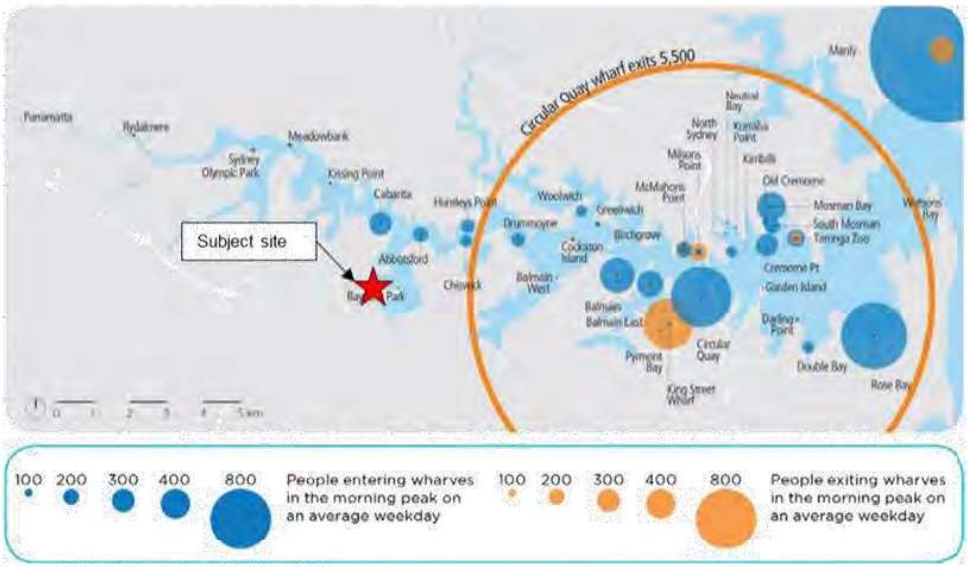
Each of the locations was assessed against the following:

- current and future demand with a focus on population, employment and attractions within the walking catchment of the wharf
- directness of the ferry route relative to the road alternative
- the costs of new infrastructure
- the frequency, cost, travel time and catchment of other modes compared to ferries.

Five new potential ferry wharves were identified on this basis. As part of the review, the Bayview Park and Balmain West Wharves were identified as being poorly patronised and recommended for services to be ceased to these wharves.

An overview of the ferry patronage (2012) is provided in Figure 3 of the Sydney's Ferry Future document reproduced in Figure 11.

Figure 11: Sydney Ferries patronage overview



Source: Sydney's Ferry Future, dated May 2013

Specifically, it is noted that the Bayview Park Wharf was observed to carry 28 passengers in the AM peak period compared to 880 at Cabarita Wharf and 690 at Abbotsford Wharf (the two adjacent wharves) for the same time period.

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Reference is made to the NSW Bureau of Transport Statistics (BTS) Journey to Work data which was collected in 2011. The data provides a mode share breakdown by travel zone for residents' journey to work. The data has been analysed to assess the ferry patronage for surrounding suburbs (with ferry wharves) and including the development site, as shown in Table 10.

Table 10: BTS travel to work data – ferry travel

Suburb	Travel zone number	Number of workers living in suburb	Number of workers travel on ferry	Percentage of workers travel on ferry
Abbotsford	731	1,067	54	5%
Wareemba	733	1,532	78	5%
Wareemba South	734	1,504	23	2%
Cabarita	738	1,309	99	8%
Breakfast Point	701	1,593	105	7%
Canada Bay	735	1,342	9	1%
Five Dock	738	1,741	25	1%
Concord (development site)	704	933	25	3%

The BTS data shows that 54 workers in Abbotsford and 99 workers in Cabarita travelled to work by ferry. This is in comparison to the observed ferry numbers provided in the Sydney's Ferry Future document of 690 people at Abbotsford Wharf and 880 people at Cabarita Wharf. This shows that both the Abbotsford Wharf and Cabarita Wharf serve a wider catchment than their own suburb.

Comparing the BTS data to the Sydney's Ferry Future observations for the Bayview Park Wharf shows 25 workers travel to work by ferry, and 28 people were observed at the wharf. This implies that historically the Bayview Park Wharf only served the immediate local catchment.

Ferry services to Bayview Park have now ceased operation. Improved efficiencies along all wharves along the Parramatta River were cited as reasons for the cessation of services to Bayview Park Wharf. It is also noted that ferry trips to Bayview Park require the ferry to deviate significantly from Parramatta River (i.e. resulting in a diverted ferry trip rather than a passing trip).

Consideration is given to the potential demand by residents of the new development for the Bayview Park Wharf should the ferry services be resumed. Assuming each dwelling of the development has (on average) one worker, there would be around 400 additional workers at the site. Referring to the BTS data, the highest percentage of workers travelling on the ferry is in Cabarita at eight per cent. Applying this high rate of eight per cent to the development site would result in around 40 workers travelling to work on the ferry.

Assuming the 25 commuters recorded in the BTS data would resume using the ferry service, a total of at least 65 commuters could be expected to use the Bayview Park Wharf if the services were to be resumed. Noting that there would likely need to be a regeneration of the overall precinct rather than just this site in isolation in order to justify resumption of a ferry service, the reinstatement of the ferry service would align with the GSC vision of the adjacent Central River City.

7 Traffic Impact Assessment

7.1 Traffic Generation – Proposed Development

7.1.1 RESIDENTIAL USES

Traffic generation estimates for the residential use have been sourced from the Transport for NSW Guide to Traffic Generating Developments 2002 (the Guide) and Updated Traffic Surveys Technical Direction (TDT 2013/ 04a). Having regard for the proximity of the site to existing and future public transport services, employment and large-scale retail opportunities, a rate of 0.3 trips per dwelling in the weekday and Saturday peak hours is considered appropriate for the site.

This rate is approximately 60 to 100 per cent higher than the average weekday and Saturday peak hour traffic generation rates as recommended in TDT 2013/ 04a for high density residential dwellings to appropriately consider the level of existing public transport accessibility in the local area. This rate has also been supported in Jacobs' peer review where it was suggested that higher density residential sites that are more than one kilometre from a train station and within 10km of Sydney CBD indicate traffic rates closer to 0.30 vehicle trips per dwelling in the peak hours.

On this basis and given the proposed 384 apartments, it is anticipated the residential component of the development would generate around 115 vehicle trips in any peak hour.

7.1.2 NON-RESIDENTIAL USES

There are several non-residential land uses envisaged as part of the proposed development. These include retail, restaurant, club, market and gallery uses with the breakdown of these uses only indicative at this stage of planning and hence may be subject to some change.

In this instance a retail traffic generation rate has been adopted for each of the non-residential uses. Specifically, the Guide recommends a peak weekday rate of 5.6 vehicle trips per 100 square metres for specialty retail, which has been applied to the weekday PM peak hour. The AM peak hour rate has been adopted to reflect a lower rate of 50 per cent of the PM peak hour rate. This approach is common and broadly accepted transport engineering practice. The Guide also recommends a rate of 10.7 vehicle trips per 100 square metres during the Saturday peak hour. Adopting these rates is considered conservatively high, particularly noting that restaurant uses have a substantially lower traffic generation rate of five movements per 100 square metres (as per the Guide). On this basis, the resultant non-residential traffic generation can be viewed as conservative and an upper limit at this stage of planning.

A 25 per cent reduction has also been applied to consider internal trips from residents of the development itself. This is appropriate given that the proposed non-residential uses are of a neighbourhood scale (i.e., small footprint stores) and largely reliant on the local (walk-up) residential catchment.

Overall, it is estimated that the proposed 6,747 square metres of non-residential floor area would generate 142, 283 and 541 vehicle trips in the weekday AM, PM and Saturday peak periods respectively.

7.1.3 SUMMARY

A summary of the anticipated development traffic generation is provided in Table 11 noting that the split of in and out traffic movements has been developed by adopting standard proportional splits as per relevant guidelines. This generally includes an 80:20 residential land use split and 50:50 retail split in the relevant peak hours.

Table 11: Summary of traffic generation

Use	AM peak hour			PM peak hour			Saturday peak hour		
	In	Out	Total	In	Out	Total	In	Out	Total
Residential	23	92	115	81	34	115	58	57	115
Non-residential	112	28	142	141	142	283	270	271	541
Total	**135**	**120**	**257**	**222**	**176**	**398**	**328**	**328**	**656**

Table 11 indicates that the proposed development is estimated to generate 398 vehicle trips in the weekday PM peak and 656 vehicle trips on Saturdays. Less traffic would be generated in the weekday AM peak, estimated at 257 vehicle trips per hour.

It should be noted that the non-residential traffic generation associated with the proposal is greater than the residential component, hence the traffic analysis is less sensitive to changes the residential yield. However, the non-residential component of the development is also providing a broader public benefit and some of the above traffic generation will be from the local area/ residents. It is recommended that this is given due consideration when considering the acceptability of traffic impacts and any modifications to the proposal.

7.2 Traffic Generation – Existing Use

The existing site is zoned IN1 – General Industrial and occupied by factory premises. The site is operational and currently generating traffic volumes that are distributed across the surrounding road network. Traffic counts of the existing vehicle access points servicing the site indicate that the site currently generates the following peak hour trips:

- AM peak hour: 27 vehicle trips
- PM peak hour: 19 vehicle trips.

It is understood that in recent years production at the site and in-turn persons employed at the site has reduced. As such, it is anticipated that historically the site would have generated additional traffic beyond its current levels.

In this regard, an assessment of the site's current traffic generation potential could be made by applying the Guide traffic generation rate for industrial uses to the existing floor area. Such an assessment is presented in Table 12 (the existing floor area has been adopted from the existing site-specific planning controls).

Table 12: Estimated traffic generation – existing industrial land use

Use	Size[1]	Traffic generation rates (trips/ hour)			Traffic generation trips (trips/ hour)		
		AM	PM	Saturday	AM	PM	Saturday
Industrial	40,000 sqm	0.52 per 100m^2	0.56 per 100m^2	Negligible	208	224	0

[1] Based on an overall site area of 4ha (40,000sqm) and a maximum floor space ratio of 1:1.

When adopting the current planning controls, the existing site has the potential to generate some 220 peak hour vehicle trips. This is significantly more than the traffic currently being generated by the site (given reduced production).

The proposed development seeks to increase the traffic generation of the site when considering in light of the potential traffic associated with the existing land use. This includes a negligible change in the weekday AM, less than double in the weekday PM and up to three times on Saturdays.

7.3 Distribution and Assignment

The directional distribution and assignment of traffic generated by the proposed development will be influenced by a number of factors, including the:

- configuration of the arterial road network in the immediate vicinity of the site
- existing operation of intersections providing access between the local and arterial road network
- surrounding employment centres, retail centres and schools in relation to the site
- configuration of access points to the site.

Traffic accessing the site would generally do so via Burwood Road and Zoeller Street which connects the site to the broader arterial/ higher order road network. Traffic would gradually disperse (east and west) from these corridors when moving further south at Crane Street, Gipps Street and Parramatta Road.

Having consideration for the above and for the purposes of estimating vehicle movements, Appendix A provides a summary of the assumed directional distributions for development traffic. This is based on the existing turning movement counts at the key surveyed intersections.

Overall, the traffic modelling has been completed for the following scenarios:

- 2022 without development (refer to Section 3.4)
- 2022 with development
- 2036 without development
- 2036 with development.

For the purposes of estimating future background traffic volumes, growth factors have been sourced from TfNSW STFM and applied to existing traffic volumes to estimate 2036 traffic volumes.

7.4 Traffic Impact

7.4.1 2022 WITH DEVELOPMENT

The impact of the development traffic on the surrounding intersections has been assessed using SIDRA. Based on the traffic generation estimates and distribution presented above, Table 13 presents a summary of the intersection operation of the key surveyed intersections following full development of the site.

Table 13: 2022 intersection operation with development traffic

Intersection	Peak	Degree of saturation (DOS)	Average delay (sec)	Average queue (m)	Level of service (LOS)
Broughton Street/ Zoeller Street/ Ian Parade	AM	0.35	19	7	B
	PM	0.27	12	5	A
	Saturday	0.41	13	8	A
Broughton Street/ Crane Street	AM	0.59	25	59	B
	PM	0.75	29	85	C
	Saturday	0.76	28	82	B
Burwood Road/ Crane Street	AM	0.64	35	71	C
	PM	0.75	37	91	C
	Saturday	0.88	43	103	D
Burwood Road/ Gipps Street	AM	0.77	31	85	C
	PM	0.76	26	83	B
	Saturday	0.64	26	70	B
Burwood Road/ Parramatta Road	AM	0.62	17	91	B
	PM	0.61	16	100	B
	Saturday	0.60	16	94	B
Broughton Street/ Gipps Street	AM	0.87	26	86	B
	PM	0.69	27	81	B
	Saturday	0.74	30	80	C
Boughton Street/ Parramatta Road	AM	0.73	15	122	B
	PM	0.69	18	129	B
	Saturday	0.77	21	151	B

Table 13 indicates that all key intersections are expected to continue operating satisfactorily overall (generally defined as LOS D or better), with similar delays and queuing to existing conditions. It is noted that the results indicate that the average delay for the Burwood Road/ Gipps Street intersection actually decreases by two seconds from existing conditions, however this is due to SIDRA adjusting the phase times slightly to optimise the delay across the intersection based on the distribution of development traffic at this intersection.

7.4.2 2036 WITHOUT DEVELOPMENT

Table 14 presents a summary of the intersection operation of the key surveyed intersection in 2036 without development traffic.

Table 14: 2036 intersection operation without development traffic

Intersection	Peak	Degree of saturation (DOS)	Average delay (sec)	Average queue (m)	Level of service (LOS)
Broughton Street/ Zoeller Street/ Ian Parade	AM	0.32	21	6	B
	PM	0.20	12	3	A
	Saturday	0.24	14	4	A
Broughton Street/ Crane Street	AM	0.66	26	64	B
	PM	0.83	31	97	C
	Saturday	0.85	32	112	C
Burwood Road/ Crane Street	AM	0.64	34	74	C
	PM	0.74	35	90	C
	Saturday	0.79	38	100	C
Burwood Road/ Gipps Street	AM	1.05	42	133	C
	PM	0.94	39	131	C
	Saturday	0.74	28	78	B
Burwood Road/ Parramatta Road	AM	0.62	18	88	B
	PM	0.58	19	88	B
	Saturday	0.57	17	81	B
Broughton Street/ Gipps Street	AM	1.08	44	120	D
	PM	0.82	32	81	C
	Saturday	0.74	31	78	C
Boughton Street/ Parramatta Road	AM	0.60	17	110	B
	PM	0.63	17	94	B
	Saturday	0.74	19	109	B

Table 14 indicates most of the key intersections are expected to operate satisfactorily in 2036, with the exception of the Broughton Street/ Gipps Street and Burwood Road/ Gipps Street intersections which are expected to operate overcapacity as indicated by the DOS over 1.00 in the weekday AM peak hour, despite the satisfactory overall LOS.

The deterioration of the operation of these intersections is attributed to high traffic growth as indicated in the STFM data, particularly for the south approach to the Broughton Street/ Gipps Street intersection despite the STFM data indicating a reduction in volumes further south along Parramatta Road. Should this level of traffic growth be realised in the future, mitigation measures would likely be necessary to increase capacity.

At the Burwood Road/ Gipps Street intersection, one potential mitigation measure has been identified which includes lengthening the short approach lane for the east approach from around 65 metres to

100 metres. At the Broughton Street/ Gipps Street intersection, the identified potential mitigation measures include:

- lengthening the short north approach lane from around 25 metres to 100 metres
- marginally lengthening the short west approach lane from around 90 metres to 100 metres.

These measures are shown indicatively in Figure 12 and Figure 13, with a summary of the modelling results and the proposed mitigation measures in place provided in Table 15.

It is noted that the identified mitigation measures are all able to be accommodated within the existing road configuration with some minor removal of existing on-street parking. Given that these measures are only required to address 2036 weekday AM intersection operation, these measures could be implemented by restricting parking during peak periods only, allowing existing kerbside parking to be retained outside the impacted hours. This is similar to what currently occurs on Burwood Road south of Gipps Street, where "No Parking" restrictions are currently in place during the weekday AM and PM peak periods on the eastern side of the road.

These identified upgrades do not impact the Broughton Street cycleway project. It is noted that the Parramatta Road Corridor Traffic and Transport Study and Action Plan (Bitzios, October 2022) also identified capacity constraints at the Broughton Street/ Gipps Street intersection in the 2036 future horizon year, with potential measures identified involving turn bans at this intersection, subject to further detailed assessment of the diverted traffic as a result of the turn bans.

The mitigation measures identified in this assessment involving minor changes to parking during peak periods is considered a more desirable measure than turn bans at this intersection and as such, this assessment does not propose imposing turn bans at this intersection. Notwithstanding the above, the identified potential mitigation measures do not physically prevent right turn bans being implemented by others in the future as part of the Parramatta Road Urban Transformation project, if deemed necessary.

Figure 12: Burwood Road/ Gipps Street potential mitigation measure

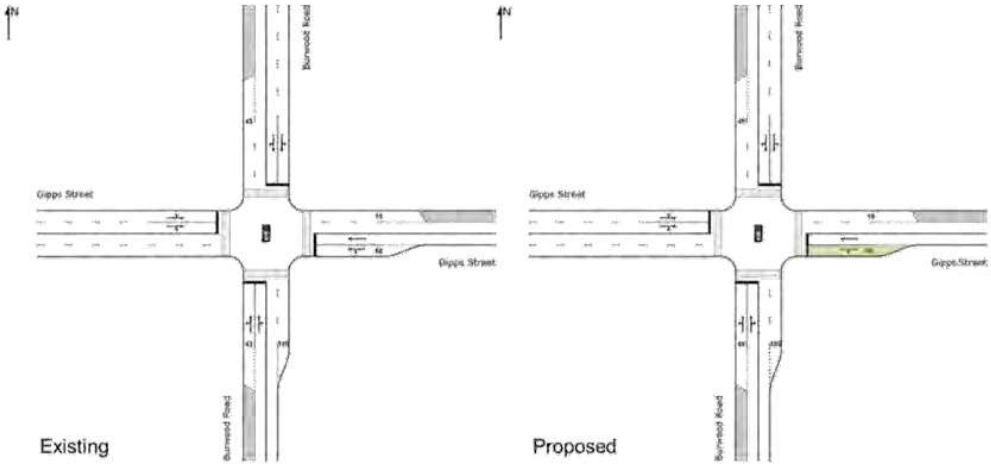


Figure 13: Broughton Street/ Gipps Street potential mitigation measure

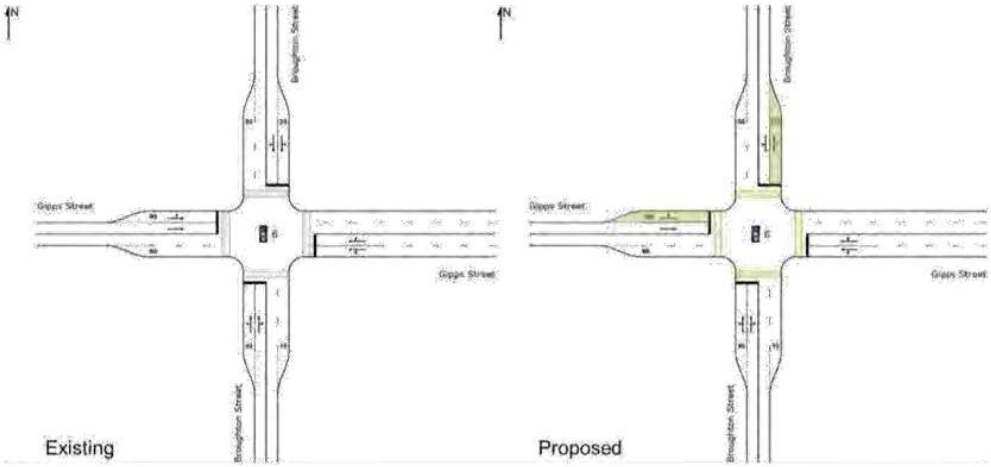


Table 15: 2036 AM intersection operation without development traffic with mitigation measures

Intersection	Peak	Degree of saturation (DOS)	Average delay (sec)	Average queue (m)	Level of service (LOS)
Broughton St/ Zoeller St/ Ian Pde	AM	0.32	21	6	B
Broughton Street/ Crane Street		0.66	26	64	B
Burwood Road/ Crane Street		0.64	34	74	C
Burwood Road/ Gipps Street		0.76	37	116	C
Burwood Road/ Parramatta Rd		0.62	18	88	B
Broughton Street/ Gipps Street		0.99	52	162	D
Boughton Street/ Parramatta Rd		0.60	17	110	B

Table 15 confirms that with implementation of the identified potential mitigation measures, all intersections would return to a satisfactory LOS D or better overall. It is however also noted that the Broughton Street/ Gipps Street intersection would effectively be at capacity, as indicated by the DOS of around 1.00.

7.4.3 2036 WITH DEVELOPMENT

Table 16 presents a summary of the intersection operation of the key surveyed intersections in 2036 following full development of the site, with the potential mitigation measures identified in Section 7.4.2 above applied to the AM peak hour scenario.

Table 16: 2036 intersection operation with development traffic and AM mitigation measures

Intersection	Peak	Degree of saturation (DOS)	Average delay (sec)	Average queue (m)	Level of service (LOS)
Broughton Street/ Zoeller Street/ Ian Parade	AM	0.42	22	9	B
	PM	0.31	13	6	A
	Saturday	0.50	16	12	B
Broughton Street/ Crane Street	AM	0.66	26	65	B
	PM	0.86	32	109	C
	Saturday	0.90	34	134	C
Burwood Road/ Crane Street	AM	0.70	36	81	C
	PM	0.82	39	106	C
	Saturday	0.91	47	126	D
Burwood Road/ Gipps Street	AM	0.80	32	107	C
	PM	0.97	41	134	C
	Saturday	0.80	31	84	C
Burwood Road/ Parramatta Road	AM	0.63	18	91	B
	PM	0.60	19	92	B
	Saturday	0.59	17	87	B
Broughton Street/ Gipps Street	AM	1.00	55	163	D
	PM	0.84	34	87	C
	Saturday	1.15	84	196	F
Boughton Street/ Parramatta Road	AM	0.64	18	119	B
	PM	0.67	18	98	B
	Saturday	0.70	22	125	B

Table 16 indicates most intersections are expected to continue operating similar to the 2036 without development scenario, with the exception of the Broughton Street/ Gipps Street intersection during the Saturday peak hour which is expected to reduce to a LOS F. The average delay at the Broughton Street/ Gipps Street is expected to increase by just three seconds with average queues expected to remain similar overall despite this intersection effectively being at capacity in the 2036 without development scenario. This highlights the minor impact the proposed development is anticipated to have on the study intersections, and at this intersection in particular.

To resolve the capacity constraints at the Broughton Street/ Gipps Street intersection during the Saturday peak hour, the same mitigation measures proposed at the Burwood Road/ Gipps Street intersection in the weekday AM peak hour have been applied to the Saturday peak hour (i.e., increasing the length of the short lane on the east approach from 65 metres to 100 metres). A summary of the anticipated intersection operation with these mitigation measures in place is presented in Table 17.

Table 17: 2036 Saturday intersection operation with development traffic + mitigation measures

Intersection	Peak	Degree of saturation (DOS)	Average delay (sec)	Average queue (m)	Level of service (LOS)
Broughton St/ Zoeller St/ Ian Pde	Saturday	0.50	16	12	B
Broughton Street/ Crane Street		0.93	35	135	C
Burwood Road/ Crane Street		0.91	47	126	D
Burwood Road/ Gipps Street		0.78	32	86	C
Burwood Road/ Parramatta Rd		0.59	18	87	B
Broughton Street/ Gipps Street		0.77	32	81	C
Boughton Street/ Parramatta Rd		0.72	23	127	B

Table 17 indicates that with the potential mitigation measures applied in the Saturday peak hour, all intersections would return to a satisfactory LOS overall.

Average queue lengths for all peak hours are also considered acceptable, with the network modelling confirming queues would not extend back nor impact other key intersections.

7.5 Summary

Against existing traffic volumes in the vicinity of the site, the additional traffic generated by the proposed development could not be expected to compromise the safety or materially impact the function of the surrounding road network. Traffic modelling indicates some constraints on the surrounding local road network, specifically along Gipps Street based on 2036 background traffic growth without proposed development traffic included. Potential minor mitigation measures have been identified to resolve these capacity constraints should this traffic growth be realised, with the identified measures able to be delivered within the existing road configuration and limited to some adjustments to kerbside parking restrictions during peak periods. With the potential mitigation measures, all intersections are expected to continue operating at an overall satisfactory LOS in 2036, with similar delays and queues to without the proposed development.

A summary of the anticipated minor change in traffic volumes as a result of the proposed development in comparison to the existing and 2036 background traffic growth forecasts is included in Table 18 and Table 19 respectively.

Further to this, the proposed development will also provide a variety of local and speciality shops in which will directly service the immediate surrounding residential catchment. Currently, the nearest local shops are located on Majors Bay Road. The proposed commercial and retail offering will ultimately reduce the number of local trips surrounding residents take to get to get to their local shops by providing daily needs within an easy walk of people.

160 Burwood Road, Concord
7 Traffic Impact Assessment

Table 18: 2022 traffic volume comparison

Intersection	Existing			With development					
	AM	PM	Saturday	AM	Difference	PM	Difference	Saturday	Difference
Broughton St/ Zoeller St/ Ian Pde	1,575	1,495	1,491	1,695	8%	1,683	13%	1,795	20%
Broughton Street/ Crane Street	1,612	2,004	2,050	1,645	2%	2,056	3%	2,131	4%
Burwood Road/ Crane Street	1,465	1,745	1,780	1,608	10%	1,966	13%	2,149	21%
Burwood Road/ Gipps Street	2,412	2,368	2,070	2,467	2%	2,452	4%	2,213	7%
Burwood Road/ Parramatta Road	4,416	4,346	4,418	4,474	1%	4,437	2%	4,565	3%
Broughton Street/ Gipps Street	2,658	2,624	2,399	2,684	1%	2,665	2%	2,462	3%
Broughton Street/ Parramatta Road	3,961	3,898	4,135	3,983	1%	3,934	1%	4,190	1%

Table 19: 2036 traffic volume comparison

Intersection	2036 background growth			With development					
	AM	PM	Saturday	AM	Difference	PM	Difference	Saturday	Difference
Broughton St/ Zoeller St/ Ian Pde	1,852	1,703	1,733	1,972	6%	1,890	11%	2,037	18%
Broughton Street/ Crane Street	1,899	2,300	2,411	1,932	2%	2,352	2%	2,492	3%
Burwood Road/ Crane Street	1,587	1,908	1,931	1,730	9%	2,129	12%	2,300	19%
Burwood Road/ Gipps Street	2,724	2,548	2,267	2,779	2%	2,632	3%	2,410	6%
Burwood Road/ Parramatta Road	4,126	3,960	4,038	4,184	1%	4,051	2%	4,185	4%
Broughton Street/ Gipps Street	3,188	2,868	2,764	3,214	1%	2,909	1%	2,828	2%
Broughton Street/ Parramatta Road	3,501	3,418	3,671	3,524	1%	3,454	1%	3,726	1%

8 Other Considerations

8.1 Car Share

As previously mentioned, there are no car sharing facilities within close proximity of the site. As part of the development, car share spaces could be provided on-site to provide residents an alternative to owning their own car. The benefits of car share can be:

- Reduced car usage – research shows that people drive on average 20 per cent less when using car share.
- Fewer cars – Industry evidence suggests a single car share space can replace the need for around five parking spaces for residents and/or visitors.
- Promotes and maintains liveable communities – encourages public and active transport use, facilitating interactions which creates cohesive residential communities.
- Provides economic benefit – can be cheaper alternate to owning a car for infrequent drivers.
- Cleaner Air – more fuel-efficient cars result in less pollution.

The inclusion of car sharing facilities on-site may support a dispensation in car parking provision should a reduction from the required rates outlined in the DCP be sought.

8.2 Autonomous Vehicles

With continuing technological advancements, research and development into autonomous vehicles, there is the potential for significant impacts to the automotive industry which will in turn alter the way in which we plan and design cities. While is it unlikely that fully autonomous vehicles will be available in the short term, research suggests that there is potential for the technology and associated enabling legislation to be available within the next 25 years. In this regard, the potential impacts of autonomous vehicles on the proposed development are considered.

One of the main considerations regarding this development is the reduction in car parking space required for autonomous vehicles. Self-parking vehicles would not require open-door space for drivers and passengers to enter and exit the car when parking. Drivers and passengers could be dropped off prior to parking, and the vehicle could then park itself. Research suggests the parking space itself could require 15 per cent less space.

In addition to this, the whole concept of car ownership could alter, further reducing car parking requirements. Instead of individual car ownership, car sharing may become more popular with the ability for individuals to request a vehicle pick them up and drop them off without the need for the vehicle to park at either the origin or the destination. While this may have a positive impact in the reduction of car parking space required, it has the potential to increase traffic volumes with unoccupied vehicle trips.

Given the long-term outlook for the implementation of fully autonomous vehicles, no immediate impact is considered for the development. However, given the long-term potential for a reduction in car parking demand, consideration should be given to the ability to retrofit alternative use(s) into basement car parking. Possible design considerations include providing car spaces with increased height clearance to accommodate the height requirements of commercial floor space.

8.3 Development Staging

As discussed in Section 2.6, the NSW Government has indicated plans to deliver Sydney Metro West in the late 2020s. In addition, the next stage of WestConnex near Iron Cove and Rozelle is expected to open in 2023, potentially having further benefit to reducing traffic volumes along Parramatta Road and nearby east-west links.

When considering the timeframes related to gaining approval for the proposed rezoning, concept master plan, staged development applications and construction itself, it is expected that the development will align well with the implementation of these infrastructure projects, which will likely further assist in reducing the travel demand of the site, as well as alleviate demand for key roads surrounding the site.

9 Conclusion

Based on the analysis and discussions presented within this report, the following conclusions are made:

1. It is proposed to rezone the subject site to a B4 Mixed Use zone, increase the permissible height limit and introduce a site-specific floor space ratio.
2. The indicative development yield is around 400 apartments, a maximum 7,000 square metres GFA of retail/ commercial uses and a minimum 3,000 square metres of light industry/ urban services.
3. The proposed development is anticipated to generate in the order of 257 vehicle trips in the weekday AM peak hour, 398 trips in the weekday PM and 656 trips on Saturdays.
4. It is recommended that car parking for the future land uses be provided in accordance with the requirements of the City of Canada Bay DCP. There may be an opportunity to share (part of) the residential visitor parking provision with the retail parking, as well as reducing the overall visitor parking provision to be more consistent with typical high-density developments.
5. It is recommended that bicycle parking for the future land uses be provided in accordance with the requirements of the City of Canada Bay DCP.
6. There is generally adequate capacity in the surrounding road network to cater for the traffic generated by the proposed development, in addition to projected future background traffic increases/ decreases, following implementation of select agreed road network improvements.
7. The project team would work with Transport for NSW and Council to agree operational and physical improvements to affected intersections, particularly the Broughton Street/ Gipps Street and Burwood Road/ Gipps Street intersections. Potential measures have been identified which can be accommodated within the existing road configuration, subject to some minor removal of existing on-street parking during peak periods. With these mitigation measures, the key intersections surrounding the site are expected to operate satisfactorily in the weekday and Saturday peak periods in the assessed 2036 future year scenario.
8. There is potential of electric bicycles to be provided to residents of the development to complete the first and last kilometre of their journey to surrounding transport interchanges such as Burwood and Strathfield Stations, as well as the future Sydney Metro West Burwood North Station.
9. An on-site car share pod of minimum 10 vehicles is recommended to assist with managing car ownership and travel demand, with incremental implementation.
10. Given the proposed retail and commercial uses, it is likely the proposed development will result in a reduction in local vehicle trips of the surrounding area by providing daily needs within an easy walk.

160 Burwood Road, Concord
9 Conclusion

11. Staging of the development will also align with surrounding infrastructure projects such as Sydney Metro West, considering the required timeframe for the rezoning itself, concept master plan approval, staged development applications and construction.

12. Future development has the potential to make a positive contribution to the surrounding area by providing a new retail precinct, with cafes, restaurants and cultural space.

160 Burwood Road, Concord

APPENDICES

Project Number: 300303387

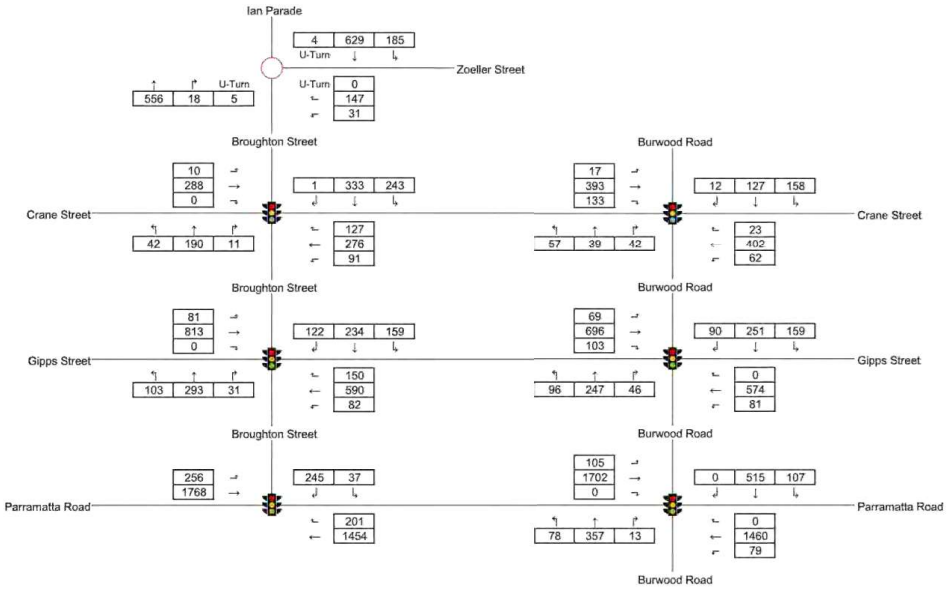
160 Burwood Road, Concord

Appendix A Turning Movement Diagrams

Project Number: 300303387

2022 AM

Stantec



2022 PM

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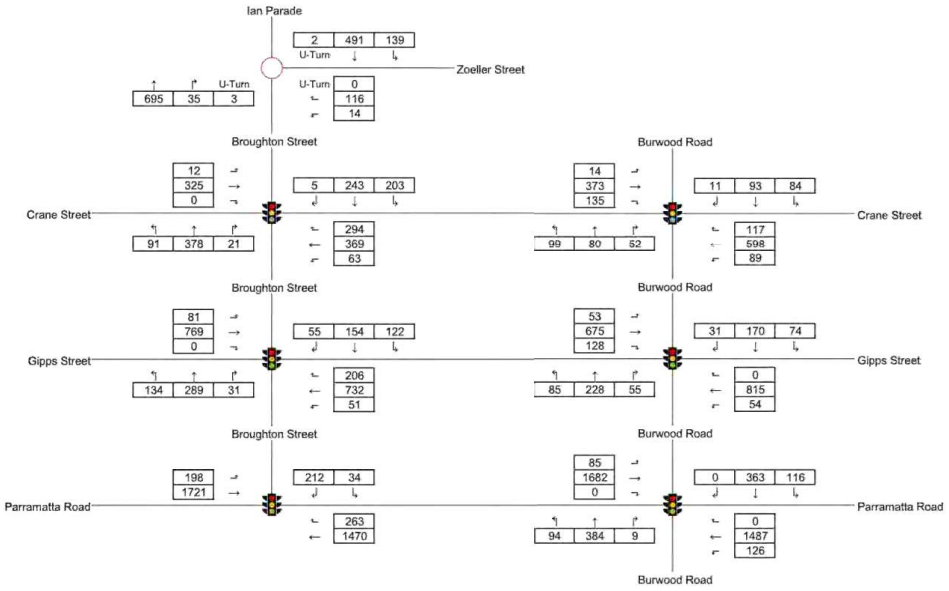

2022 SAT

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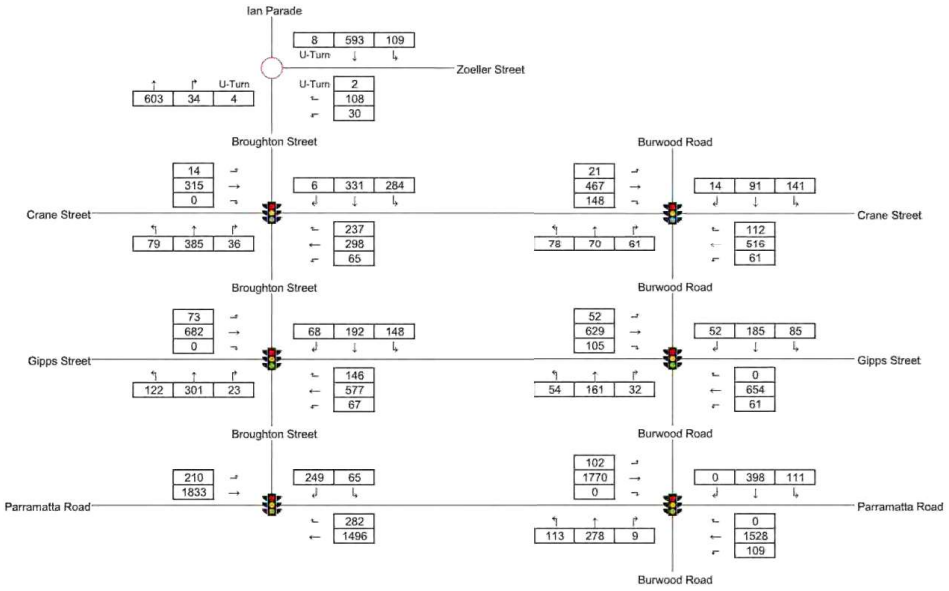
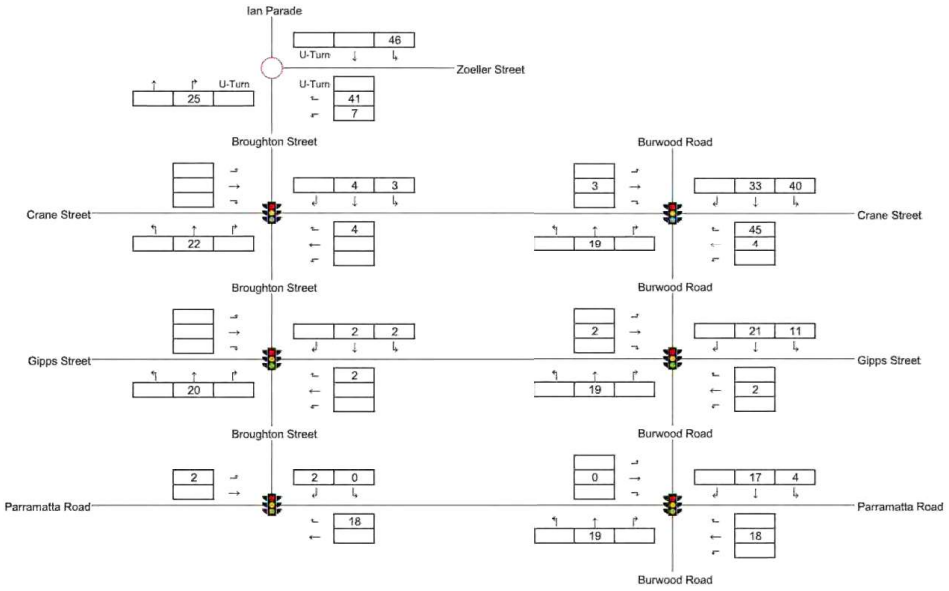
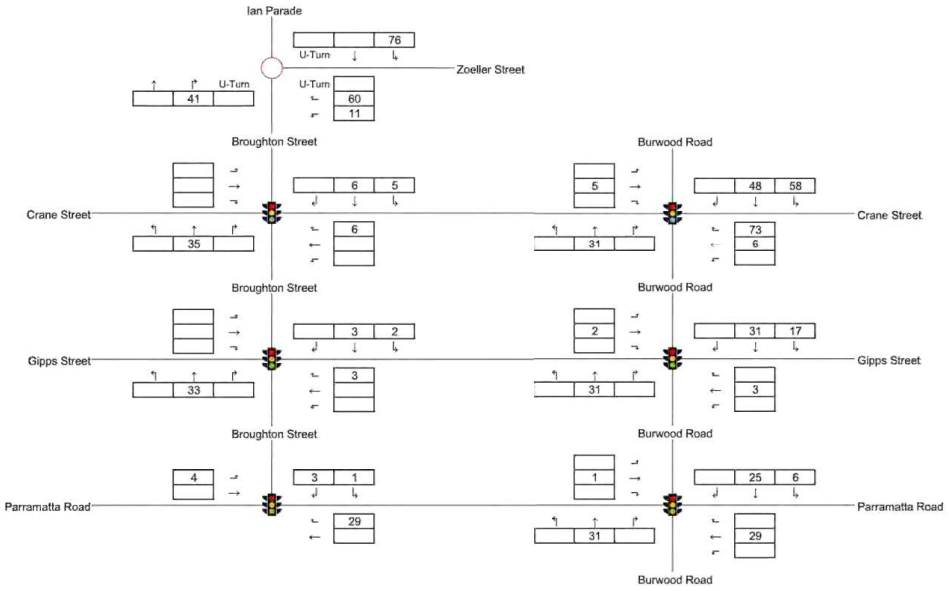


Dev AM


Ian Parade
Zoeller Street
Broughton Street
Burwood Road
Crane Street
Gipps Street
Parramatta Road
U-Turn

Dev PM

Stantec



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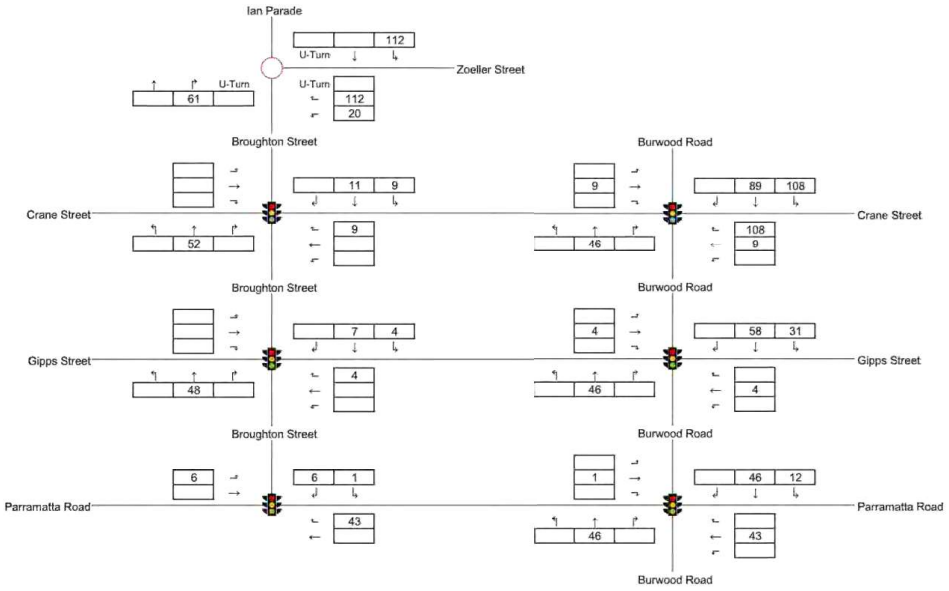

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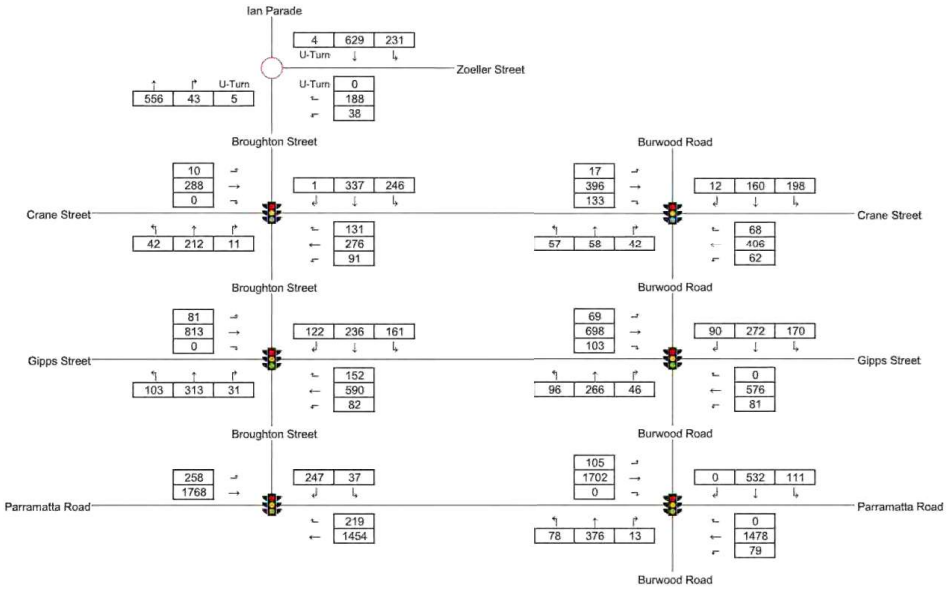

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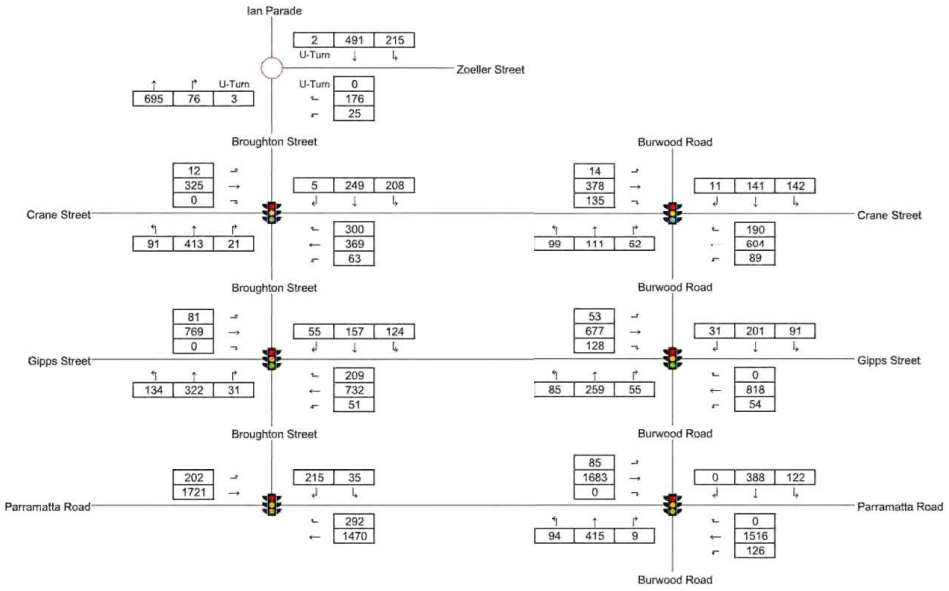

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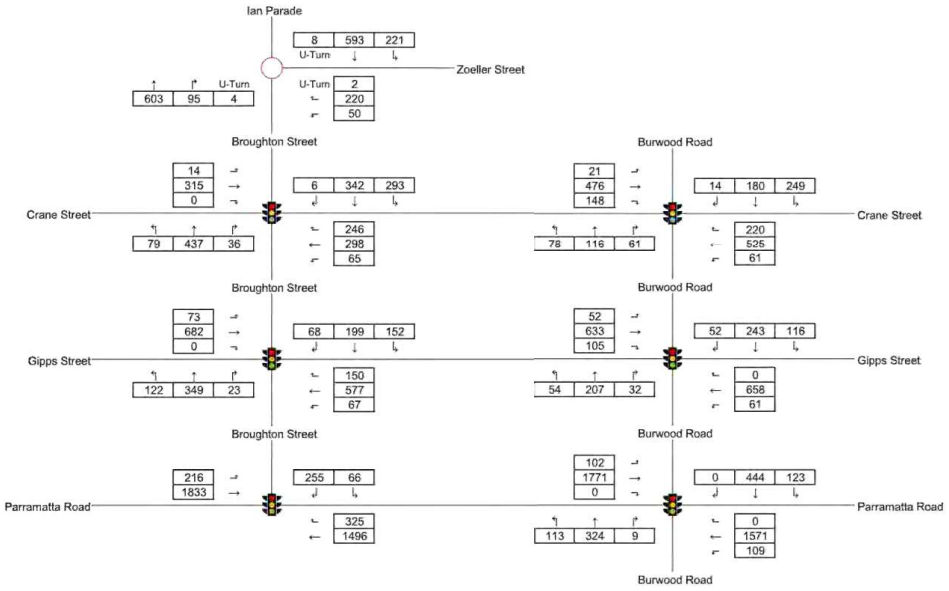

2036 AM

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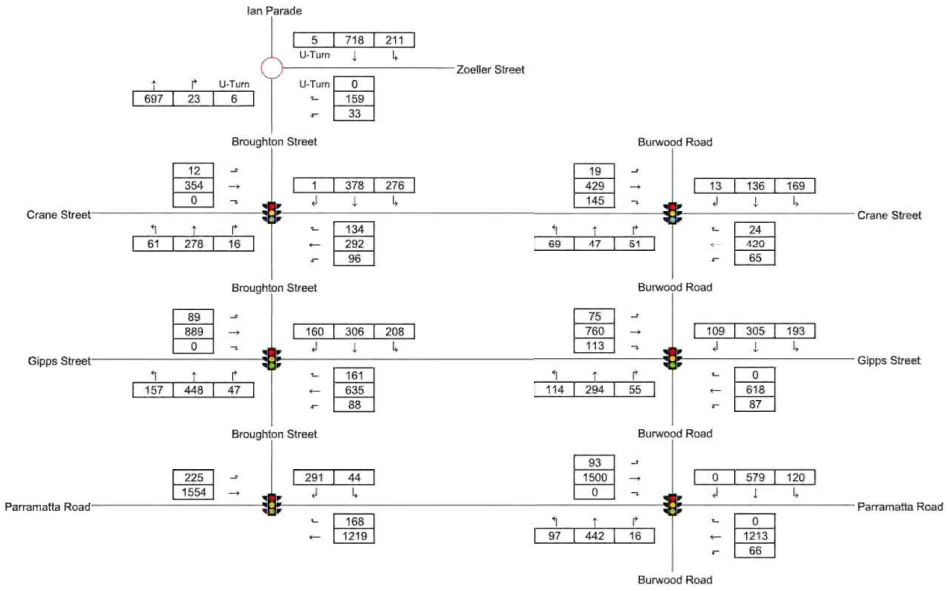

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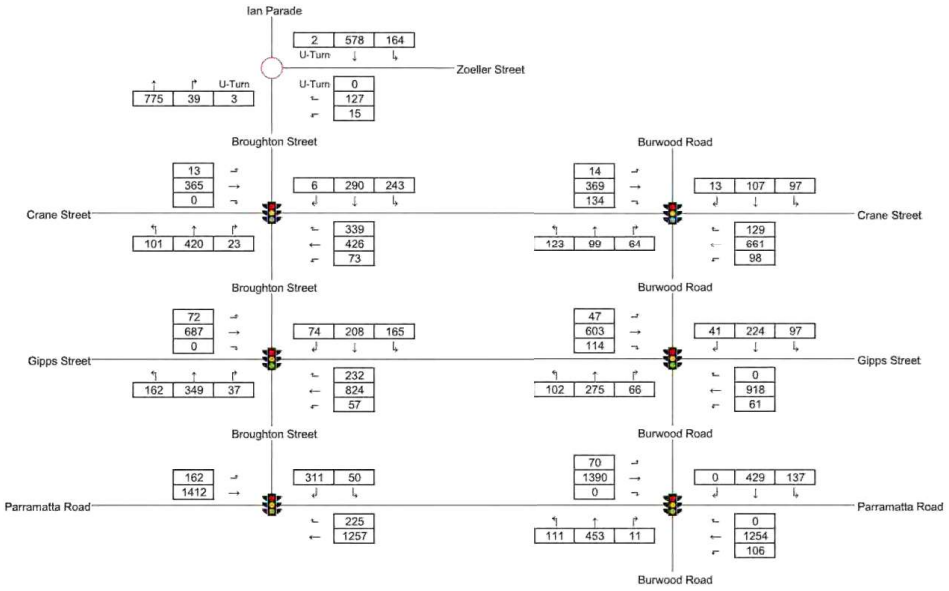

2036 SAT

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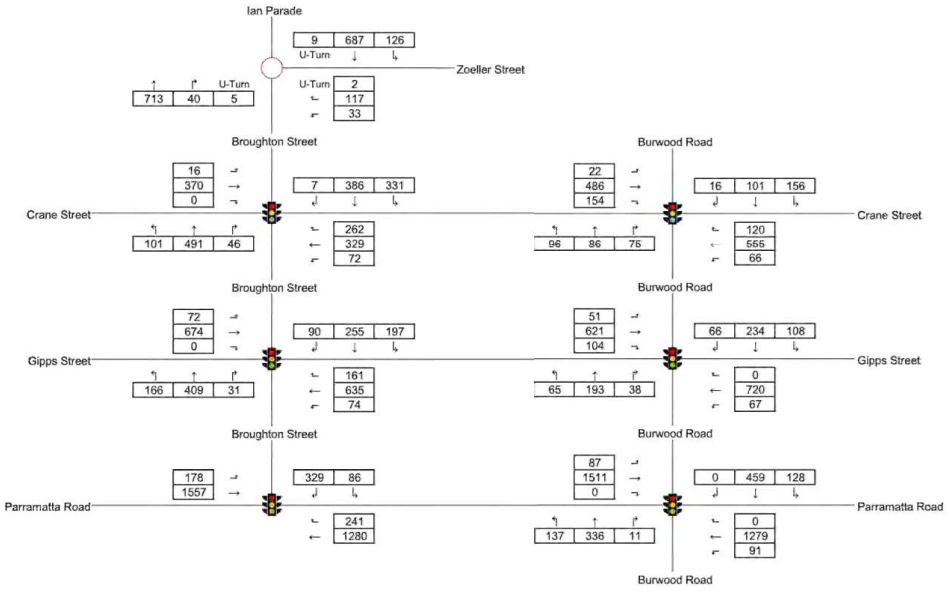

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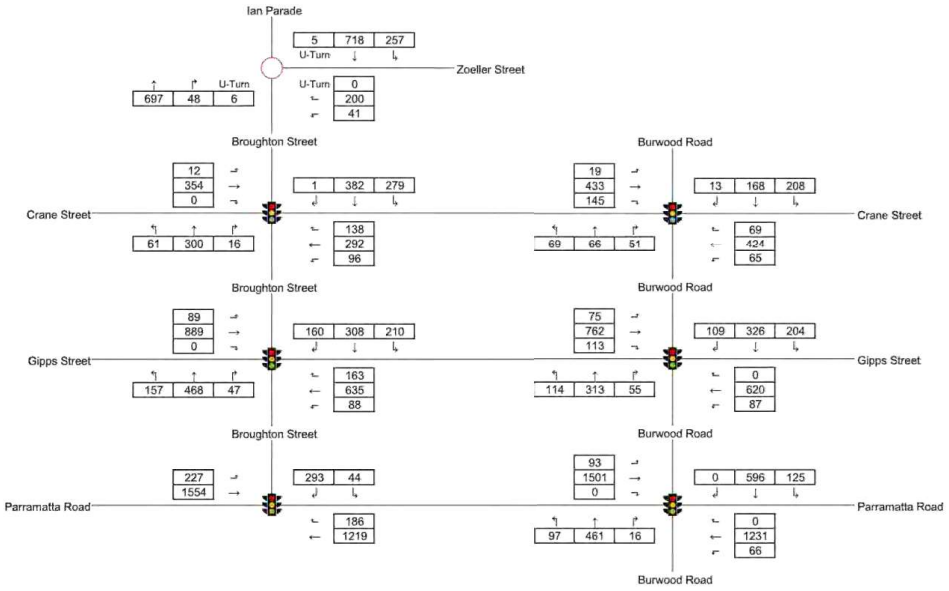

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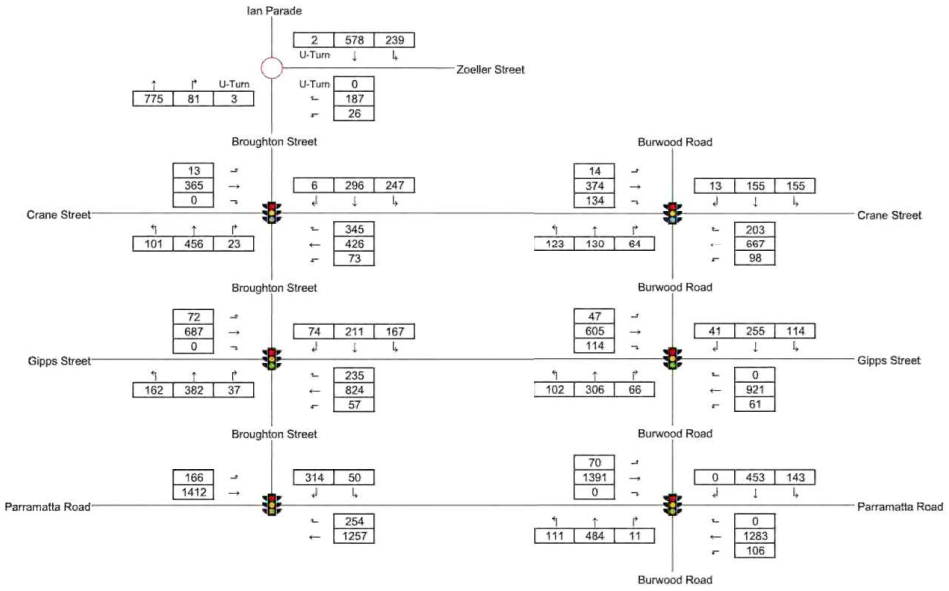

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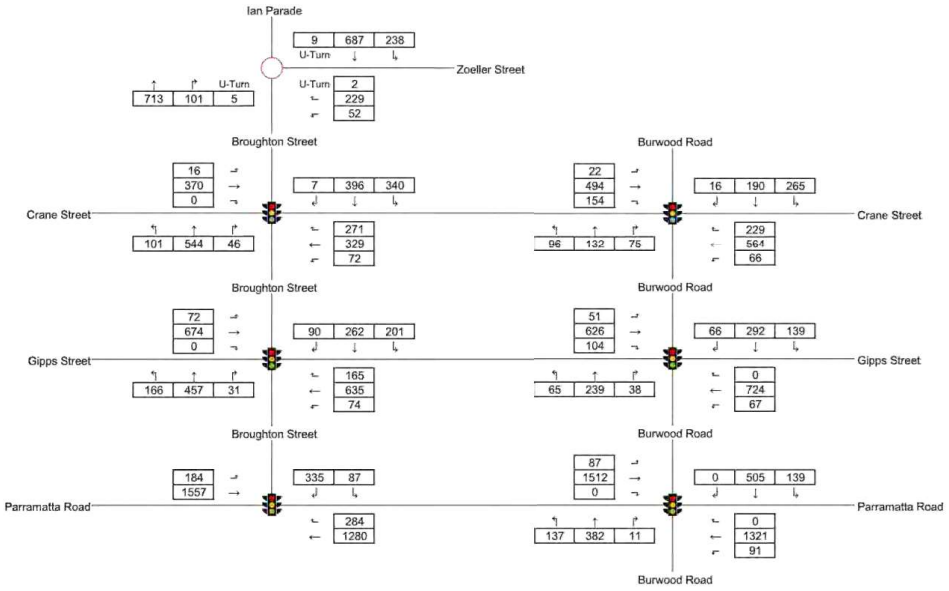

Moore Trees
Arboricultural Services

ABN 90887347745

Arboricultural Development Assessment Report

160 Burwood Road
Concord NSW 2137
Lot 5 in DP 129 325
Lots 398 and 399 in DP752023
Lot 2 in DP 230294
July 2018
FINAL (Updated 5th September 2019)

Member 2018

Registered Consultant

Prepared for: Colliers International
Project Management

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Summary

This report has been compiled for Colliers International Project Management, Level 30, Grosvenor Place, 225 George Street Sydney, NSW 2000. The report concerns a proposed Development Application for 160 Burwood Road, Concord NSW 2137. This Arborist Report refers to two hundred and twelve (212) trees.

This report contains the following information required in The City of Canada Bay Council Development guidelines:-

1) All trees were assessed for Safe Useful Life Expectancy (SULE).
2) Genus and species of each tree.
3) Impact of the proposed development on each tree.
4) Impact of retaining tree on the proposed development.
5) The Tree Protection Zone (TPZ) for each tree to be retained.
6) Any root barriers necessary, type and location.
7) Any branch or root pruning that may be required for trees.
8) List trees within fifteen (15) metres of the site boundary.

Of the two hundred and twelve (212) trees assessed for this report many are in a poor condition or have been overplanted to an extent where they have become suppressed.

The large group of Trees numbered as 33-67 along the western boundary that form a large screen to the site will be retained. The grafted root zones and codominant canopies will not allow any form of services or stormwater works through this area if they are to be retained. The TPZ distances in the Tree Schedule (Appendix 1) should be used should any potential works fall near these trees.

Trees numbered to be retained are numbered as 34-66, 88-91, 93, 94-101, 145-179, 184, 186-190 (191-192 offsite) , 206 and 207. Tree 184 may be relocated within the site. All other trees are to be removed. Trees to be retained should be fenced prior to demolitions works occurring.

Refer to Sections 5 and 6 of this report for full recommendations and tree protection specifications.

Table of Contents

VERSION CONTROL

Date of Issue	Details
8th April 2016	Draft 1 issued
26th July 2018	Draft 2 issued
26th July 2018	Final version issued
5th September 2019	Updated for new plans

1 INTRODUCTION

1.1 This report has been conducted to assess the health and condition of two hundred and twelve (212) trees located at *160 Burwood Road, Concord NSW 2137*. This report has been prepared for Colliers International Project Management, Level 30, Grosvenor Place, 225 George Street Sydney, NSW 2000 as required for a Development Application with The City of Canada Bay Council at this site.

The purpose of this report is to collect the appropriate tree related data on the subject trees and to provide advice and recommendations that will help to retain trees worthy of retention.

The subject trees were assessed for their health and condition. Also included in this report are tree protection measures that will help retain and ensure that the long term health of the trees to be retained are not adversely affected by the proposed development in the future. These tree protection measures will need to be completed once final designs have been completed.

As specified in The City of Canada Bay Council Development Application guidelines the following data was collected for each tree:

1) A site plan locating all trees over four (4) metres in height, including all street trees.
2) All trees were assessed for Safe Useful Life Expectancy (SULE), health and amenity value.
3) Genus and species identification of each tree.
4) Impact of the proposed development on each tree.
5) The Tree Protection Zone (TPZ) calculated for each tree.
6) Any branch or root pruning that may be required for trees.

Also noted for the purpose of this report were:

- Health and Vigour; using foliage colour and size, extension growth, presence of deadwood, dieback and epicormic growth throughout the tree.
- Structural condition using visible evidence of bulges, cracks, leans and previous pruning.
- The suitability of the tree taking into consideration the proposed development.

- Age rating; Over-mature (>80% life expectancy), Mature (20-80% life expectancy), Young, Sapling (<20% life expectancy).

1.2 Documents and information provided: For this Arborist Report I was given a site plan of the location, undertaken by CMS Surveyors Pty Limited marked DWG # 13040 detail issue 1 dated 12/05.15. I was also provided with an Illustrative Master Plan for the site.

1.3 Location: The proposed development site is located at 160 Burwood Road, Concord NSW 2137 (Diagram 1). Known as Lot 5 in DP 129 325, Lots 398 and 399 in DP752023, Lot 2 in DP 230294. The proposed development site from herein will be referred to as "the Site". The study area can be seen in Diagram 2.

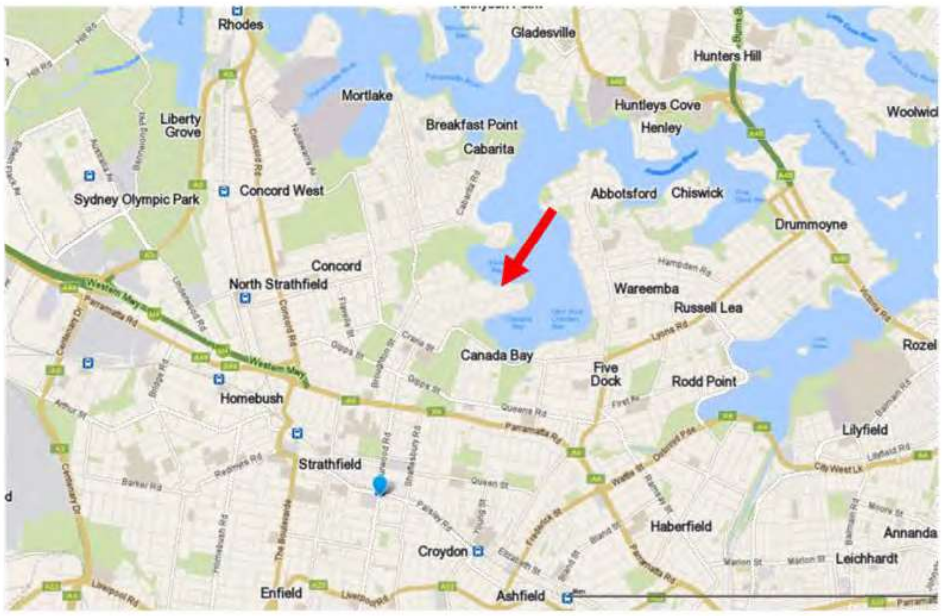


Diagram 1: Location of subject site, *160 Burwood Road, Concord NSW 2137* (Red arrow) (whereis.com.au, 2018)

Diagram 2: Location of the study area (whereis.com.au, 2018)

2 METHODOLOGY

2.1 To record the health and condition of the trees, a Visual Tree Assessment (VTA) was undertaken on the subject trees on 23 March 2016. This method of tree evaluation is adapted from Matheny and Clark, 1994 and is recognised by The International Society of Arboriculture. Individual tree assessments are listed in Appendix 2 of this report. All inspections were undertaken from the ground. No diagnostic devices were used on these trees.

2.2 This report is only concerned with trees on the site that come under The City of Canada Bay Council Tree Management Order policy (TPO). It takes no account of any tree or shrub under four (4) metres in height.

2.3 **Height:** The heights and distances within this report have been measured with a Bosch DLE 50 laser measure.

2.4 **Tree Protection Zones (TPZ):** The Tree Protection Zone (TPZ) is the principal means of protecting trees on development sites. The TPZ is a combination of the root area and crown area requiring protection. It is an area isolated from construction disturbance, so that the tree remains viable. TPZ's have been calculated to help determine impacts for each tree. The TPZ calculation is based on the Australian Standard *Protection of trees on development sites,* AS 4970, 2009.

2.5 **Structural Root Zone (SRZ)**: The SRZ is a specified distance measured from the trunk that is set aside for the protection of tree roots, both structural and fibrous. The woody root growth and soil cohesion in this area are necessary to hold the tree upright. The TPZ and SRZ are measured as a radial measurement from the trunk. No roots should be severed within this area. A detailed methodology on the TPZ and SRZ calculations can be found in Appendix 4. It is possible that the current design may change. It is strongly recommended that the Architect applies the calculated TPZ and SRZ distances to their construction drawings and assess impacts should designs change. The Architect should notify Moore Trees during the design stage should any works fall within the TPZ and SRZ distances of a potential tree to be retained.

2.6 **SULE**: The subject trees were assessed for a Safe Useful Life Expectancy (SULE). The SULE rating for each tree can be seen the Tree Assessment Schedule (Appendix 2). A detailed explanation of SULE can be found in Appendix 3.

2.7 **Plans provided**:

- CMS Surveyors Pty Limited marked DWG # 13040 detail issue 1 dated 12/05.15;
- Illustrative Master Plan marked OC-L-001 dated 13.6.18 Rev D and architectural set by Oculus AR-XX-XX-001 to 009;
- Tree Retention and Protection Plan marked project S-15021 L101 undated.
- BVN Plans, Issue D, dated 29,01,19, marked AR-XX-XX-001- AR-XX-XX-010

2.8 **Impact Assessment:** A basic impact assessment was conducted on the site trees. This was conducted by assessing the site survey and concept plans provided by Colliers International Project Management. The plans provided were assessed for the following:

- Reduced Level (R.L.) at base of tree.
- Incursions into the Tree Protection Zone (TPZ).
- Assessment of the likely impact of the works.
- Location of sediment controls in relation to TPZ areas
- Location of stockpile areas in relation to TPZ areas
- Canopy clearance for scaffolding Australian Standard (Scaffolding) 1576.1, 2010 and Scaffolding Code of Practice 2009-Safe work Australia.

3 RELEVANT BACKGROUND INFORMATION

3.1 The site is bounded by Sydney Harbour, Burwood Road, Duke Street and Zoeller Street. The site is currently an industrial area that consists of large factory and warehouse buildings and associated offices. Car parking is located on the northern side of the main buildings and the area has several open space areas that have been planted with mixture of native and exotic tree species with lawn areas adjoining the harbor. There does not appear to have been any particular planting theme for the site and trees have been removed and replaced as required.

3.2 **Environmental Significance**: The City of Canada Bay Council prohibits the ring barking, cutting down, lopping, removing, injuring or wilful destruction of any tree, or any part of the tree, if:

(a) The tree has a height of, or greater than, four (4) metres;

(b) The tree has a trunk girth of, or greater than, 500mm at any point; or

(c) The tree is a cycad or mangrove, irrespective of its dimensions, except with the express written consent of the Council.

3.3 **Illegal tree removal:** Damaging or removing trees can result in heavy fines. Local Government does have the authority to issue on the spot fines known as penalty infringement notices (PINS) starting from $3,000 or can elect to have a potential tree damaging incident addressed in the Local Court. Recent cases, for example, include two (2) mature trees removed for development (Sutherland Shire Council (SSC) v Palamara, 2008) costing $4,500 in fines and $5,000 in court costs. SSC v El-Hage, 2010 concerning illegal tree removal of a single tree costing $31,500 in fines and $5,000 in costs. Poisoning trees can also incur substantial fines (SSC v Hill) resulted in a single tree fine that totalled $14,000 plus a $10,000 bond for a replacement tree. All of the above cases resulted in a criminal conviction for the guilty parties.

3.4 **The Site Trees:** The site was inspected on 23 March 2016. Each tree has been given a unique number for this site and can be viewed on the Tree Location Plan (Appendix 1). This plan is based on the plan undertaken by CMS Surveyors Pty Limited marked DWG # 13040 detail issue 1 dated 12/05.15. Tree locations can be seen in the Tree Location Plan (Appendix 1).

3.5 Trees 1-30 are located on the southern side of the site, consisting mostly of conifers and a single specimen Jacaranda *(Jacaranda mimosifolia)* near the main security entry on Burwood Road (Tree 1). This tree is in good health and condition although it does have some quite low lying lateral branches (Plate 1). The main trunk, first and second order branches are free of any cracks, splits or fruiting bodies. New extension growth was noted. The basal area and woody root zone were free of any ground heaving, or lifting.

3.6 The street trees along Burwood Road are numbered as Trees 205-212. These are all Water Gums and would not be considered significant trees and could readily be replaced, however they are Council property.

3.7 Along the western boundary is a large screen planting (Plate 2) of native and exotic tree species consisting of mature trees including watergum, Jacaranda *(Jacaranda mimosifolia)*, Podocarpus, Gum trees *(Eucalyptus sp.)*, Brush Box *(Lophostemon confertus)*, Oleander shrubs. Generally, these trees are in good health and condition. As individual specimens, these trees are not particularly significant, however as a group they certainly form a good screening of vegetation between the residential dwellings of Duke Street and the warehouse area. Some of the adjoining properties have large trees close to the boundary. These are numbered as Trees 46 and 52. These trees located on the adjoining properties are in good health and condition and would be considered significant. No building works should occur within eight (8) metres of these trees as measured from the centre of each tree. The TPZ's for these trees will need to be implemented on any designs so that irreparable damage does not occur to them. These trees are within two (2) metres of the boundary fences.

3.8 Along the northern border of the site are Trees 72, 73, 78, 84 and 85. These trees are all large *Eucalyptus* species that appear to be in good health and condition. These trees are growing within the Golf Course and will be affected by the construction of a new road.

3.9 The eastern side of the site consists of a long narrow driveway extending from the security gate on Burwood Road (Plate 3). It has been densely planted with a mix of Broad-leaved Paperbark *(Melaleuca quinquenervia)*, Alder (*Alnus jorullensis)* trees and conifers that are generally in fair to good condition with several poor specimens.

3.10 The driveway leads to a large open field area that has Tree 184 (Plate 4), a large mature Hills Weeping Fig *(Ficus microcarpa var. 'Hillii')*. This tree is the largest tree on site and forms a very prominent feature tree. This tree is in excellent health and condition, free of any cracks, splits and fruiting bodies. The woody root zone around the base of the tree has been mulched. It has been well cared for and as a result is certainly worth keeping if possible. It should be noted that this tree species is not indigenous to the Sydney area. The north-eastern corner of the site, around Tree 184, is densely planted forming a thick screen to adjoining residential units. The north-western area contains a mixture of She Oak *(Casuarina sp.)* and Gum trees *(Eucalyptus sp.)*. These trees are all in good health and condition. The main car park area has been mostly planted with Broad-leaved Paperbark *(Melaleuca quinquenervia)*, all approximately spaced 2-3 metres apart, in varying sizes ranging from 200mm - 450mm stem diameter (Plate 5). These trees are all in good health and condition. Damage to the surrounding asphalt, kerb and gutter is occurring due to the small planter beds these trees are planted in. Also in the car park are two (2) Lemon-scented Gum Tree *(Corymbia citridora)*. These are numbered as follows Trees 137 and 138 (Plate 6). These trees are all in good health and condition, free of cracks, splits and fruiting bodies. This species will not tolerate works over the root zone or level changes. These specimens will be approximately 20-30 years old.

3.11 Trees 191 and 192 are located within public open space however they are allocated within the boundaries of the site, growing on the foreshore edge (Plate 7). These trees are single specimens of Port jackson fig *(Ficus rubiginosa)* and Swamp she oak *(Casuarina glauca)*. These trees are in good health and condition. The main trunk, first and second order branches are free of any cracks, splits or fruiting bodies. New extension growth was noted. The basal area and woody root zone were free of any ground heaving, or lifting. These trees could be replaced if required as they are less than 15 years old.

3.12 **Exempt trees:** Canada Bay Council lists several species of trees as being exempt from the provisions of the Development Control Plan (DCP). Trees species identified as *Oleander sp,* Cocos palm *(Syagrus romanzoffiana)* and Alder *(Alnus jorullensis)* are all present on site. These trees are numbered as 144, 189, 190, 196, 198 and 199 (Cocos) and Trees 145, 146, 147, 151, 154, 161, 162 and 163 are Alder trees.

3.13 Trees numbered as 98 and 182 are memorial trees as evidenced by small plaques at the base. They appear to be former staff members at the factory. Tree 98 is a small struggling Swamp mahogany *(Eucalyptus robusta)* only in fair condition. Tree 182 is a small Silky oak *(Grevillea robusta)* that has the main central leader dying, most likely from old storm damage.

4 RECOMMENDATIONS

4.1 Of the two hundred and twelve (212) trees assessed for this report many are in a poor condition or have been overplanted to an extent where they have become suppressed. Tree 1, the large mature Jacaranda by the front gate is significant. This tree will have an extensive root system that will extend far beyond the drip line as shown in Appendix 8. The proposed building near this tree is very close and extensive pruning of the canopy to comply with scaffolding standards will not allow much of a specimen to be retained. Unfortunately, as it is surrounded by various levels and concrete structures retaining this tree will be difficult.

4.2 The large group of Trees numbered as 34-66 along the western boundary that form a large screen to the site appear possible to retain. The grafted root zones and codominant canopies will not allow any form of services or stormwater works through this area if they are to be retained. The TPZ distances in the Tree Schedule (Appendix 1) should be used should any potential works fall near these trees.

4.3 There are some clumps of trees along the northern section of the site that border the Golf Course with some being located on the Golf course. These are groups 69-71, 76-79 and 80-85. These trees will all be impacted by the extension of Zoeller Street. Kerb, guttering and drainage works will not allow for any of these trees to be retained.

4.4 Trees within the main car park area would suffer extensive root damage removing surrounding asphalt and concrete. Woody roots and fine feeder roots would be damaged, making long term viability of any of these trees almost impossible to retain.

4.5 Trees 167-190 and 88-102 are located around the lawn area and fronting the foreshore area. Although over planted these trees are mostly in good health and condition and are worthy of retention. Tree 184, the large mature Hills Fig is certainly worth retaining, if possible. At present Tree 184 is proposed to be relocated within the site. A site specific tree relocation specification will be required for a tree of this size.

4.6 Trees numbered to be retained are numbered as 34-66, 88-91, 93, 94-101, 145-179, 184, 186-190 (191-192 offsite) , 206 and 207. Tree 184 may be relocated within the site. All other trees are to be removed. Trees to be retained should be fenced prior to demolition works occurring.

4.7 A Project Arborist should be appointed to oversee the arboricultural related works for the project. The Project Arborist should be used for arboricultural certification services and also used as a point of contact should any questions arise during the project. As specified in AS 4970, 2009, a Project Arborist is a person with a minimum Australian Qualification Framework (AQF) level 5 Diploma of Arboriculture or Horticulture qualification.

5 TREE PROTECTION

5.1 Trees to be protected: The site trees to be retained will be required to be fenced for protection. All fencing shall be installed as specified in Section 5.2 (Tree Protection – Implementation of Tree Protection Zone). Indicative locations of the fencing are shown in the Tree Protection Plan (Appendix 1).

5.2 Implementation of Tree Protection Zone: All tree protection works should be carried out before the start of demolition or building work. It is recommended that chain mesh fencing with a minimum height of 1.8 metres be erected as shown in the Tree Protection Plan (Appendix 1). Specifications for this fencing are shown in Tree Protection Fencing Specifications (Appendix 5).

5.3 Instructional videos: Alternatively, you can view the Moore Trees short instructional films on the links below. These films are a quick onsite reference for builders, project managers and architects.

Film #1, Trunk Protection
https://www.youtube.com/watch?v=ehcFre6bp74
Film #2, Tree Protection Fencing
https://www.youtube.com/watch?v=ffMabxLN9nU

5.4 The Tree Protection Zone (TPZ) and Structural Root Zone (SRZ): The TPZ is implemented to ensure the protection of the trunk and branches of the subject tree. The TPZ is based on the Diameter at Breast Height (DBH) of the tree. The SRZ is also a radial measurement from the trunk used to protect and restrict damage to the roots of the tree.

The Tree Protection Zone (TPZ) and Structural Root Zone (SRZ) have been measured from the centre of the trunk. TPZ distances are all listed in the Tree Schedule (Appendix 2). The following activities shall be avoided within the TPZ and SRZ of the trees to be retained;

- Erecting site sheds or portable toilets.

- Trenching, ripping or cultivation of soil (with the exception of approved foundations and underground services).
- Soil level changes or fill material (pier and beam or suspended slab construction are acceptable).
- Storage of building materials.
- Disposal of waste materials, solid or liquid.

5.5 Tree Damage: If the retained trees are damaged a qualified Arborist should be contacted as soon as possible. The Arborist will recommend remedial action so as to reduce any long term adverse effect on the tree's health.

5.6 Signage: It is recommended that signage is attached to the tree protection fencing. A sample sign has been attached in Appendix 6. This sign may be copied and laminated then attached to any TPZ fencing. This sign should be attached at 15 metre intervals.

5.7 Root Pruning: If excavations are required within a TPZ this excavation shall be done by hand to expose any roots. Any roots under fifty (50) millimetres in diameter may be pruned cleanly with a sharp saw. Tree root systems are essential for the health and stability of the tree. If hand excavation is not possible then alternatives should be used such as hydro excavation or other non-invasive excavation technologies.

5.8 Arborist Certification: It is recommended that the developer supply Council or the Principal Certifying Authority with certification from the Project Arborist three (3) times during the construction phase of the development in order to verify that retained trees have been correctly retained and protected as per the conditions of consent and Arborist's recommendations. The certification is to be conducted by a Qualified Consulting Arborist with AQF level 5 qualifications that has current membership with either Arboriculture Australia (AA) or Institute of Australian Consulting

Arboriculturists (IACA). Arborist certification is recommended:

(1) Before the commencement of demolition or construction to confirm the fencing has been installed;

(2) At mid-point of the construction phase;

(3) At completion of the construction phase.

If you have any questions in relation to this report please contact me.

Paul Vezgoff
Consulting Arborist
Dip Arb (Dist), Arb III, Hort cert, AA, ISA

26th July 2018

www.mooretrees.com.au

6 IMAGES

Plate 1: Trees located along the southern boundary near the entry gate. Tree 1 is to the right of image. P. Vezgoff.

Plate 2: Trees 33-67 along the western boundary. P. Vezgoff.

Plate 3: Trees 145-166 along the driveway entry. P. Vezgoff.

Plate 4: Tree 184, the large specimen tree. P. Vezgoff.

Plate 5: Car park trees densely planted. P. Vezgoff.

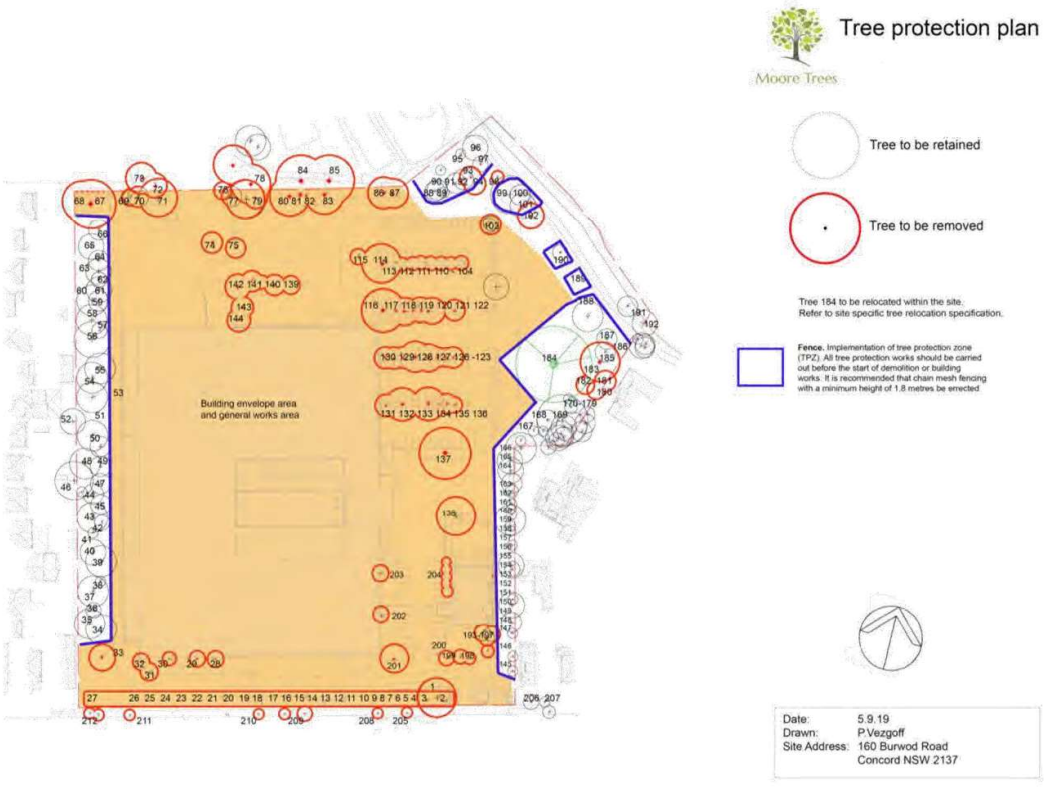
Plate 6: Single specimen trees within the car park such as Tree 138. P. Vezgoff.

Plate 7: Trees 91 and 92 located on the foreshore edge. P. Vezgoff.

Appendix 1

Plan 1

Tree Protection Plan


Tree protection plan
Moore Trees
Tree to be retained
Tree to be removed
Tree 184 to be relocated within the site.
Refer to site specific tree relocation specification.
Fence. Implementation of tree protection zone (TPZ). All tree protection works should be carried out before the start of demolition or building works. It is recommended that chain mesh fencing with a minimum height of 1.8 metres be erected.
Building envelope area and general works area
Date: 5.9.19
Drawn: P.Vezgoff
Site Address: 160 Burwod Road
Concord NSW 2137

Appendix 2

Tree health & condition assessment schedule

TREE HEALTH AND CONDITION ASSESSMENT SCHEDULE – 160 Burwood Road, Concord

Tree	Species	Height (m)	Spread (m)	DBH (mm)	Live canopy %	Defects	SULE	Condition	Age	Comments	TPZ (mm)
1	Jacaranda (Jacaranda mimosifolia)	12	4	600	80	Dead wood >50mm	1a >40 years	Good	Mature		7200
2	Hinoki cypress *(Chamaecyparis obtuse 'Crippsii')*	5	2	150	60	No visual defects	2a May only live for 15-40 years	Good	Mature		1800
3	Hinoki cypress *(Chamaecyparis obtuse 'Crippsii')*	6	3	200	90	No visual defects	2a May only live for 15-40 years	Good	Mature		2400
4	Hinoki cypress *(Chamaecyparis obtuse 'Crippsii')*	6	3	200	90	No visual defects	2a May only live for 15-40 years	Good	Mature		2400
5	Hinoki cypress *(Chamaecyparis obtuse 'Crippsii')*	6	3	200	90	No visual defects	2a May only live for 15-40 years	Good	Mature		2400
6	Magnolia solangiana	5	3	100	0	No visual defects	2a May only live for 15-40 years	Good	Mature		1200
7	Hinoki cypress *(Chamaecyparis obtuse 'Crippsii')*	6	3	200	90	No visual defects	2a May only live for 15-40 years	Good	Mature		2400
8	Hinoki cypress *(Chamaecyparis obtuse 'Crippsii')*	6	3	200	90	No visual defects	2a May only live for 15-40 years	Good	Mature		2400
9	Hinoki cypress *(Chamaecyparis obtuse 'Crippsii')*	6	3	200	90	No visual defects	2a May only live for 15-40 years	Good	Mature		2400
10	Hinoki cypress *(Chamaecyparis obtuse 'Crippsii')*	6	3	200	90	No visual defects	2a May only live for 15-40 years	Good	Mature		2400
11	Magnolia solangiana	5	3	100	0	No visual defects	2a May only live for 15-40 years	Good	Mature		1200
12	Hinoki cypress *(Chamaecyparis obtuse 'Crippsii')*	6	3	200	90	No visual defects	2a May only live for 15-40 years	Good	Mature		2400

Tree	Species	Height (m)	Spread (m)	DBH (mm)	Live canopy %	Defects	SULE	Condition	Age	Comments	TPZ (mm)
13	Hinoki cypress *(Chamaecyparis obtuse 'Crippsii')*	6	3	200	90	No visual defects	2a May only live for 15-40 years	Good	Mature		2400
14	Hinoki cypress *(Chamaecyparis obtuse 'Crippsii')*	6	3	200	90	No visual defects	2a May only live for 15-40 years	Good	Mature		2400
15	Hinoki cypress *(Chamaecyparis obtuse 'Crippsii')*	6	3	200	90	No visual defects	2a May only live for 15-40 years	Good	Mature		2400
16	Magnolia solangiana	5	3	100	0	No visual defects	2a May only live for 15-40 years	Good	Mature		1200
17	Hinoki cypress *(Chamaecyparis obtuse 'Crippsii')*	6	3	200	90	No visual defects	2a May only live for 15-40 years	Good	Mature		2400
18	Hinoki cypress *(Chamaecyparis obtuse 'Crippsii')*	6	3	200	90	No visual defects	2a May only live for 15-40 years	Good	Mature		2400
19	Hinoki cypress *(Chamaecyparis obtuse 'Crippsii')*	6	3	200	90	No visual defects	2a May only live for 15-40 years	Good	Mature		2400
20	Hinoki cypress *(Chamaecyparis obtuse 'Crippsii')*	6	3	200	90	No visual defects	2a May only live for 15-40 years	Good	Mature		2400
21	Magnolia solangiana	5	3	100	0	No visual defects	2a May only live for 15-40 years	Good	Mature		1200
22	Hinoki cypress *(Chamaecyparis obtuse 'Crippsii')*	6	3	200	90	No visual defects	2a May only live for 15-40 years	Good	Mature		2400
23	Hinoki cypress *(Chamaecyparis obtuse 'Crippsii')*	6	3	200	90	No visual defects	2a May only live for 15-40 years	Good	Mature		2400
24	Hinoki cypress *(Chamaecyparis obtuse 'Crippsii')*	6	3	200	90	No visual defects	2a May only live for 15-40 years	Good	Mature		2400
25	Hinoki cypress *(Chamaecyparis obtuse 'Crippsii')*	6	3	200	90	No visual defects	2a May only live for 15-40 years	Good	Mature		2400
26	Magnolia solangiana	5	3	100	0	No visual defects	2a May only live for 15-40 years	Good	Mature		1200
27	Hinoki cypress *(Chamaecyparis obtuse 'Crippsii')*	6	3	200	90	No visual defects	2a May only live for 15-40 years	Good	Mature		2400
28	Photinia sp	5	3	100	0	No visual defects	2a May only live for 15-40 years	Good	Mature		1200

Tree	Species	Height (m)	Spread (m)	DBH (mm)	Live canopy %	Defects	SULE	Condition	Age	Comments	TPZ (mm)
29	Thuja sp	9	3	350	90	No visual defects	2a May only live for 15-40 years	Good	Mature		4200
30	Thuja sp	9	3	350	90	No visual defects	2a May only live for 15-40 years	Good	Mature		4200
31	Melaleuca bracteata	7	3	200	70	No visual defects	2a May only live for 15-40 years	Good	Mature		2400
32	Melaleuca bracteata	7	3	200	70	No visual defects	2a May only live for 15-40 years	Good	Mature		2400
33	Chinese elm (Ulmus parvifolia)	8	4	500	0	No visual defects	1a >40 years	Good	Mature	Previous topping	6000
34	Camphor laurel (Cinnamomum camphora)	10	6	400	80	No visual defects	2a May only live for 15-40 years	Good	Mature		4800
35	Broad-leaved Paperbark *(Melaleuca quinquenervia)*	12	4	900	90	Included codom stems	2a May only live for 15-40 years	Good	Mature		10800
36	Podocarpus falcatus	6	3	400	0	No visual defects	2a May only live for 15-40 years	Good	Mature		4800
37	Brushbox (Lophostemon confertus)	10	5	500	90	No visual defects	2a May only live for 15-40 years	Good	Mature		6000
38	Agonis flexuosa	4	3	200	80	No visual defects	2a May only live for 15-40 years	Good	Mature		2400
39	Chinese elm (Ulmus parvifolia)	10	5	600	70	No visual defects	2a May only live for 15-40 years	Good	Mature		7200
40	Podocarpus falcatus	10	5	500	90	No visual defects	2a May only live for 15-40 years	Good	Mature		6000
41	Crepe Myrtle *(Lagerstroemia indica)*	5	2	100	80	No visual defects	2a May only live for 15-40 years	Good	Mature		1200
42	Agonis flexuosa	4	2	350	60	No visual defects	2a May only live for 15-40 years	Poor	Mature		4200
43	Brushbox (Lophostemon confertus)	10	5	700	90	No visual defects	2a May only live for 15-40 years	Good	Mature		8400

Tree	Species	Height (m)	Spread (m)	DBH (mm)	Live canopy %	Defects	SULE	Condition	Age	Comments	TPZ (mm)
44	Podocarpus falcatus	5	3	400	0	No visual defects	2a May only live for 15-40 years	Good	Mature		4800
45	Weeping bottle brush (Callistemon viminalis)	6	3	400	60	Included codom stems	1a >40 years	Poor	Mature		4800
46	Hill's weeping fig (Ficus microcarpa var. Hillii)	18	10	1500	90	Included codom stems	2a May only live for 15-40 years	Good	Mature	In neighbour's property	18000
47	Willow Bottle brush (Callistemon salignus)	7	3	200	80	Included codom stems	1a >40 years	Good	Mature		2400
48	Hackberry (Celtis australis)	10	3	300	0	Included codom stems	2a May only live for 15-40 years	Good	Mature		3600
49	Agonis flexuosa	6	2	100	0	Included codom stems	2b 40+, safety or nuisance	Poor	Mature	Coppice regrowth from old stump	1200
50	Water gum *(Tristaniopsis laurina)*	5	3	300	80	Open cavity with evidence of decay	2a May only live for 15-40 years	Good	Mature		3600
51	Podocarpus falcatus	10	4	700	90	No visual defects	2a May only live for 15-40 years	Good	Mature		8400
52	Acmena smithii	10	4	600	90	No visual defects	2a May only live for 15-40 years	Good	Mature	In neighbour's property	7200
53	Brushbox (Lophostemon confertus)	8	4	400	80	No visual defects	2a May only live for 15-40 years	Good	Mature		4800
54	Podocarpus falcatus	12	6	1200	90	No visual defects	2a May only live for 15-40 years	Good	Mature		14400
55	Red ironbark (Eucalyptus sideroxylon)	15	6	800	90	No visual defects	2a May only live for 15-40 years	Good	Mature		9600

Tree	Species	Height (m)	Spread (m)	DBH (mm)	Live canopy %	Defects	SULE	Condition	Age	Comments	TPZ (mm)
56	Jacaranda (Jacaranda mimosifolia)	12	6	500	90	No visual defects	2a May only live for 15-40 years	Good	Mature		6000
57	Water gum *(Tristaniopsis laurina)*	5	2	250	0	Stem wounds	2a May only live for 15-40 years	Good	Mature		3000
58	Podocarpus falcatus	12	5	700	90	No visual defects	2a May only live for 15-40 years	Good	Mature		8400
59	Weeping bottle brush (Callistemon viminalis)	8	4	500	80	No visual defects	2a May only live for 15-40 years	Good	Mature		6000
60	Brushbox (Lophostemon confertus)	8	3	450	80	No visual defects	2a May only live for 15-40 years	Good	Mature		5400
61	Agonis flexuosa	5	2	600	60	No visual defects	1a >40 years	Poor	Mature	Server split in trunk	7200
62	Willow Bottle brush (Callistemon salignus)	4	2	300	80	No visual defects	2a May only live for 15-40 years	Good	Mature		3600
63	Water gum *(Tristaniopsis laurina)*	8	4	300	80	No visual defects	2a May only live for 15-40 years	Good	Mature		3600
64	Willow Bottle brush (Callistemon salignus)	8	3	350	80	Included bark	2a May only live for 15-40 years	Good	Mature		4200
65	Brushbox (Lophostemon confertus)	8	3	500	80	No visual defects	2a May only live for 15-40 years	Good	Mature		6000
66	Broad leaved paperbark (Melaleuca quinquenervia)	10	3	600	90	No visual defects	2a May only live for 15-40 years	Good	Mature		7200
67	Lemon-scented gum tree (Corymbia citriodora)	18	10	900	100	No visual defects	2a May only live for 15-40 years	Good	Mature		10800
68	Cupresses sp.	8	1.5	300	70	No visual defects	2a May only live for 15-40 years	Good	Mature	X 6 as a hedge	3600
69	Paperbark (Melaleuca armillaris)	8	3	300	100	No visual defects	2a May only live for 15-40 years	Good	Mature		3600
70	Silky oak (Grevillea robusta)	12	3	500	80	Included codom stems	2a May only live for 15-40 years	Good	Mature		6000

Tree	Species	Height (m)	Spread (m)	DBH (mm)	Live canopy %	Defects	SULE	Condition	Age	Comments	TPZ (mm)
71	Willow gum (Eucalyptus scoparia)	15	6	800	70	No visual defects	2a May only live for 15-40 years	Good	Mature		9600
72	Small-leafed Peppermint *(Eucalyptus nicholii)*	6	3	400	80	Dead wood >50mm	1a >40 years	Good	Mature		4800
73	Brushbox (Lophostemon confertus)	12	4	500	0	Included codom stems	1a >40 years	Good	Mature	Multi stemmed	6000
74	Native daphne (Pittosporum undulatum)	8	5	350	0	No visual defects	2a May only live for 15-40 years	Good	Mature	Broad open specimen	4200
75	Oleander *(Nerium oleander)*	5	4	0	90	No visual defects	2a May only live for 15-40 years	Good	Mature		0
76	Silky oak (Grevillea robusta)			0	0	No visual defects	1a >40 years	Good	Mature	Tree is dead	0
77	Lemon-scented gum tree (Corymbia citriodora)	12	6	500	80	No visual defects	2a May only live for 15-40 years	Good	Mature		6000
78	Small-leafed Peppermint *(Eucalyptus nicholii)*	15	4	800	70	Dead wood <50mm	2a May only live for 15-40 years	Good	Mature	on golf course	9600
79	Paperbark (Melaleuca armillaris)	7	3	200	80	No visual defects	1a >40 years	Good	Mature		2400
80	Jacaranda (Jacaranda mimosifolia)	12	5	400	90	Included codom stems	2a May only live for 15-40 years	Good	Mature		4800
81	Jacaranda (Jacaranda mimosifolia)	12	5	500	90	No visual defects	2a May only live for 15-40 years	Good	Mature		6000
82	Broad leaved paperbark (Melaleuca quinquenervia)	7	3	400	80	No visual defects	1a >40 years	Good	Mature		4800
83	Ficus sp.	12	6	400	0	Included codom	2a May only live for 15-40 years	Good	Mature		4800

Tree	Species	Height (m)	Spread (m)	DBH (mm)	Live canopy %	Defects	SULE	Condition	Age	Comments	TPZ (mm)
						stems					
84	Lemon-scented gum tree (Corymbia citriodora)	20	10	600	90	No visual defects	2a May only live for 15-40 years	Good	Mature	On golf course	7200
85	Lemon-scented gum tree (Corymbia citriodora)	20	8	600	0	Included codom stems	2a May only live for 15-40 years	Good	Mature	Included stem 6m up	7200
86	Lemon-scented gum tree (Corymbia citriodora)	18	5	600	90	Included codom stems	2a May only live for 15-40 years	Good	Mature		7200
87	Sydney red gum (Angophora costata)	10	5	600	80	No visual defects	2a May only live for 15-40 years	Good	Mature		7200
88	Sydney blue gum (Eucalyptus saligna)	8	2	250	70	No visual defects	1a >40 years	Poor	Mature	Major borer damage	3000
89	Spotted gum (Corymbia maculata)	12	3	350	80	Included codom stems	2a May only live for 15-40 years	Good	Mature		4200
90	Acacia baileyana	5	2	300	40	No visual defects	1a >40 years	Poor	Mature	Nearly dead	3600
91	Swamp oak (Casurina glauca)	12	3	500	80	No visual defects	2a May only live for 15-40 years	Good	Mature		6000
92	Swamp oak (Casurina glauca)	12	3	500	80	No visual defects	2a May only live for 15-40 years	Good	Mature		6000
93	Swamp oak (Casurina glauca)	12	3	500	80	No visual defects	2a May only live for 15-40 years	Good	Mature		6000
94	Swamp oak (Casurina glauca)	12	3	500	80	No visual defects	2a May only live for 15-40 years	Good	Mature		6000
95	Acacia baileyana			0	0	No visual defects	1a >40 years	Good	Mature	Dead	0
96	Swamp mahogany (Eucalyptus robusta)	15	6	650	0	Included codom stems	2a May only live for 15-40 years	Good	Mature		7800

Tree	Species	Height (m)	Spread (m)	DBH (mm)	Live canopy %	Defects	SULE	Condition	Age	Comments	TPZ (mm)
97	Lemon-scented gum tree (Corymbia citriodora)	6	4	400	0	No visual defects	2a May only live for 15-40 years	Poor	Mature	Tree appears mutated	4800
98	Swamp mahogany (Eucalyptus robusta)	8	3	200	80	No visual defects	2a May only live for 15-40 years	Poor	Sapling	Tree is a memorial tree with a plaque	2400
99	Swamp she oak (Casuarina glauca)	12	4	600	80	No visual defects	2a May only live for 15-40 years	Good	Mature		7200
100	Swamp oak (Casurina glauca)	12	3	500	80	No visual defects	2a May only live for 15-40 years	Good	Mature		6000
101	Swamp oak (Casurina glauca)	12	3	500	80	No visual defects	2a May only live for 15-40 years	Good	Mature		6000
102	Swamp oak (Casurina glauca)	12	3	500	80	No visual defects	2a May only live for 15-40 years	Good	Mature		6000
103	Willow Bottle brush (Callistemon salignus)	5	3	200	0	No visual defects	2a May only live for 15-40 years	Good	Mature	All basal suckers	2400
104	Lemon-scented gum tree (Corymbia citriodora)	10	3	400	90	No visual defects	2a May only live for 15-40 years	Good	Mature		4800
105	Broad leaved paperbark (Melaleuca quinquenervia)	12	4	600	90	Included codom stems	2a May only live for 15-40 years	Good	Mature		7200
106	Broad leaved paperbark (Melaleuca quinquenervia)	12	4	600	90	Included codom stems	2a May only live for 15-40 years	Good	Mature		7200
107	Broad leaved paperbark (Melaleuca quinquenervia)	12	4	600	90	Included codom stems	2a May only live for 15-40 years	Good	Mature		7200
108	Sydney red gum (Angophora costata)	5	3	150	80	No visual defects	2a May only live for 15-40 years	Good	Mature		1800
109	Broad leaved paperbark (Melaleuca quinquenervia)	12	3	600	80	No visual defects	2a May only live for 15-40 years	Good	Mature		7200
110	Broad leaved paperbark (Melaleuca quinquenervia)	12	3	200	80	No visual defects	2a May only live for 15-40 years	Good	Mature		2400

Tree	Species	Height (m)	Spread (m)	DBH (mm)	Live canopy %	Defects	SULE	Condition	Age	Comments	TPZ (mm)
111	Broad leaved paperbark (Melaleuca quinquenervia)	12	3	700	80	No visual defects	2a May only live for 15-40 years	Good	Mature		8400
112	Broad leaved paperbark (Melaleuca quinquenervia)	12	3	200	80	No visual defects	2a May only live for 15-40 years	Good	Mature		2400
112	Broad leaved paperbark (Melaleuca quinquenervia)	12	3	200	80	No visual defects	2a May only live for 15-40 years	Good	Mature		2400
113	Broad leaved paperbark (Melaleuca quinquenervia)	12	3	200	80	No visual defects	2a May only live for 15-40 years	Good	Mature		2400
114	Lemon-scented gum tree (Corymbia citriodora)	15	6	800	80	No visual defects	2a May only live for 15-40 years	Good	Mature		9600
115	Deodar Cedar *(Cedrus deodara)*	7	3	200	90	No visual defects	2a May only live for 15-40 years	Good	Mature		2400
116	Lemon-scented gum tree (Corymbia citriodora)	12	6	400	70	Open cavity with evidence of decay	2a May only live for 15-40 years	Good	Mature		4800
117	Broad leaved paperbark (Melaleuca quinquenervia)	12	3	400	80	No visual defects	2a May only live for 15-40 years	Good	Mature		4800
118	Broad leaved paperbark (Melaleuca quinquenervia)	12	3	600	80	Included codom stems	2a May only live for 15-40 years	Good	Mature		7200
119	Broad leaved paperbark (Melaleuca quinquenervia)	12	3	500	80	Included codom stems	2a May only live for 15-40 years	Good	Mature		6000
120	Broad leaved paperbark (Melaleuca quinquenervia)	12	3	500	80	Included codom stems	2a May only live for 15-40 years	Good	Mature		6000
121	Broad leaved paperbark (Melaleuca quinquenervia)	12	3	1000	80	Included codom stems	2a May only live for 15-40 years	Good	Mature		12000

Tree	Species	Height (m)	Spread (m)	DBH (mm)	Live canopy %	Defects	SULE	Condition	Age	Comments	TPZ (mm)
122	Broad leaved paperbark (Melaleuca quinquenervia)	12	3	600	80	Included codom stems	2a May only live for 15-40 years	Good	Mature		7200
123	Broad leaved paperbark (Melaleuca quinquenervia)	7	3	400	80	Included codom stems	2a May only live for 15-40 years	Good	Mature		4800
124	Broad leaved paperbark (Melaleuca quinquenervia)	7	3	400	80	Included codom stems	2a May only live for 15-40 years	Good	Mature		4800
125	Broad leaved paperbark (Melaleuca quinquenervia)	7	3	400	80	Included codom stems	2a May only live for 15-40 years	Good	Mature		4800
126	Broad leaved paperbark (Melaleuca quinquenervia)	7	3	400	80	Included codom stems	2a May only live for 15-40 years	Good	Mature		4800
127	Bangalay (Eucalyptus botryoides)	12	3	400	70	Stem wounds	2a May only live for 15-40 years	Good	Mature		4800
128	Broad leaved paperbark (Melaleuca quinquenervia)	7	3	200	80	Included codom stems	2a May only live for 15-40 years	Good	Mature		2400
129	Broad leaved paperbark (Melaleuca quinquenervia)	7	3	400	80	Included codom stems	2a May only live for 15-40 years	Good	Mature		4800
130	Broad leaved paperbark (Melaleuca quinquenervia)	7	3	400	80	Included codom stems	2a May only live for 15-40 years	Good	Mature		4800
131	Bangalay (Eucalyptus botryoides)	8	2	150	70	Stem wounds	2a May only live for 15-40 years	Poor	Mature		1800
132	Lemon-scented gum tree (Corymbia citriodora)	8	3	400	80	No visual defects	2a May only live for 15-40 years	Good	Mature		4800
133	Lemon-scented gum tree (Corymbia citriodora)	12	3	400	80	No visual defects	2a May only live for 15-40 years	Good	Mature		4800

Tree	Species	Height (m)	Spread (m)	DBH (mm)	Live canopy %	Defects	SULE	Condition	Age	Comments	TPZ (mm)
134	Broad leaved paperbark (Melaleuca quinquenervia)	5	2	150	0	No visual defects	2a May only live for 15-40 years	Poor	Mature		1800
135	Lemon-scented gum tree (Corymbia citriodora)	10	2	250	80	No visual defects	2a May only live for 15-40 years	Good	Mature		3000
136	Broad leaved paperbark (Melaleuca quinquenervia)	7	2	400	0	Included bark	2a May only live for 15-40 years	Poor	Mature		4800
137	Lemon-scented gum tree (Corymbia citriodora)	12	10	600	80	No visual defects	2a May only live for 15-40 years	Good	Mature		7200
138	Lemon-scented gum tree (Corymbia citriodora)	15	5	500	95	No visual defects	2a May only live for 15-40 years	Good	Mature		6000
139	Weeping bottle brush (Callistemon viminalis)	6	3	150	95	No visual defects	3c Removed for a better specimen.	Good	Mature	Multi stemmed specimen	1800
140	Weeping bottle brush (Callistemon viminalis)	6	3	150	95	No visual defects	3c Removed for a better specimen.	Good	Mature	Multi stemmed specimen	1800
141	Podocarpus falcatus	8	4	200	100	No visual defects	1a >40 years	Good	Mature		2400
142	Flooded Gum *(Eucalyptus grandis)*	12	5	300	100	No visual defects	1a >40 years	Good	Mature		3600
143	Jacaranda (Jacaranda mimosifolia)	11	5	250	80	No visual defects	2a May only live for 15-40 years	Good	Mature		3000
144	Cocos palm (Syagrus romanzoffiana)	8	2	200	95	No visual defects	3c Removed for a better specimen.	Good	Mature		2400
145	Alnus sp	4	1.5	180	95	No visual defects	5a Small tree <5 m in height.	Fair	Mature		2160
146	Alnus sp	4	1.5	180	95	No visual defects	5a Small tree <5 m in height.	Fair	Mature		2160
147	Alnus sp	4	1.5	180	95	No visual defects	5a Small tree <5 m in height.	Fair	Mature		2160
148	Elder (Acer negundo)	6	3	350	90	No visual defects	2a May only live for 15-40 years	Fair	Mature		4200
149	Jacaranda (Jacaranda mimosifolia)	9	4.5	450	95	No visual defects	2a May only live for 15-40 years	Good	Mature	Pruned for driveway clearance	5400

Tree	Species	Height (m)	Spread (m)	DBH (mm)	Live canopy %	Defects	SULE	Condition	Age	Comments	TPZ (mm)
150	Jacaranda (Jacaranda mimosifolia)	9	2	250	95	No visual defects	2a May only live for 15-40 years	Fair	Mature		3000
151	Alnus sp	4	1.5	180	95	No visual defects	5a Small tree <5 m in height.	Fair	Mature		2160
152	Broad leaved paperbark (Melaleuca quinquenervia)	8	3	200	95	No visual defects	2a May only live for 15-40 years	Good	Mature		2400
153	Jacaranda (Jacaranda mimosifolia)	9	4.5	450	95	No visual defects	2a May only live for 15-40 years	Good	Mature	Pruned for driveway clearance	5400
154	Alnus sp	4	1.5	180	95	No visual defects	5a Small tree <5 m in height.	Fair	Mature		2160
155	Cupresses sp.	6	2	150	95	No visual defects	3c Removed for a better specimen.	Fair	Mature		1800
156	Cupresses sp.	6	2	150	95	No visual defects	3c Removed for a better specimen.	Fair	Mature		1800
157	Jacaranda (Jacaranda mimosifolia)	9	4.5	450	95	No visual defects	2a May only live for 15-40 years	Good	Mature	Pruned for driveway clearance	5400
158	Cupresses sp.	6	2	150	95	No visual defects	3c Removed for a better specimen.	Fair	Mature		1800
159	Cupresses sp.	6	2	150	95	No visual defects	3c Removed for a better specimen.	Fair	Mature		1800
160	Cupresses sp.	6	2	150	95	No visual defects	3c Removed for a better specimen.	Fair	Mature		1800
161	Alnus sp	4	1.5	180	95	No visual defects	5a Small tree <5 m in height.	Fair	Mature		2160
162	Alnus sp	8	2	180	95	No visual defects	2a May only live for 15-40 years	Fair	Mature		2160
163	Alnus sp	10	2.5	300	95	No visual defects	2a May only live for 15-40 years	Fair	Mature		3600
164	Broad leaved paperbark (Melaleuca quinquenervia)	10	3.5	350	95	No visual defects	2a May only live for 15-40 years	Good	Mature		4200
165	Broad leaved paperbark (Melaleuca quinquenervia)	10	3.5	350	95	No visual defects	2a May only live for 15-40 years	Good	Mature		4200

Tree	Species	Height (m)	Spread (m)	DBH (mm)	Live canopy %	Defects	SULE	Condition	Age	Comments	TPZ (mm)
166	Port jackson fig (Ficus rubiginosa)	12	5	600	100	No visual defects	1a >40 years	Good	Mature	On adjoining property	7200
167	Melaleuca bracteata	9	5	480	90	No visual defects	2a May only live for 15-40 years	Fair	Mature		5760
168	Cook Island Pine (Araucaria columnaris)	13	3	400	100	No visual defects	1a >40 years	Good	Mature		4800
169	Cook Island Pine (Araucaria columnaris)	13	3	400	100	No visual defects	1a >40 years	Good	Mature		4800
170	Magenta lilly pilly (Syzigium paniculatum)	7	3	280	95	No visual defects	1a >40 years	Good	Mature		3360
171	Lemon-scented gum tree (Corymbia citriodora)	17	8	800	95	No visual defects	1a >40 years	Good	Mature		9600
172	Broad leaved paperbark (Melaleuca quinquenervia)	12	3.5	250	95	No visual defects	2a May only live for 15-40 years	Good	Mature	Asymmetric lean over adjoining property.	3000
173	Silky oak (Grevillea robusta)	16	4	350	95	No visual defects	2a May only live for 15-40 years	Fair	Mature		4200
174	Silky oak (Grevillea robusta)	16	4	350	95	No visual defects	2a May only live for 15-40 years	Fair	Mature		4200
175	Broad leaved paperbark (Melaleuca quinquenervia)	12	3.5	250	95	No visual defects	2a May only live for 15-40 years	Good	Mature	Asymmetric lean over adjoining property.	3000
176	Broad leaved paperbark (Melaleuca quinquenervia)	4.5	2	150	95	No visual defects	1a >40 years	Fair	Mature		1800
177	Swamp she oak (Casuarina glauca)	11	3.5	200	95	No visual defects	1a >40 years	Good	Mature		2400
178	Broad leaved paperbark (Melaleuca quinquenervia)	13	4	350	95	No visual defects	2a May only live for 15-40 years	Good	Mature		4200
179	Broad leaved paperbark (Melaleuca quinquenervia)	4.5	2	150	95	No visual defects	1a >40 years	Fair	Mature		1800
180	Sydney blue gum (Eucalyptus saligna)	17	5	480	90	No visual defects	2a May only live for 15-40 years	Fair	Mature	Heavily pruned. Asymmetric over adjoining property.	5760
181	Cook Island Pine (Araucaria columnaris)	13	3	400	100	No visual defects	1a >40 years	Good	Mature		4800

Tree	Species	Height (m)	Spread (m)	DBH (mm)	Live canopy %	Defects	SULE	Condition	Age	Comments	TPZ (mm)
182	Silky oak (Grevillea robusta)	6.5	2.5	350	80	Storm damage	3c Removed for a better specimen.	Fair	Mature	Suppressed specimen. Lost central leader.	4200
183	Cook Island Pine (Araucaria columnaris)	18	4	450	100	No visual defects	1a >40 years	Good	Mature		5400
184	Hill's weeping fig (Ficus microcarpa var. Hillii)	16	12	1200	100	No visual defects	1a >40 years	Excellent	Mature	Large dominant feature specimen. Best tree on site.	14400
185	*Cedar Fig* (Ficus superba var. henneana)	8	7	600	95	No visual defects	1a >40 years	Good	Mature		7200
186	Cook Island Pine (Araucaria columnaris)	16	4	500	100	No visual defects	1a >40 years	Good	Mature		6000
187	Silky oak (Grevillea robusta)	11	4.5	380	95	No visual defects	2a May only live for 15-40 years	Fair	Mature		4560
188	Lemon-scented gum tree (Corymbia citriodora)	12	7	500	95	Storm damage	1a >40 years	Good	Mature	Old failures but not dangerous	6000
189	Cocos palm (Syagrus romanzoffiana)	7	2	250	100	No visual defects	3c Removed for a better specimen.	Good	Mature		3000
190	Cocos palm (Syagrus romanzoffiana)	7	2	250	100	No visual defects	3c Removed for a better specimen.	Good	Mature		3000
191	Swamp she oak (Casuarina glauca)	8	3	280	100	No visual defects	1a >40 years	Good	Mature	On harbor edge.	3360
192	Port jackson fig (Ficus rubiginosa)	6	5.5	450	100	No visual defects	1a >40 years	Good	Mature	On harbor edge.	5400
193	Magenta lilly pilly (Syzigium paniculatum)	6	3	200	95	No visual defects	2a May only live for 15-40 years	Fair	Mature		2400
194	Crepe myrtle (Lagerstroemia indica)	4.5	3	200	95	No visual defects	5a Small tree <5 m in height.	Fair	Mature		2400
195	Cupresses sp.	6	2	300	80	No visual defects	2a May only live for 15-40 years	Fair	Mature		3600
196	Cocos palm (Syagrus romanzoffiana)	5	2	200	95	No visual defects	3c Removed for a better specimen.	Fair	Mature		2400
197	Cupresses sp.	6	2	300	80	No visual defects	2a May only live for 15-40 years	Fair	Mature		3600

Tree	Species	Height (m)	Spread (m)	DBH (mm)	Live canopy %	Defects	SULE	Condition	Age	Comments	TPZ (mm)
198	Cocos palm (Syagrus romanzoffiana)	5	2	200	95	No visual defects	3c Removed for a better specimen.	Fair	Mature		2400
199	Cocos palm (Syagrus romanzoffiana)	5	2	200	95	No visual defects	3c Removed for a better specimen.	Fair	Mature		2400
200	Melaleuca bracteata	9	4	180	95	No visual defects	3c Removed for a better specimen.	Fair	Mature	Row of 6	2160
201	Melaleuca bracteata	9	4	180	95	No visual defects	3c Removed for a better specimen.	Fair	Mature		2160
202	Trident Maple *(Acer buergeranum)*	6	3	280	95	No visual defects	3c Removed for a better specimen.	Good	Mature		3360
203	False Arailia (Dizygothica elegantissima)	8	2.5	180	100	No visual defects	3c Removed for a better specimen.	Good	Mature		2160
204	Melaleuca bracteata	9	4	180	95	No visual defects	3c Removed for a better specimen.	Fair	Mature	Row of 9	2160
205	Water gum (Tristaniopsis laurina)	4.5	2	150	95	No visual defects	2a May only live for 15-40 years	Good	Mature	Multi stemmed specimen. Watergum street tree.	1800
206	Jacaranda (Jacaranda mimosifolia)	8	3.5	200	95	No visual defects	1a >40 years	Good	Mature	Street tree	2400
207	Jacaranda (Jacaranda mimosifolia)	8	3.5	200	95	No visual defects	1a >40 years	Good	Mature	Street tree	2400
208	Water gum (Tristaniopsis laurina)	4.5	2	150	95	No visual defects	2a May only live for 15-40 years	Good	Mature	Multi stemmed specimen. Watergum street tree.	1800
209	Water gum (Tristaniopsis laurina)	4.5	2	150	95	No visual defects	2a May only live for 15-40 years	Good	Mature	Multi stemmed specimen. Watergum street tree.	1800
210	Water gum (Tristaniopsis laurina)	4.5	2	150	95	No visual defects	2a May only live for 15-40 years	Good	Mature	Multi stemmed specimen. Watergum street tree.	1800
211	Water gum (Tristaniopsis laurina)	4.5	2	150	95	No visual defects	2a May only live for 15-40 years	Good	Mature	Multi stemmed specimen. Watergum street tree.	1800
212	Water gum (Tristaniopsis laurina)	4.5	2	150	95	No visual defects	2a May only live for 15-40 years	Good	Mature	Multi stemmed specimen. Watergum street tree.	1800

KEY

Tree No: Relates to the number allocated to each tree for the Tree Protection Plan.

Height: Height of the tree to the nearest metre.

Spread: The average spread of the canopy measured from the trunk.

DBH: Diameter at breast height. An industry standard for measuring trees at 1.4 metres above ground level, this measurement is used to help calculate Tree Protection Zones.

Live Crown Ratio: Percentage of foliage cover for a particular species.

Age Class:	Young:	Recently planted tree	Semi-mature:< 20% of life expectancy
	Mature:	20-90% of life expectancy	Over-mature:>90% of life expectancy

SULE: See SULE methodology in the Appendix 3

Tree Protection Zone (TPZ): The minimum area set aside for the protection of the trees trunk, canopy and root system throughout the construction process. Breaches of the TPZ will be specified in the recommendations section of the report.

Appendix 3

SULE categories (after Barrell, 2001)[1]

SULE Category	Description
Long	*Trees that appeared to be retainable at the time of assessment for more than 40 years with an acceptable level of risk.*
1a	Structurally sound trees located in positions that can accommodate for future growth
1b	Trees that could be made suitable for retention in the long term by remedial tree care.
1c	Trees of special significance that would warrant extraordinary efforts to secure their long term retention.
Medium	*Trees that appeared to be retainable at the time of assessment for 15-40 years with an acceptable level of risk.*
2a	Trees that may only live for 15-40 years
2b	Trees that could live for more than 40 years but may be removed for safety or nuisance reasons
2c	Trees that could live for more than 40 years but may be removed to prevent interference with more suitable individuals or to provide for new planting.
2d	Trees that could be made suitable for retention in the medium term by remedial tree care.
Short	*Trees that appeared to be retainable at the time of assessment for 5-15 years with an acceptable level of risk.*
3a	Trees that may only live for another 5-15 years
3b	Trees that could live for more than 15 years but may be removed for safety or nuisance reasons.
3c	Trees that could live for more than 15 years but may be removed to prevent interference with more suitable individuals or to provide for a new planting.
3d	Trees that require substantial remedial tree care and are only suitable for retention in the short term.
Remove	*Trees that should be removed within the next five years.*
4a	Dead, dying, suppressed or declining trees because of disease or inhospitable conditions.
4b	Dangerous trees because of instability or loss of adjacent trees
4c	Dangerous trees because of structural defects including cavities, decay, included bark, wounds or poor form.
4d	Damaged trees that are clearly not safe to retain.
4e	Trees that could live for more than 5 years but may be removed to prevent interference with more suitable individuals or to provide for a new planting.
4f	Trees that are damaging or may cause damage to existing structures within 5 years.
4g	Trees that will become dangerous after removal of other trees for the reasons given in (a) to (f).
4h	Trees in categories (a) to (g) that have a high wildlife habitat value and, with appropriate treatment, could be retained subject to regular review.
Small	*Small or young trees that can be reliably moved or replaced.*
5a	Small trees less than 5m in height.
5b	Young trees less than 15 years old but over 5m in height.
5c	Formal hedges and trees intended for regular pruning to artificially control growth.

updated 01/04/01)

1 (Barrell, J. (2001) "SULE: Its use and status into the new millennium" in *Management of mature trees*, Proceedings of the 4th NAAA Tree Management Seminar, NAAA, Sydney.

Appendix 4

TPZ and SRZ methodology

Determining the Tree Protection Zone (TPZ)

The radium of the TPZ is calculated for each tree by multiplying its DBH x 12.

TPZ = DBH x 12

Where

DBH = trunk diameter measured at 1.4 metres above ground

Radius is measured from the centre of the stem at ground level.

A TPZ should not be less than 2 metres no greater than 15 metres (except where crown protection is required.). Some instances may require variations to the TPZ.

The TPZ of palms, other monocots, cycads and tree ferns should not be less than 1 metre outside the crown projection.

Determining the Structural Root Zone (SRZ)

The SRZ is the area required for tree stability. A larger area is required to maintain a viable tree.

The SRZ only needs to be calculated when major encroachment into a TPZ is proposed.

There are many factors that affect the size of the SRZ (e.g. tree height, crown area, soil type, soil moisture). The SRZ may also be influenced by natural or built structures, such as rocks and footings. An indicative SRZ radius can be determined from the trunk diameter measured immediately above the root buttress using the following formula or Figure 1. Root investigation may provide more information on the extent of these roots.

SRZ radius = $(D \times 50)^{0.42} \times 0.64$

Where

D = trunk diameter, in m, measured above the root buttress

NOTE: The SRZ for trees with trunk diameters less than 0.15m will be 1.5m (see Figure 1).

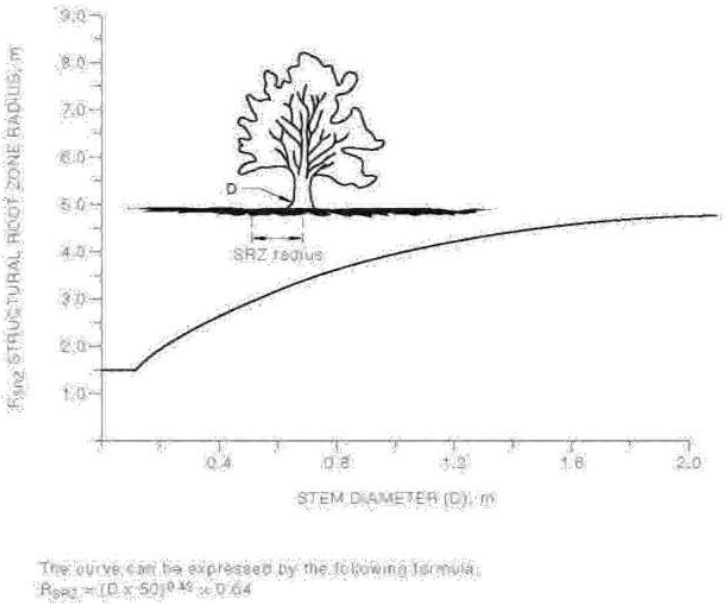


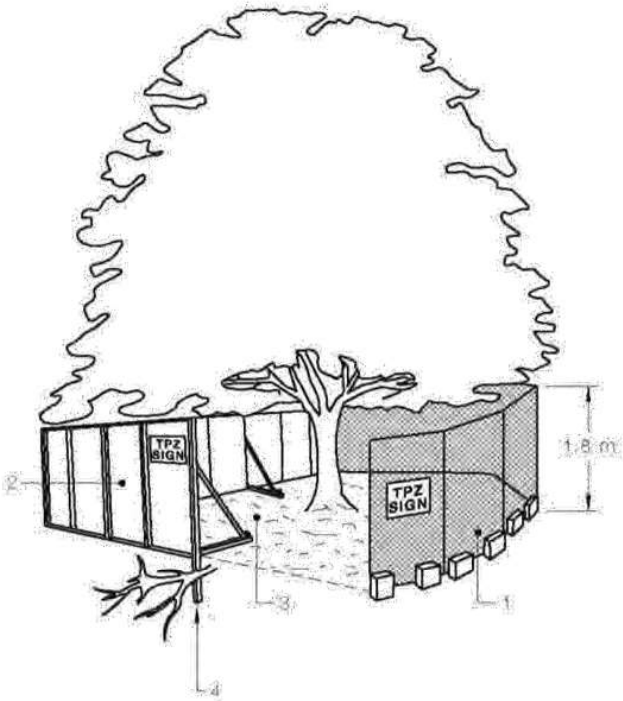
FIGURE 1 - STRUCTURAL ROOT ZONE

Notes:

1 R_{SRZ} is the structural root zone radius.
2 *D* is the stem diameter measured immediately above root buttress.
3 The SRZ for trees less than o.15 metres diameter is 1.5 metres.
4 The SRZ formula and graph do not apply to palms, other monocots, cycads and tree ferns.
5 This does not apply to trees with an asymmetrical root plate.

Appendix 5

Tree protection fencing specifications



LEGEND:
1 Chain wire mesh panels with shade cloth (if required) attached, held in place with concrete feet.
2 Alternative plywood or wooden paling fence panels. This fencing material also prevents building materials or soil entering the TPZ.
3 Mulch installation across surface of TPZ (at the discretion of the project arborist). No excavation, construction activity, grade changes, surface treatment or storage of materials of any kind is permitted within the TPZ.
4 Bracing is permissible within the TPZ. Installation of supports should avoid damaging roots.

Figure 1: Protective fencing as specified in AS 4970, 2009.

Appendix 6

Tree protection sign

sign sample

Moore Trees
Tree Consultancy
0411 712 887

Tree Protection Zone

Fence not to be moved without approval from Arborist

Within this fence there is to be
NO
Storage of materials
Trenching or excavation
Washing of tools or equipment

Appendix 7

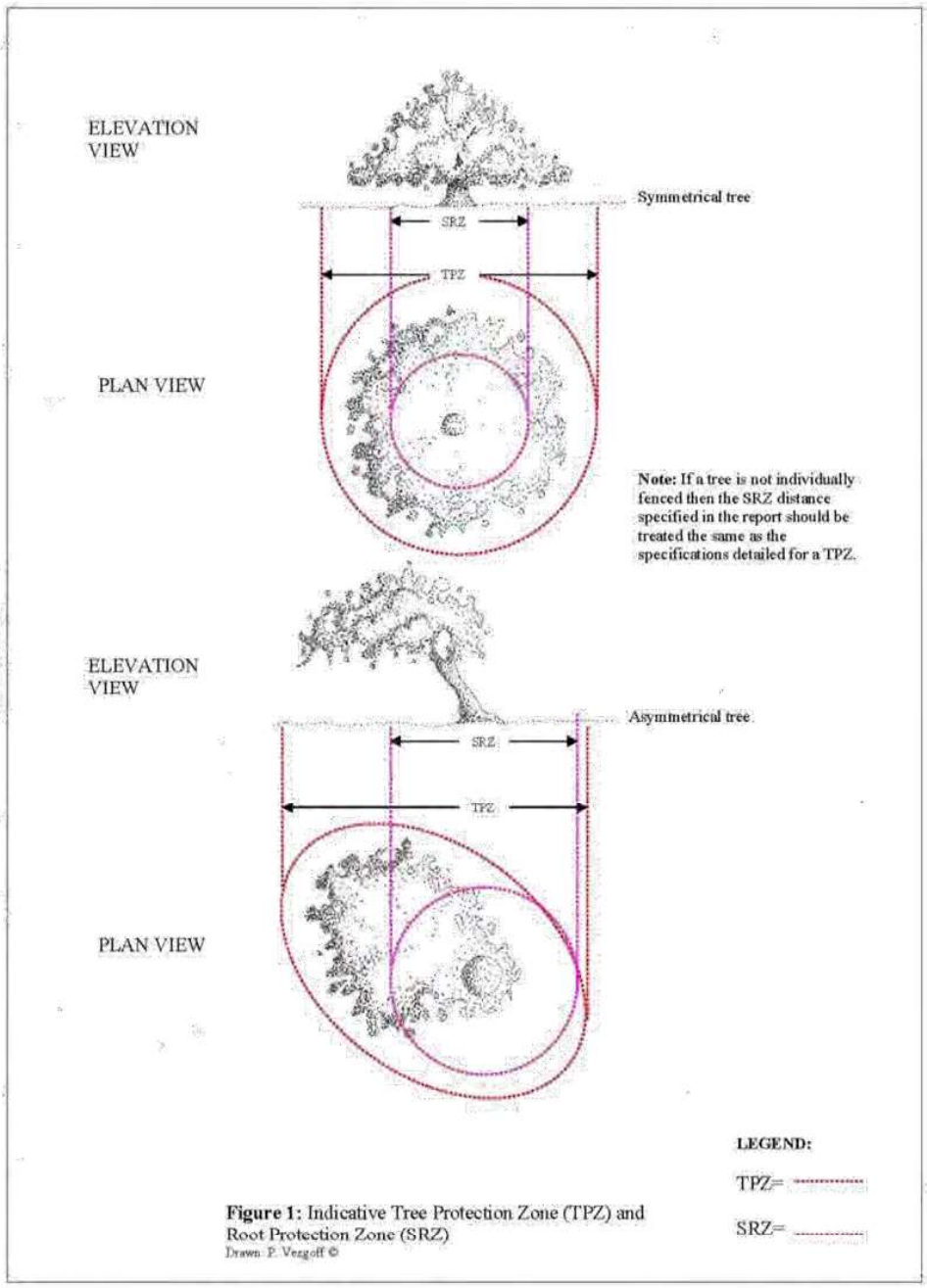


Figure 1: Indicative Tree Protection Zone (TPZ) and Root Protection Zone (SRZ)
Drawn: P. Vezgoff ©

Appendix 8

Tree structure information diagram

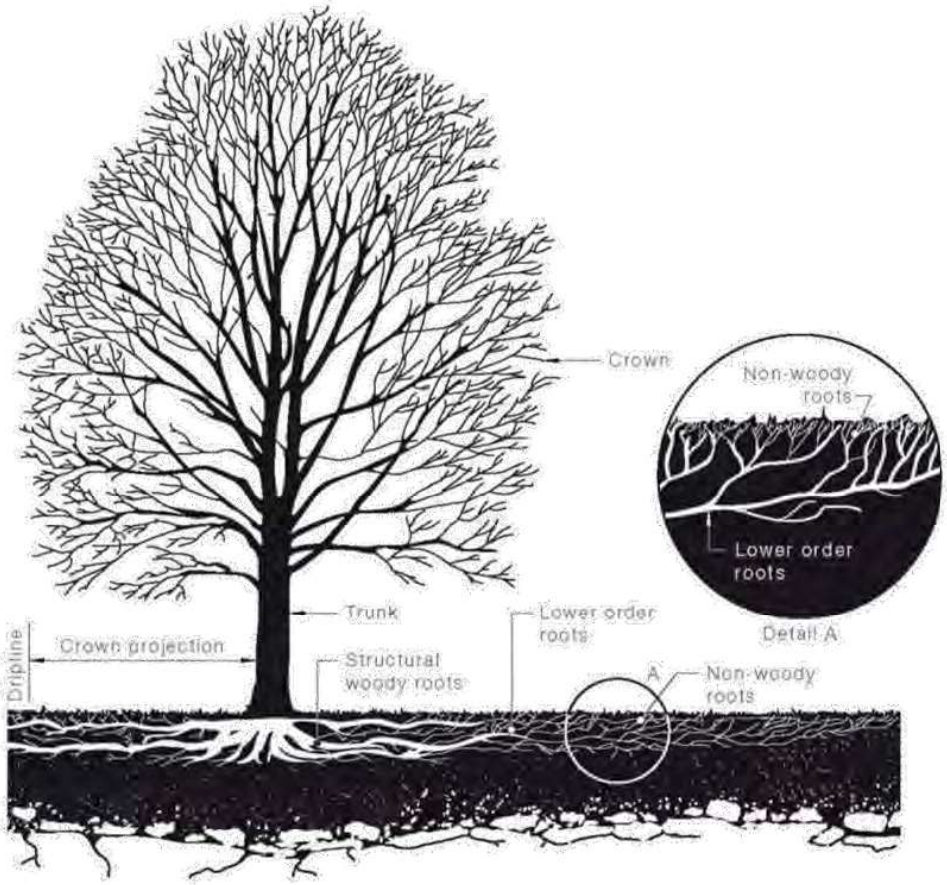


Figure 2: Structure of a tree in a normal growing environment (AS 4970, 2009.).

Appendix 9

Explanatory Notes

- **Mathematical abbreviations:** >= Greater than; <= Less than.
- **Measurements/estimates:** All dimensions are estimates unless otherwise indicated. Less reliable estimated dimensions are indicated with a '?'.
- **Species:** The species identification is based on visual observations and the common English name of what the tree appeared to be is listed first, with the botanical name after in brackets. In some instances, it may be difficult to quickly and accurately identify a particular tree without further detailed investigations. Where there is some doubt of the precise species of tree, it is indicated with a '?' after the name in order to avoid delay in the production of the report. The botanical name is followed by the abbreviation sp if only the genus is known. The species listed for groups and hedges represent the main component and there may be other minor species not listed.
- **Height:** Height is estimated to the nearest metre.
- **Spread:** The maximum crown spread is visually estimated to the nearest metre from the centre of the trunk to the tips of the live lateral branches.
- **Diameter:** These figures relate to 1.4m above ground level and are recorded in centimetres. If appropriate, diameter is measure with a diameter tape. 'M' indicates trees or shrubs with multiple stems.
- **Estimated Age:** Age is estimated from visual indicators and it should only be taken as a provisional guide. Age estimates often need to be modified based on further information such as historical records or local knowledge.
- **Distance to Structures:** This is estimated to the nearest metre and intended as an indication rather than a precise measurement.

Appendix 10

Bibliography

Draper D B & Richards P A (2009) *Dictionary for managing trees in urban environments*
CSIRO Publishing
Collingwood, Vic

Harris R.W, Clark J.R, Matheny N.P (1999). *Arboriculture.* Third edition.
Prentice Hall
New Jersey.

Matheny N.P & Clark J.R. (1994) *Evaluation of hazard trees in Urban areas*
Second edition, International Society of Arboriculture
Illinois.

Mattheck C & Breloer H (2003) *The Body Language of Trees: A handbook for failure analysis.* Research for Amenity Trees No. 4,
Seventh edition, The Stationary Office, London.

Shigo A.L. (2002) *A New Tree Biology.*
Shigo and Trees, Associates, Durham, New Hampshire.

Schwarze, F.W.M.R, Engels, J. Mattheck. C (2000) *Fungal strategies of wood decay in trees*
Springer-Verlag Berlin Heidelberg
Germany

Standards Australia, 2007, *Pruning of amenity trees* AS 4373, 2007
Standards Australia Ltd
Sydney

Standards Australia, 2009. *Protection of trees on development sites,* AS 4970, 2009
Standards Australia Ltd
Sydney

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EDUCATION and QUALIFICATIONS

- 2007 – Diploma of Arboriculture (AQF Cert V) Ryde TAFE. (Distinction)
- 1997 – Completed Certificate in Crane and Plant Electrical Safety
- 1996 – Attained Tree Surgeon Certificate (AQF Cert II) at Ryde TAFE
- 1990 – Completed two month intensive course on garden design at the Inchbald School of Design, London, United Kingdom
- 1990 – Completed patio, window box and balcony garden design course at Brighton College of Technology, United Kingdom
- 1989 – Awarded the Big Brother Movement Award for Horticulture (a grant by Lady Peggy Pagan to enable horticulture training in the United Kingdom)
- 1989 – Attained Certificate of Horticulture (AQF Cert IV) at Wollongong TAFE

INDUSTRY EXPERIENCE

Moore Trees Arboricultural Services **January 2006 to date**
Tree Consultancy and tree ultrasound. Tree hazard and risk assessment, Arborist development application reports
Tree management plans.

Woollahra Municipal Council **Oct 1995 to February 2008**
ARBORICULTURE TECHNICAL OFFICER
August 2005 – February 2008
Tree asset management, programmed inspection, inventory and condition surveys of council trees, hazard and risk appraisal, Tree root damage investigation and reporting, assessment of impacts of capital works projects on council trees.
ACTING COORDINATOR OF TREES MAINTENANCE
June – July 2005, 2006
Responsible for all duties concerning park and street trees. Prioritising work duties, delegation of work and staff supervision.
TEAM LEADER
January 2003 – June 2005
TEAM LEADER
September 2000 – January 2003
HORTICULTURALIST
October 1995 – September 2000

Northern Landscape Services **July to Oct 1995**
Tradesman for Landscape Construction business

Paul Vezgoff Garden Maintenance (London, UK) **Sept 1991 to April 1995**

CONFERENCES AND WORKSHOPS ATTENDED

- International Society of Arboriculture Conference (Brisbane 2008)
- Tree related hazards: recognition and assessment by Dr David Londsdale (Brisbane 2008)
- Tree risk management: requirements for a defensible system by Dr David Londsdale (Brisbane 2008)
- Tree dynamics and wind forces by Ken James (Brisbane 2008)
- Wood decay and fungal strategies by Dr F.W.M.R. Schwarze (Brisbane 2008)
- Tree Disputes in the Land & Environment Court – The Law Society (Sydney 2007)
- Barrell Tree Care Workshop- Trees on construction sites (Sydney 2005).
- Tree Logic Seminar- Urban tree risk management (Sydney 2005)
- Tree Pathology and Wood Decay Seminar presented by Dr F.W.M.R. Schwarze (Sydney 2004)
- Inaugural National Arborist Association of Australia (NAAA) tree management workshop- Assessing hazardous trees and their Safe Useful Life Expectancy (SULE) (Sydney 1997).

HERITAGE LISTING NOMINATION REPORT

BUSHELLS FACTORY

160 Burwood Road

CONCORD

Job No. 8364
February 2019

Heritage 21
CULTURAL BUILT HERITAGE IN THE 21ST CENTURY

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Heritage Impact Statements	Conservation Management Plans	On-site Conservation Architects
Photographic Archival Recordings	Interpretation Strategies	Expert Heritage Advice
Fabric Analyses	Heritage Approvals & Reports	Schedules of Conservation Work

TABLE OF CONTENTS

Acknowledgement of Country

Heritage 21 wishes to acknowledge the Traditional Owners of country throughout Australia and recognise their continuing connection to land, waters and community. We pay our respects to them and their cultures; and to elders both past and present.

Cover page: Detail of the eastern façade of the factory located at 160 Burwood Road, Concord. (Source: Heritage 21, 09 March 2016)

The following table forms part of the quality management control undertaken by Heritage 21 regarding the monitoring of its intellectual property as issued.

Issue	Description	Date	Initials
1	Draft report (D1) issued for comment for Job 2562.	31.03.16	K.B
2	Report Issued (R1) for Planning Proposal for Job 2562.	21.04.16	K.B
3	Draft report (D2) issued for comment for Job 8364.	01.02.19	L.S.
4	Report issued (RI) for Job 8364.	06.02.19	L.S.

1.0 INTRODUCTION

1.1 Background and Purpose

Heritage 21 was appointed by Colliers International Project Management (formerly Nix Anderson), in February 2016, to provide Heritage and Archaeological Consultancy services in relation to the redevelopment of the former Bushells Factory Building and site located at 160 Burwood Road, Concord ('subject site').

This Heritage Listing Nomination Report ('report') has been prepared by Heritage 21 on behalf of FreshFood Australia Holdings Pty Ltd and Colliers International Project Management to assess the heritage values associated with the subject site.

The purpose of this report is to nominate the factory building of the Former Bushells Factory for local heritage listing in Schedule 5 of the City of Canada Bay Local Environmental Plan 2013 ('CLEP'). This report will provide a review of the subject site in order to determine its heritage values, including its potential for heritage listing. Constraints and opportunities in relation to the subject site will also be discussed with a heritage framework provided which is based on the assessments concluded.

1.2 Site Identification

The subject site is located at 160 Burwood Road, Concord, which falls within the boundaries of the Canada Bay local government area. The site is approximately 3.9 hectares and comprised of the following lots:

- Lot 2, DP 230294;
- Lot 398, DP 752023;
- Lot 399, DP 752023; and
- Lot 5, DP 129325.

The location of the site within the Sydney Region, the Concord local area and a current aerial photograph of the site are presented in Figure 1, Figure 2 and Figure 3.

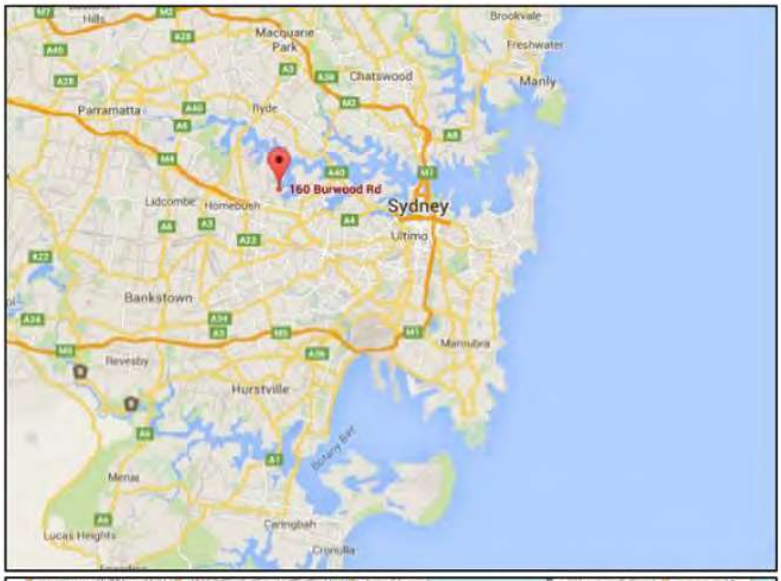

Figure 1. Map showing the location of the subject site indicated by the red arrow relative to Sydney's CBD. (Source: Google Maps, https://www.google.com/maps)

Figure 2. Map showing the location of the site within the Concord local area as indicated by the red flag. (Source: NSW Land and Property Information, 'SIX Maps', n.d., http://maps.six.nsw.gov.au/)

Figure 3. Current aerial photograph of the site, outlined in red. (Source: NSW Land and Property Information, 'SIX Maps', n.d., http://maps.six.nsw.gov.au/)

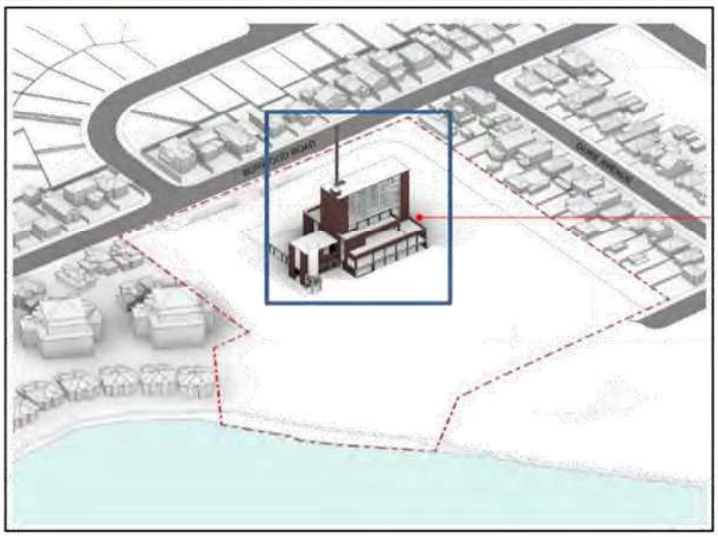

Figure 4. The former Bushells Factory Building that is proposed for heritage listing, as outlined in blue. (Source: Colliers International Project Management, May 2015)

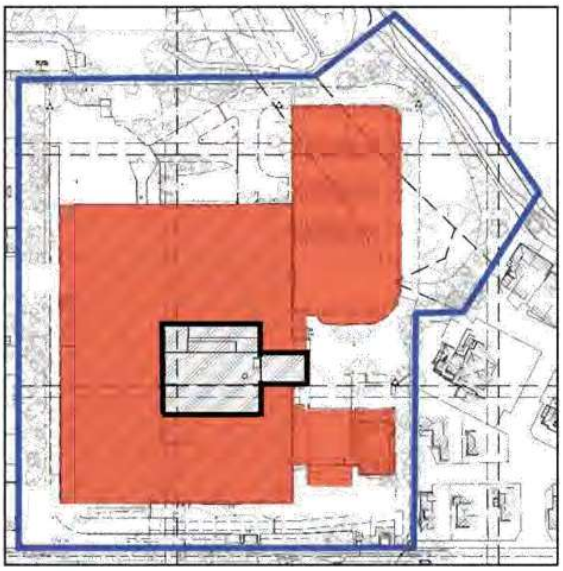

Figure 5. Plan of the existing site, the Former Bushells Factory Building core is outlined in black. (Source: Colliers International)

1.3 Heritage Context

1.3.1 Heritage Listings

The subject site is **not** listed as an item of environmental heritage in the Canada Bay Local Environmental Plan 2013 (CLEP). The subject site is also **not** listed in the NSW State Heritage Register, the National Heritage List, the Commonwealth Heritage List or the Register of the National Trust of Australia (NSW).

However, Heritage 21 have conducted an Assessment of Significance, included in Section 5.0 below, and would recommend the listing of the Former Bushells Factory Building (as shown in Figure 5) as an item of environmental heritage in CLEP 2013.

1.3.2 Heritage Conservation Areas

The subject site is **not** located within the boundaries of any heritage conservation areas listed under the CLEP 2013.

1.3.3 Heritage Items in the Vicinity

The subject site is adjacent to or within the vicinity of the following items of environmental heritage as listed in the CLEP 2013:

Item Name	Address	Level of Significance	Item Number
Massey Park Golf Course grounds and Sanders Reserve	1 Ian Parade (also known as 1C and 1P Ian Parade)	Local	I259
Street trees	Burwood Road (between Crane Street and Duke Avenue)	Local	I56
Bayview Park	166P Burwood Road	Local	I54

Figure 6. Heritage map HER_004 showing the location of subject site outlined in red and the heritage items located in the vicinity are brown.[1]

1.4 Methodology

The methodology used in this report is consistent with *Assessing Heritage Significance* (2015) published by the Heritage Branch of the NSW Office of Environment and Heritage and has been prepared in accordance with the principles contained in the most recent edition of *The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance* (2013).

[1] City of Canada Bay Council, 'Canada Bay Local Environmental Plan', 2013, http://www.canadabay.nsw.gov.au/planning-controls-lep-and-dcp.html#acctab1 accessed 8 March 2016.

1.5 Authors

This report has been prepared by Paul Rappoport and Kaylie Beasley, of Heritage 21, Heritage Consultants. Further updates to the report have been made by Lauren Schutz, Heritage Consultant of Heritage 21.

1.6 Limitations

- This report relies on both primary and secondary sources; however, archival research has been limited to that which could be accessed within the timeframe allowed in order to complete this report.
- It is beyond the scope of this report to address Indigenous associations with the subject site or to locate or assess potential or known archaeological sub-surface deposits on the subject site or elsewhere. Please refer to the *Aboriginal Heritage Due Diligence Assessment* (prepared by Heritage 21, April 2016) for a discussion on the Indigenous associations with the subject site.
- It is beyond the scope of this report to assess items of movable heritage.
- Heritage 21 has only assessed aspects of the subject site that were visually apparent and not blocked or closed or to which access was not given or was barred, obstructed or unsafe on the day of the arranged inspection.
- Due to the extensive nature of Sydney's industrial sites the comparative analysis provided in Section 4.1 has been restricted to a select few which have been chosen due to either their location in the Concord area and/or because of shared characteristics with the subject site. It is not an exhaustive analysis of all industrial sites within Sydney or Australia wide.

1.7 Copyright

2.0 HISTORICAL RESEARCH

2.1 Local History

2.1.1 Pre-European History

The Canada Bay area was originally occupied by the Wangal people whose name, it is believed was derived from the word 'wanne', meaning west.[2] According to the City of Canada Bay Historical Society, the earliest recorded contact between the Wangal people and Europeans occurred on the 5 February 1788 when Captain John Hunter led an exploratory expedition along the Parramatta River. Lieutenant Bradley, RN recorded the following:

> *At daylight having a guard of marines proceeded to the upper part of the harbour again, passing several natives in the caves as we went up and on the shore near the place, we left beads and some other things, who followed us along the rocks calling to us. We landed to cook our breakfast on the opposite shore to them. We made signs for them to come over and waved green boughs. Soon after seven of them came over in two canoes and landed near our boats. They left their spears in the canoes and came to us. We tied beads, etc., about them and left them our fire to dress mussels which they went about as soon as we put off.*[3]

A number of formally recorded Aboriginal places have been identified within the City of Canada Bay, with the majority located in the vicinity of the river foreshores.[4]

2.1.2 European Settlement and Beyond

The following historical information has been extracted from Section 8 of the *Canada Bay Local Planning Strategy 2010*:

> *After Parramatta was established as an agricultural district, a rough track between Sydney and Parramatta was created to supplement the use of the river as the main transport link between the two towns. This track, created in 1791, marked the beginning of Parramatta Road. Longbottom Stockade was established at the midpoint of the road as an overnight detention point for the gangs of convicts. This stockade was later to develop into the suburb of Concord. Between 1840 and 1842 it held 58 Canadian exiles after whom the suburb of Canada Bay is named.*
>
> *Meanwhile, land grants close to the bays and headlands of Parramatta River were being given to settlers such as Surgeon John Harris (Five Dock), Isaac Nichols (Yaralla), Thomas Bishop (between Majors Bay and Kendall Bay).*

[2] City of Canada Bay Heritage Society, 'Aborigines: Original Occupants of the Area', 2016, http://www.concordheritage.asn.au/concord-history/aborigines accessed 16 March 2016.
[3] Ibid. accessed 16 March 2016.
[4] Gregory Blaxell, *A Pictorial History of City of Canada Bay* (Alexandria: Kingsclear Books, 2010), 3.

Transport continued to focus on Parramatta River and Parramatta Road for some time. In 1829 the construction of [the] Great North Road through the present day Five Dock, Wareemba and Abbotsford was complete. This was a highly significant infrastructure project, providing a land route from Sydney to the Hunter Valley. The road relied on a punt to cross Parramatta River between Abbotsford Point and Kissing Point.

Through most of the nineteenth century, the settlement pattern in the area was a mix of large estates, small holdings and small villages. Towards the end of the nineteenth century, the establishment of industries such as the Australian Gas Light Company at Mortlake and the Dunlop Tyre Factory at Birkenhead Point (Drummoyne) led to increases in the growth of the nearby villages. Access to the river also prompted the re-development of some of the larger waterfront estates for industries such as Phoenix Iron Works. The only nineteenth century estate to remain from this period without substantial redevelopment is the Yaralla Estate of Thomas Walker.

The development of public transport routes including trams along Victoria Road, Great North Road, to Cabarita and Mortlake and the construction of the northern train line through North Strathfield and Rhodes also helped to foster industrial growth. Arnott's Biscuits established a factory at North Strathfield because of its access to the new rail line.

Much of the residential development of the Council area occurred in the late nineteenth century through to the Inter-War period. Many of the development[s] relied on access to transport as well as proximity to industrial places for employment. The influence of the garden suburb movement ensured proximity to parkland and the planting of street trees that continue to add to the amenity of the area.

The late twentieth century has seen the most dramatic change to the Council area with the rehabilitation and redevelopment of many of the large industrial sites. Most of these have been replaced with medium density residential and commercial developments that enjoy the proximity of the sites to Parramatta River.[5]

2.1.3 Industrial Development in Canada Bay

The Canada Bay area has had a long industrial history which can be roughly divided into four periods. The first period (1792-1886) was characterised by small scale agricultural industries, including dairying and crop cultivation.[6] The second period occurred towards the end of the nineteenth century and it marked the beginning of large-scale industrial development occurring in the area. The area was attractive to large scale industries due to its proximity to the river and railway for transport and inexpensive land prices during this period.[7] The subsequent two periods of industrial

[5] City of Canada Bay Council, 'Canada Bay Local Planning Strategy 2010', 2010, 175–176, http://www.canadabay.nsw.gov.au/future-planning-local-planning-strategy.html.
[6] *Concord Heritage Study: Thematic History* (Perumal, Wrathall & Murphy Pty. Ltd., 1986), 1.
[7] Ibid.

development occurred post World War I and World War II, when factors such as war rationing, assisting in the war effort, increasing population and suburbanisation stimulated industrial growth.[8]

The first period (c.1886-1914) of large scale industrial development in Canada Bay is generally marked by the establishment of the Australian Gas Light Company in 1886 at Mortlake.[9] Other companies, including Arnotts' Biscuits Pty Ltd and Tulloch's Phoenix Ironworks were established in Rhodes in 1907 and 1914 respectively.[10] The tannery of Farleigh, Nettheim & Company also opened their new premises in Concord in 1880.[11]

British Australian Lead Manufacturing Pty Ltd (BALM) established a plant at Cabarita during the second period of large-scale industrial development which can be approximately dated to 1914 - 1939. BALM manufactured white lead, an integral material used in the production of paint, and began production of this at the Cabarita site in 1921. The company, which became Dulux Australia Limited in the 1970s, continued to utilise the Cabarita plant until 1995.[12] Timber and hardware merchants Tanner Middleton Pty Ltd established a factory at Exile Bay in 1927. The company manufactured a range of products on their four-acre site including flooring, weatherboards, mouldings, windows and other joinery.[13]

Post-World War II industrial development (c. 1939-1985) brought companies such as Bushells Pty Ltd (mid 1950s), Philips Industries (1974) and the Southern Can Company (1950), which later became Containers Ltd into the area.[14]

Many of these former industrial sites which portray the development of the local area are no longer present with many sites now residential or recreational areas after having undergone substantial redevelopment.[15] A monument commemorating Concord's industries is currently located at Bayview Park, Concord.[16]

2.2 Site History

2.2.1 Development of the Site

Natural Environment

The subject site is located on the shores of Exile Bay, one of the many bays located along the Parramatta River. Prior to European settlement it has been recorded that the natural vegetation o

[8] Ibid., 54.
[9] City of Canada Bay Heritage Society, 'Concord's Industrial Development', 2016, http://www.environment.nsw.gov.au/heritageapp/heritagesearch.aspx accessed 16 March 2016.
[10] *Concord Heritage Study: Thematic History*, 56.
[11] Gregory Blaxell, *A Pictorial History of City of Canada Bay*, 109.
[12] Ibid., 106.
[13] Ibid., 108.
[14] City of Canada Bay Heritage Society, 'Concord's Industrial Development'.
[15] Ibid. accessed 16 March 2016.
[16] NSW Office of Environment and Heritage, 'Bayview Park', *State Heritage Inventory*, accessed 17 March 2016, http://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=2890319.

the site largely consisted of a mixture of Eucalypt woodland in the inland areas with mangroves distributed along the shoreline waters (see Figure 7).[17]

Figure 7. Detail from map showing the distribution of original natural vegetation within the Concord area including the subject site (indicated).[18]

European Settlement

It is evident from a Parish map, dated from approximately the late 1800s, that the subject site formed part of the Longbottom Stockade land area (see Figure 8). The Longbottom Stockade, as described in Section 2.1.2, was originally established to detain convicts transported west to Parramatta as it was located approximately midway between Sydney city and Parramatta. It later became the detention centre for several Canadian exiles that had been transported to Australia. [19]

By 1915, the subject site and surrounding land had been subdivided with the existing street alignments generally evident in parish maps from this period (see Figure 9). It appears that the site consisted of three different lots with each under the ownership of separate individuals who included

[17] *Concord Heritage Study: Thematic History.*
[18] Ibid.
[19] City of Canada Bay Council, 'Canada Bay Local Planning Strategy 2010', 175–176.

Mick O'Toole, Esther Lewis and Thomas Hunter. The foreshore area, which currently forms part of the site, is not included within any of these three allotments, it appears to be designated separately and only identified by a number. It is evident that the existing Burwood Road was known as Wharf Road during this period (see Figure 9). It is unclear when the name was changed, however, a historical map of the area dated c. 1934 uses the existing name of Burwood Road, so it can be surmised that the change occurred sometime within the 1915 – 1934 period (see Figure 10).

Figure 8. Detail from Concord Parish map (c.1800s) with the approximate location of the subject site indicated.[20]

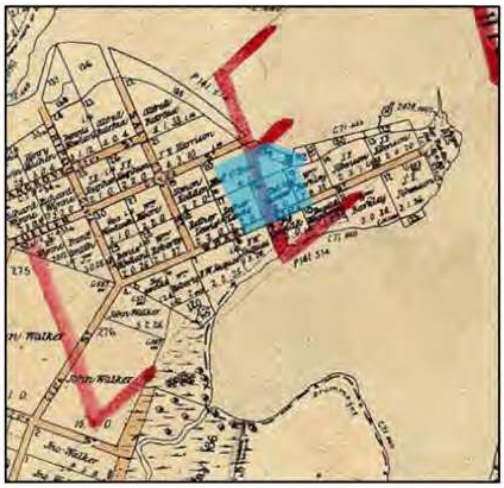

Figure 9. Detail from parish map (c. 1915) with the approximate location of the subject site indicated in blue.[21]

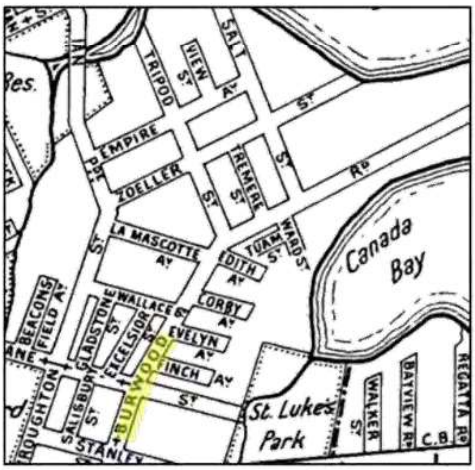

Figure 10. Detail from Gregory's Sydney Directory c.1934 using existing name of Burwood Road.[22]

[20] NSW Land and Property Information, 'Historical Land Records Viewer', n.d., n. ed 0, sheet 3, http://images.maps.nsw.gov.au/pixel.htm accessed 8 March 2016.
[21] Ibid., n. ed. 0, sheet 1 accessed 8 March 2016.
[22] 'Gregory's Sydney Directory Section 40' (Concord, 1934), http://voommaps.com/historical-maps/1934-gregorys-sydney-street-directory/.

Reclamation of Foreshore Areas

Beginning in the 1920s, the local Council began to undertake a series of reclamation projects in the Hen and Chicken Bay area, including in the vicinity of the subject site at Exile Bay (see Figure 11). The aim of these projects was to turn the swampy foreshore areas into developable spaces. [23] The existing nature of the foreshore areas including Massey Park Golf course[24] and Bayview Park[25] are the result of reclamation projects. According to research, 48 acres of swampland was reclaimed for the Massey Park Golf course and this took 12 years to "*fill the hungry swamp with fill from the municipality*".[26]

Figure 11. Reclamation works at Exile Bay, c.1930.[27]

Pre-Construction of Factory

It is apparent from 1943 aerials of the subject site that construction on the site had occurred by this period. A timber mill and wharf were located in the northern section of the site with the remaining area largely undeveloped aside from some minor constructions such as access roads to these built structures.[28] Surrounding the site, industrial development was evident towards the east and residential development was located south of Burwood Road. The area to the west of the site, which is currently occupied by residential development, was undeveloped during this period (see Figure 12). A three-metre concrete sea wall, which currently separates the site from Exile Bay, may have been constructed during the reclamation works which have been carried out since the 1920s.

[23] *Concord Heritage Study: Thematic History*, 5–6.
[24] Ibid.
[25] NSW Office of Environment and Heritage, 'Bayview Park'.
[26] NSW Office of Environment and Heritage, 'Massey Park Golf Course and Sanders Reserve', accessed 16 March 2016, http://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=2890346.
[27] City of Canada Bay Council, 'Canada Bay Image Library', accessed 16 March 2016, http://imagelibrary.canadabay.nsw.gov.au/Library/#1458173124818_0.
[28] Gregory Blaxell, *A Pictorial History of City of Canada Bay*, 110.

Figure 12. Detail from 1943 aerial imagery of the subject site with the approximate boundaries indicated. [29]

Construction of Existing Factory

The subject site was purchased by the company Bushells Pty Ltd in 1956 for a reputed sum of 85,000 pounds.[30] The purpose-built factory which currently occupies the site was constructed in two stages (see Figure 15 to Figure 17). The first stage occurred in c.1957-58 and the second stage, which saw the assembly of the chimney stack, occurred during the 1970s.[31] It is not known definitively but historical research suggests that the architects responsible for the initial 1950s factory design were Brewster Murray Architects.[32]

[29] NSW Land and Property Information, 'SIX Maps' accessed 8 March 2016.
[30] FreshFood, 'Bushells Coffee: Our Story', 2015, http://staging.bushellscoffee.com.au/our-story/.
[31] City of Canada Bay Heritage Society, 'Concord's Industrial Development' accessed 16 March 2016.
[32] Tanner Architects, 'Former Bushells Building Conservation Management Plan' 2008, 17.

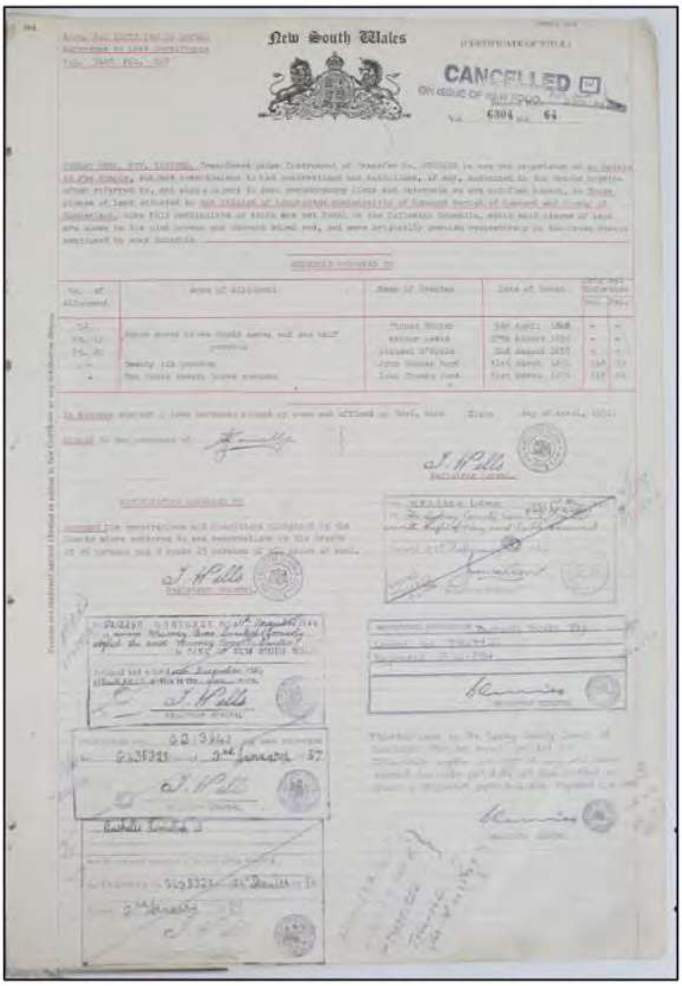

Figure 13. Certificate of Title for the subject site. (Source: Historical Lands Record Viewer, http://hlrv.nswlrs.com.au/pixel.htm#)

Figure 14. The transfer stamp indicating that the title of the subject site was transferred to Bushells Limited on 24 December 1956. (Source: Historical Lands Record Viewer, http://hlrv.nswlrs.com.au/pixel.htm#)

Property cards of the various development and building approvals in relation to the former Bushells factory, which were provided to Heritage 21 on the 23 March 2016 by the City of Canada Bay Council, indicate that regular additions and alterations have occurred at the subject site between its construction in the 1950s and the 1990s. In addition to the chimney stack, various internal additions, installation of new equipment, including a storage silo for spent coffee, and alterations to the site landscaping are suggested. The property cards also indicate that the detached office building, which is currently located east of the factory building, was constructed during the late 1980s period. Since the 1980s, only minor additions and repairs appear to have been made at the site.

Figure 15. Bushells Factory, c. 1966, without chimney.[33]

Figure 16. Massey Park weir with Bushells Factory visible on right side, c.1967.[34]

[33] City of Canada Bay Council, 'Canada Bay Image Library'.
[34] Ibid.

Figure 17. Bushells Factory and surrounding development, c.1970.[35]

Prior to the construction of the subject site factory, Bushells was operating from a factory located in Harrington Street, The Rocks, where it had been since 1924.[36] These premises continued to be used for operations until 1975 by which time all operations had been incrementally transferred to the subject site. [37] The printers were the first to be relocated to Concord, followed by packaging and lastly the office staff. [38] Reportedly, production commenced at the Concord site in 1958.[39]

The *Official Newsletter of the Concord Heritage Society* records the following about the Bushells factory in Concord:

> *Approximately 300 men and women were employed by the company at Concord. Their work consists mainly of the roasting and manufacture of ground and instant coffee, the production of coffee essence, and the blending and packing of tea and teabags.*[40]

Photographs dating from the 1970s show that extensive residential development to the west of the subject site had occurred prior to this period and industrial development was still present east of the site (see Figure 17 and Figure 18).

Figure 18. Detail from c.1977 aerial photograph of the subject site (indicated).[41]

Figure 19. Interior of the factory located at the subject site, c. 1980.[42]

[35] Ibid.
[36] Tanner Architects, 'Former Bushells Building Conservation Management Plan', 17.
[37] Ibid., 18.
[38] Ibid.
[39] FreshFood, 'Bushells Coffee: Our Story'.
[40] Official Newsletter of the Concord Heritage Historical Society, 'More Industries on Exile Bay Bushells Pty.Ltd.', *Nurungi Remembered*, June 2007, 133 edition.
[41] City of Canada Bay Council, 'Canada Bay Image Library'.
[42] Fresh Food, 'Our Story', 2015, http://www.roberttimms.com.au/our-story/.

Bushells Pty Ltd was sold in 1978 to Brook Bond Leibig Ltd who made large investments in the coffee side of the business. According to research, several pieces of machinery were acquired during the 1980s including a continuous roaster for instant coffee and an instant coffee agglomerator.[43] In the late 1980s, Brooke Bond Leibig Ltd was acquired by the company, Unilever. [44] Unilever went on to further improve and expand the coffee business which incorporated investment in research and the acquisition of other coffee companies including Robert Timms.[45] In April 1998, the coffee brands and business was purchased from Unilever by FreshFood Holdings Pty Ltd. The Bushells tea brands remained with Unilever.[46]

The subject site currently remains in the ownership of FreshFood Holdings who continue to manufacture coffee at the site for distinguished coffee brands including The House of Robert Timms, Bushells Coffee, Picco, Europa and Café Bar.[47] Since the 1970s, the industrial development which formally adjoined the subject site has gradually declined and has been replaced by residential development.

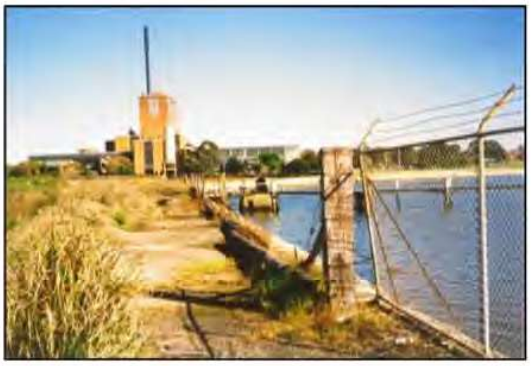

Figure 20. View looking west towards the subject site, c 1991.[48]

Figure 21. View towards the subject site from the eastern side of Hen and Chicken Bay, c. 1995.[49]

[43] FreshFood, 'Bushells Coffee: Our Story'.
[44] Gregory Blaxell, *A Pictorial History of City of Canada Bay*, 110.
[45] Fresh Food, 'Our Story'.
[46] Gregory Blaxell, *A Pictorial History of City of Canada Bay*, 110.
[47] Fresh Food, 'Our Story'.
[48] City of Canada Bay Council, 'Canada Bay Image Library'.
[49] Ibid.

2.2.2 Associated Companies

The following section provides a summary of two recognised companies and the brands which they created which have an association with the site. Neither of these two companies are still in existence but their brands prevail and are owned and manufactured by FreshFood Australia Holdings Pty Ltd at the subject site.

Bushells Pty Ltd

Bushells Pty Ltd was founded by Alfred Bushell (1833-1910) who began selling tea and coffee in Brisbane during the early 1880s (see Figure 22). Alfred's two sons followed their father into the business and began trading in Sydney under the name of Bushell and Company. Following Alfred's death in 1910, Bushell's Limited was registered as a public company. The business continued to expand and by 1918 was operating throughout Australia. In 1920, Bushells acquired a site on Harrington Street in The Rocks and constructed a seven-storey factory and office building where they ran their operations from for the next 40 years. The Company continued to expand, forming a branch in New Zealand in 1937, acquiring coffee company J. A. D. Gibson Pty Ltd in 1955 and taking over Inglis Ltd in 1955.[50]

In the mid-1950s the Company acquired its current site located at 160 Burwood Road, Concord (the subject site). The site was suited to undergo immediate development so reputedly "*plans were drawn up and spray drying equipment and six instant coffee extractors were ordered from America*".[51] Since 1978 the Bushells Company has been bought and sold to various companies which have included Brook Bond Leibig Ltd in 1978, Unilever in 1988 and FreshFood Services Pty Ltd in 1998, who currently own the company.[52] It should be noted that FreshFood Services Pty Ltd only acquired the coffee brands from Unilever and not the Bushells tea brand. [53]

Throughout its development as a company, Bushells and its products have firmly established themselves as an iconic brand within Australia (see Figure 23). The brand continues to maintain its presence within the collective Australian conscious through its involvement with community programs such as the Driver Reviver program. During holiday periods Bushells Coffee is provided free of charge at Driver Reviver sites, located throughout Australia, to all motorists encouraging them to 'Stop, Revive, Survive'.[54]

[50] Gregory Blaxell, *A Pictorial History of City of Canada Bay*, 109–110.
[51] FreshFood, 'Bushells Coffee: Our Story'.
[52] Gregory Blaxell, *A Pictorial History of City of Canada Bay*, 110.
[53] Ibid.
[54] FreshFood, 'Bushells Coffee: Our Story'.

Figure 22. Alfred Bushell (1833-1910).[55]

Figure 23. Examples of Bushells advertising campaigns. [56]

The House of Robert Timms

The House of Robert Timms was established by Robert Timms Jnr. Robert Timms Jnr purchased the Associated Tea Company in the 1930s and found a marketplace throughout World War II supplying fresh coffee to the Australian and US armed forces. It was during this period that Robert created the *"first fresh coffee making 'automated line' in Australia"*.[57] After the war Robert expanded his business with his focus relying primarily on coffee rather than tea. Robert identified that post-war immigration was bringing many migrants from European cultures to Australia. These cultures valued fresh coffee and treated it as essential part of everyday life, so he sought to cater for this market. The House of Robert Timms pushed the boundaries of the coffee industry with innovative new technology such as self-service coffee grinders which were introduced into supermarkets during the 1950s (see Figure 24). In 1956, Robert Timms was the official supplier of the Melbourne Olympic Games and also the Sydney 2000 Olympic Games. By the 1970s, Robert Timms was the largest privately-owned tea and coffee company in Australia. Robert Timms was acquired by Unilever in the 1980s and then came under the ownership of FreshFood Holdings Pty Ltd in 1998 when FreshFood purchased the coffee businesses from Unilever.[58] The House of Robert Timms brand is a recognisable household name and is found throughout Australian stores (see Figure 25).

[55] Ibid.
[56] Ibid.
[57] Fresh Food, 'Our Story'.
[58] Ibid.

Figure 24. The House of Robert Timms introduced self-service coffee grinders into supermarkets during the 1950s.[59]

Figure 25. One of the many products that are manufactured by The House of Robert Timms.[60]

[59] Ibid.
[60] Ibid.

3.0 PHYSICAL DESCRIPTION

3.1 Locality and Setting

The subject site is located in the Inner West suburb of Concord, which is located approximately 12 kilometres west of the Sydney central business district.

The site is located in a predominately residential area with one and two-storey detached, and semi-detached dwellings located along the western boundary and also to the south of Burwood Road, which demarcates the site's southern boundary. Similarly, medium density residential developments are located to the east and south east. The Massey Park Golf Course and Sanders Reserve (heritage item I259) adjoins the subject site to the north with Exile Bay marking the north-eastern boundary of the site.

3.2 Site Layout and Structures

3.2.1 Former Bushells Factory Building

A multi-storey brick and concrete factory with its imposing chimney stack is the main structure located on the subject site. The factory is oriented north-south and sited in the western portion of the site with a generous setback from all four site boundaries. The eastern and southern facades of the factory largely consist of brick and clerestory glazed areas with the northern and western facades incorporating large areas of precast concrete panels. The main façade of the factory, the eastern façade which contains a large 'B' for Bushells, in addition to a tea leaf and coffee bean, faces towards Exile Bay (see Figure 32). In addition to the Former Roasting Hall core tower (see Figure 5), the building also includes later additions that were constructed to incorporate warehouse areas and the new blending tower.

3.2.2 Administration Building

A two-storey administration building is located on the eastern side of the factory with a covered walkway joining the two structures. The administration building which was constructed in the late 1980s period (see Section 2.2.1) is largely brick with timber features such as half-timbered gables and timber balconies which is reminiscent of an earlier architectural style (see Figure 34). A security booth/gatehouse and accompanying boom gates are located at the Burwood Street entrance into the site and a metal gas storage shed is also evident to the north of the factory.

Figure 26. Detail of site plan drawn by G.J.Svehla, 11.03.94 with major structures and approximate boundaries of major landscaped areas indicated.

3.3 Exterior

The remainder of the site comprises a combination of open area bitumen car parks, concrete and bitumen driveways and landscaped areas. A memorial plaque, commemorating Ron Harrison, a previous supervisor of the factory is situated at the base of a tree, which is located in the north-eastern section of the site (see Figure 41). The site legally extends to the Exile Bay foreshore area, but at present, a chain link fence separates the site from the foreshore area. This foreshore area is currently occupied by a public walking path and concrete sea wall.

3.4 Setting

The overall nature of the subject site, the large industrial building set amidst soft landscaping on the water's edge, creates a pleasing juxtaposition enabling a physically loud structure to sit quietly within its surrounding environment. It displays characteristics of the 'Factory Garden Movement' which was developed around the ideology that situating factories within pleasant landscaped spaces which employees could enjoy would not only improve the aesthetics of the factory but so to the health of the workforce which in turn would lead to increased profits.[61]

3.5 Views

The scale of the factory building, which is largely attributed to its chimney stack, is significantly greater compared to the surrounding development and therefore, is a recognisable landmark in the local area due to its high visibility from a number of vantage points (see Figure 27 to Figure 30).

[61] Helena Chance, '"Consulting the Genius of the Plant"' n.d., http://eprints.bucks.ac.uk/1424/1/Chance,%20Helena%20Consulting%20the%20genius%20of%20the%20plant.pdf.

The factory's eastern façade is distinctive due to the 'B' signage located on the upper storeys of the factory wall. The signage can be seen for some distance and contributes to the views of the factory, particularly from Hen and Chicken Bay and further east, and contributes to it being a recognisable landmark within the local area.

Due to the scale of the factory, views to and from the neighbouring heritage items (I259, I54 and I56) are evident (see Figure 27 to Figure 30).

Figure 27. View of subject site from Hen and Chicken Bay, c. 2007.[62]

Figure 28. View towards the subject site from heritage item I54: Bayview Park (I54), n.d.[63]

Figure 29.View towards the subject site from heritage item I259: Massey Park Golf Course and Sanders Reserve, c.2015.[64]

Figure 30. View towards the subject site from Burwood Road. (Heritage 21, 09.03.16)

3.6 Interiors

Internally, the factory is divided into seven storeys. The lower storeys (lower ground floor – first floor) are divided into a series of large spaces which appear to be used for later stages of the manufacturing process such as packing, quality control and distribution. The storeys above contain the equipment required to undertake the initial manufacturing processes such as roasting and

[62] City of Canada Bay Council, 'Canada Bay Image Library'.
[63] NSW Office of Environment and Heritage, 'Bayview Park'.
[64] City of Canada Bay Council, 'Canada Bay Image Library'.

drying. It is important to note that the equipment has undergone significant maintenance and replacement, per the changing needs of the company.

The fourth storey and above is one large vertical space in which plant involved in vertical production processes are located. A series of levels to access the plant from different heights are created by open steel mesh platforms. The space is naturally illuminated as clerestory glazing covers the entire span of the northern and southern walls of this space. This area is referred to as the translucent roasting hall.[65]

The interiors of the detached office building and the security booth/guardhouse were not inspected.

[65] 'Design Report', 2015.

3.7 Photographic Survey

The following photographs, taken by Heritage 21 on 09 March 2016, provide a visual survey of the site, its setting and notable fabric.

Figure 31. View of the covered walkway joining the eastern façade of the factory to the administration building.

Figure 32. View of the distinctive 'B' signage with tea leaf and coffee bean within the spaces of the letter.

Figure 33. View towards the eastern boundary with the security booth/guardhouse on the right.

Figure 34. Eastern façade of administration building with half-timbered gables shown.

Figure 35. View south-west encompassing the northern facade of the administration building and a detail of the eastern façade of the factory.

Figure 36. View north-east encompassing a large lawn area and the foreshore boundary of the site.

Figure 37. View west encompassing a detail of the factory's eastern façade and open-air car park.

Figure 38. View north towards Massey Park Golf Course and Sanders Reserve (I259).

Figure 39. Detail of northern façade of factory with precast concrete panels.

Figure 40. Western façade of the factory with landscaped area located along the western boundary evident on the right.

Figure 41. Memorial plaque located at tree base in the north-eastern section of the site.

Figure 42. Detail of the southern façade of factory and landscaping along southern boundary is evident on the left.

Figure 43. Detail of space located on the lower ground floor.

Figure 44. Detail of space and equipment located on second floor.

Figure 45. Roof space located on second floor.

Figure 46. Detail of space located on the third floor.

Figure 47. View looking down of the roasting hall from fifth floor platform.

Figure 48. View looking up of the roasting hall from fifth floor platform.

Figure 49. View of clerestory aluminium framed glazing as viewed from the second-floor roof space.

Figure 50. Curved steel handrails located in stairwell located between floor five and floor three. Despite not achieving BCA Compliance, the existing handrails should be retained and reused on site.

4.0 COMPARATIVE ANALYSIS

The purpose of the following analysis is to examine the subject site in relation to other comparable places in order to gain an understanding of the place in terms of its rarity and/or representativeness. This section also examines the subject site in relation to the NSW Historical Themes as this also aids in understanding and assessing a place within the wider historic context.

4.1 Comparison with other Industrial sites

Five industrial sites have been examined in relation to the subject site. These sites have been chosen because of their location in the Concord area and/or because of shared characteristics with the subject site such as landscaped setting and include the following:

- Farleigh, Nettheim & Company Tannery (Stanley Street, Concord, NSW);
- Austral Bronze Factory (Burwood Road, Concord, NSW);
- Davis Gelatine Factory (Baker Street, Banksmeadow, NSW);
- Roche Factory (South Creek Road, Cromer, NSW); and
- Kodak Australasia Factory (Southampton Crescent, Abbotsford, VIC).

A short description of each industrial site will be provided followed by a concluding section which presents the overall findings of the analysis.

4.1.1 Farleigh, Nettheim & Company Tannery (Stanley Street, Concord, NSW)

The Farleigh, Nettheim & Company tannery was located in Stanley Street on the site which is now occupied by Concord High School. The factory was established by John Farleigh and Cossman Nettheim on the Concord site c.1882.[66] The factory was heralded in 1928 and the most up-to-date tannery in the Southern Hemisphere.[67] It continued to operate on the site, largely producing leather for shoe and boot soles, until 1967.[68] The site consisted of a range of structures with the most prominent being a four storey brick construction with a possible water tower. Other single storey iron roofed structures, chimney stack and pits also occupied the site. There is no evidence to suggest that the structures were situated within a landscaped setting (see Figure 51).

[66] Gregory Blaxell, *A Pictorial History of City of Canada Bay*, 109.
[67] 'Firm with History', *The Hebrew Standard of Australasia*, 6 January 1928.
[68] Gregory Blaxell, *A Pictorial History of City of Canada Bay*, 109.

Figure 51. The tannery site of Farleigh, Nettheim & Company, c. 1933.[69]

4.1.2 Austral Bronze Factory (Burwood Road, Concord, NSW)

The Austral Bronze Factory was initially established on its Burwood Road site as the George E. Crane Brass Foundry in the 1930s.[70] The former site of the factory, which is located on the southern side of Burwood Road slightly east of the subject site, has since been redeveloped into a residential housing estate. G. E. Crane and Sons Pty Ltd. manufactured brass, copper and aluminium and were the first Australian company to roll aluminium in Australia. The Company merged with Austral Bronze in 1968.[71]

According to *The Sydney Morning Herald* on the 28 November 1939, a 30,000 square foot single storey factory was constructed on the site.[72] This corresponds with 1943 aerial photography which shows that the site, at this time, consisted of one dominating structure with smaller structures located to the west of this main structure (see Figure 52). The factory was constructed of structural steel with brick faced walls and a fibro-cement roof. It also had a large setback from Burwood Road *"to be planted later with trees and shrubs"*.[73] Photographs of the site in c.1991 show that the number of structures evident on the site had significantly increased in the interim period.

Figure 52. Aerial view of the Austral Bronze Factory site in 1943.[74]

[69] City of Canada Bay Council, 'Canada Bay Image Library'.
[70] Official Newsletter of the Concord Heritage Society, 'Austral Bronze Crane Copper', *Nurungo Remembered*, June 2007, 133 edition.
[71] Ibid.
[72] The Sydney Morning Herald, 'Building and Construction', 28 November 1939.
[73] Ibid.
[74] NSW Land and Property Information, 'SIX Maps'.

4.1.3 Davis Gelatine Factory (Baker Street, Banksmeadow, NSW)

The Davis Gelatine factory which was formally located in the Botany Bay suburb of Banksmeadow was constructed in 1917 and began operations in 1919. Sir George Francis David bought eight hectares of land on which he created a "*model environment*".[75] The factory buildings involved in the manufacture of gelatine and glue were generally one - two storeys and were surrounded by extensive landscaping. A mixture of trees, shrubs, lawns and flower beds were situated around and amongst the buildings. The driveway landscape, which those entering the site passed through on their approach to the factory buildings, was reminiscent of a park. Tennis courts and bowling greens which were available for employee use were located to the rear of the site.[76] This extensive landscaping is evident in 1943 aerial views of the site (see Figure 53).

The factory buildings and landscaped setting is not evident on the site today. It appears that they have been replaced by contemporary warehouse buildings and are occupied by companies such as RMS Marble and Foodlink Australia.

Figure 53. Aerial view of the Davis Gelatine Factory site in 1943.[77]

4.1.4 Roche Factory (South Creek Road, Cromer, NSW)

In 1962, Roche, a pharmaceutical company that originated in Switzerland, purchased land in Cromer, NSW. As the company developed within Australia, so did the site and buildings were constructed on the site until the early 2000s . The institute not only conducted research on the site but there were also warehouse spaces for the production of pharmaceuticals. Manufacturing occurred on the subject site until 2007 and was spread across a number of different buildings.

The buildings were established on the site within a landscaped setting and recreational spaces such as tennis courts, a gym and a squash court were also constructed. Despite the development of the site, including the construction of 17 buildings and 14 additional structures, the north-eastern section of the site is still protected as a local item of environmental heritage, as the trees and creek running through the site have remained largely untouched. The Former Roche Facility is also listed as

[75] NSW Office of Environment and Heritage, 'Davis Gelatine Site (Former)', n.d., http://www.environment.nsw.gov.au/heritageapp/heritagesearch.aspx.
[76] Ibid.
[77] NSW Land and Property Information, 'SIX Maps'.

an item of environmental heritage, its significance attributed to the high degree of integrity of one of the first industrial complexes within Cromer that was set within substantial landscaped grounds.

In 2018 the subject site was purchased by EG Funds Management and remains largely vacant, Roche continues to use a portion of the site as a warehouse and maintain the landscaped gardens.

Figure 54. Aerial view of the Roche Factory site c.1965. (Source: *People, Precision, Perfection*, p65)

4.1.5 Kodak Australasia Factory (Southampton Crescent, Abbotsford, VIC)

The Kodak Australasia Factory was located in the Melbourne suburb of Abbotsford alongside the Yarra River. The site of the former factory was purchased in 1881 by Thomas Baker, one half of Baker and Rouse Australia Laboratory, which merged with Kodak Limited in the early twentieth century (c.1907). As the company had expanded so too did the Abbotsford factory site. By 1949, the factory was producing film, plates and photographic chemicals in addition to the developing and processing of film and cine processing. According to evidence, the factory was the first place outside of North America to process Kodachrome film. The Company was required to acquire and move to larger premises when the Abbotsford site became inadequate. By 1966 all operations of the Company had relocated to their new factory site in Coburg.[78] The former Abbotsford site was sold off and appears to be currently used and owned by Carlton United Breweries Limited.

Historical photographs indicate that the site consisted of a number of buildings, many multi-storeys, which were situated within a landscaped setting. Extensive lawns, flower beds and trees are distributed throughout the site. Recreational areas such as tennis courts, cricket field and basketball area were also located within the landscaped area. It is unclear, how long the landscaped setting remained an integral part of the site before the pressure for increased development space lead to its demise. Evidence suggests that at least one of the garden areas was built over in 1948.[79] Aerials of the site today do not reveal any evidence of this former landscaped setting and it is not known if

[78] Angletta Leggio, 'A History of Australia's Kodak Manufacturing Plant' (AICCM Symposium, 2006).
[79] Museum Victoria Collections, 'Item MM 96557 Photogrpah - Kodak Australasia Pty Ltd, Kodak Factory, Garden & Staff, Abbotsford, Victoria, circa 1930s', n.d.

any of the structures existing on site today were constructed when the site in operation as the Kodak Australasia factory (see Figure 55).

Figure 55. View of the Kodak Australasia factory site, c.1940-1955.[80]

4.1.6 Summary

The following conclusions can be drawn from the comparison of the subject site with the five industrial sites summarised above:

- The subject site is a rare extant example of a factory operating during the twentieth century in the Concord local area. Other factories which were operating in the Concord area during the twentieth century, such as the Farleigh, Nettheim & Company Tannery and Austral Bronze Factory, have undergone demolition.
- As described in Section 3.4, the subject site exhibits characteristics of the 'Factory Garden Movement' along with other industrial sites such as the Davis Gelatine Factory, the Kodak Australasia Factory and the Roche Factory. All three are examples of the Factory Garden Movement applied on a large-scale with the sites displaying large expanses of landscaped areas which included recreational facilities for employees such as tennis courts. In comparison, the subject site provides an example of the factory garden movement ideology on a modest and smaller scale. Whilst the landscaped settings of the Davis Gelatine Factory and the Kodak Australasia Factory have been lost, at the Roche complex the landscaped setting has been retained and in being attributed to the significance of the site which is heritage listed, continues to be maintained despite the site remaining predominately vacant at present.
- The subject site is noticeably different in comparison to the other industrial sites in that the whole manufacturing process is confined to one large building. It is noted that a detached administration building exists on the subject site, however no manufacturing or storage of the product appears to occur there. The other sites examined gradually constructed multiple

[80] 'Item MM 96553Photograph - Kodak Australasia Pty Ltd, Exterior View of Kodak Factory, Abbotsford, Victoria, 1940-1955', n.d., http://collections.museumvictoria.com.au/items/1399083.

structures on the sites to be used for different stages of the manufacturing process. Dissimilarly, all stages of the manufacturing process, production right down to distribution, all occur within the one factory building at the subject site.

4.2 Historical Themes

Historical Themes relevant to NSW set out by the Australian Heritage Commission and the Heritage Division, NSW Office of Environment and Heritage in the *NSW Heritage Manual* can provide a context within which the cultural significance of an item can be understood, assessed and compared. This approach provides a useful framework within which cultural significance can be assessed by emphasising the underlying historical influences which have shaped the subject site. These historical themes are general, so it is likely that the subject site will relate to more than one theme.

Historical themes relevant to the subject site are set out below.

Australian Theme	NSW Theme	Local Themes	Site examples
1. Tracing the natural evolution of Australia	Environment – naturally evolved	There are two aspects to this theme: (1) Features occurring naturally in the physical environment which have significance independent of human intervention (2) Features occurring naturally in the physical environment which have shaped or influenced human life and cultures	Foreshore location and the relationship to Hen and Chicken Bay.
2. Peopling Australia	Convict	Activities relating to incarceration, transport, reform, accommodation and working during the convict period in NSW (1788-1850) – does not include activities associated with the conviction of persons in NSW that are unrelated to the imperial 'convict system': use the theme of Law and Order for such activities	The subject site formed part of the Longbottom Stockade land area. The Longbottom Stockade was initially established to detain convicts transported west to Parramatta as it was located approximately midway between Sydney city and Parramatta. It later became the detention centre for several Canadian exiles that had been transported to Australia.
3. Developing local, regional and national economies	Industry	Activities associated with the manufacture, production and distribution of goods	Coffee has been roasted at the site for over 60 years.
	Technology	Activities and processed associated with the knowledge or use of mechanical arts and applied sciences	The subject site is associated with coffee entrepreneur Robert Timms Junior. Timms pushed the boundaries of the coffee industry through innovative new technology such as the self-service coffee grinders which were

Australian Theme	NSW Theme	Local Themes	Site examples
			introduced into supermarkets during the 1950s. The Bushells Company, incorporating the companies which later acquired the Bushells brand, dedicated funds to research with the purpose of producing fine quality coffee products. The primary focus of these companies was producing high quality coffee products for the Australian home.
	Transport	Activities associated with the moving of people and good from one place to another, and systems for the provision of such movements	Prior to the construction of the Bushells factory in the 1950s, a timber mill and wharf occupied the subject site. Industrial sites, such as timber mills, were often situated near the foreshore areas as the Parramatta River was invaluable for transportation of products.
5. Working	Labour	Activities associated with work practises and organised and unorganised labour	The situating of an industrial building within a landscaped setting displays characteristics of the 'Factory Garden Movement' which developed around the ideology that locating factories within pleasant landscaped spaces would positively benefit the health of their employees.
8. Developing Australia's cultural life	Domestic Life	Activities associated with creating, maintaining, living in and working around houses and institutions	Bushells products were largely focused on the premise of allowing people to enjoy good quality coffee within the comfort of their own homes. Throughout its development as a company, Bushells and its products have firmly established themselves as an iconic brand within Australia and is still commonly found within Australian households.
9. Marking the phases of life	Persons	Activities of, and associations with identifiable individuals, families and communal groups	The subject site is associated with two identifiable individuals and the brands which they created. These individuals are Alfred Bushell and Robert Timms Junior.

5.0 ASSESSMENT OF SIGNIFICANCE

5.1 NSW Heritage Assessment Guiding Principles

The following Assessment of Significance of the subject site located at 160 Burwood Road, Concord is drawn in part from the guidelines set out in the *NSW Heritage Manual (*prepared by the Heritage Division, NSW Office of Environment and Heritage) which identifies the criteria below for assessing heritage significance. These guidelines incorporate the cultural heritage values identified in *The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance 2013.* The Burra Charter defines cultural significance as: "*...aesthetic, historic, scientific, social or spiritual value for past, present or future generations.*" Under the *NSW Heritage Manual* guidelines, an item is assessed in accordance with the following specific criteria:

(a) An item is important in the course, or pattern, of NSW's cultural or natural history (or the cultural or natural history of the local area);
(b) An item has strong or special association with the life or works of a person, or group of persons, of importance in NSW's cultural or natural history (or the cultural or natural history of the local area);
(c) An item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW (or the local area);
(d) An item has strong or special association with a particular community or cultural group in NSW (or the local area) for social, cultural or spiritual reasons;
(e) An item has potential to yield information that will contribute to an understanding of NSW's cultural or natural history (or the cultural or natural history of the local area);
(f) An item possesses uncommon, rare or endangered aspects of NSW's cultural or natural history (or the cultural or natural history of the local area); and
(g) An item is important in demonstrating the principal characteristics of a class of NSW's
    - cultural or natural places; or
    - cultural or natural environments.

    (or a class of the local areas'
    - cultural or natural places; or
    - cultural or natural environments).

Items assessed as being of State significance may be considered for inclusion on the State Heritage Register (SHR) by the Heritage Council of NSW.

5.2 Assessment of Significance

In assessing the appropriateness of nominating the site for heritage listing, it is crucial to understand the cultural heritage value of a place. This understanding of significance then informs and guides decision-making so as to retain values into the future. The assessment to ascertain the significance of a place is carried out below, based upon criteria specified by NSW OEH.

Criterion	Assessment
A. Historical Significance An item is important in the course, or pattern, of NSW's or the local area's cultural or natural history (state/local significance).	The subject site is associated with the historical development of the Concord area, emerging from a convict detention settlement into a heavily industrialised area. Developing during the second phase of industrialisation of Concord, the subject site was continuously used for the production of coffee and tea for over 60 years. The reduced operations at the subject site reflects the overall reduction of industrial operations within the surrounding area, and the redevelopment of Concord into a residential area. The development of the subject site is also closely associated with the broader development of the "Factory Garden Movement." Encouraging the establishment of landscaped gardens to both improve the aesthetic of the subject site, alongside promoting the health of employees, the evolution of the subject site reflects the concepts associated with the movement. Accordingly, the subject site demonstrates historical significance at a local level due to its association with the development of Concord and the Factory Garden Movement.
B. Associative Significance An item has strong or special association with the life or works of a person, or group of persons, of importance in NSW's or the local area's cultural or natural history (state/local significance).	The subject site was acquired in the 1950s by the Bushells Company. The Bushells brand has manufactured in Sydney for over 90 years and is part of the collective public consciousness as an iconic Australian brand. The subject site is also associated with coffee entrepreneur Robert Timms Junior who during the 1970s owned the largest privately-owned tea and coffee company in Australia. Accordingly, due to the connection between the subject site and the Bushells and Robert Timms companies, the subject site attains the requisite standards of associational significance at the local level.
C. Aesthetic Significance An item is important in demonstrating aesthetic characteristics and/or high degree of creative or technical achievement in NSW or the local area (state/local significance).	The scale of the factory is significantly greater compared to the surrounding development and therefore, is a recognisable landmark in the local area due to its high visibility. Its distinctive chimney stack and 'B' signage also contribute to its landmark qualities. The factory also demonstrates characteristics specific to multi-storey industrial buildings. These include the large glazed northern and southern walls of the roasting hall which utilises clerestory aluminium framed glazing.

Criterion	Assessment
	The overall nature of the subject site with the large industrial building set amidst soft landscaping on the water's edge, creates a pleasing juxtaposition enabling a physically loud structure to sit quietly within its surrounding environment. As a landmark, the former Bushells Factory building attains the requisite standard of aesthetic significance at a local level. While the subject site has undergone significant modification since construction, particularly through the construction of additional buildings and additions to the existing, the aesthetic significance of the subject site can be attributed to the factory building, notably the tower, and the landscaped setting.
D. Social Significance An item has a strong or special association with a particular community or cultural group in NSW or the local area for social, cultural or spiritual reasons (state/local significance).	Throughout the operational history of the subject site a large contingent of people would have been employed. As such, the site would be important for its special association with the local community as well as for engendering that sense of place within the wider Sydney community. A plaque commemorating the employment of a supervisor was observed at the subject site which suggests that there was a great deal of respect between employer and employees. The factory with its 'B' signage would have and continues to be widely known within the local Concord area. Additionally, the subject site incorporates key characteristics of the 'Factory Garden Movement' which was developed around the ideology that by situating factories within pleasant landscaped spaces which employees could enjoy, not only would the spaces enhance the aesthetics of the factory but also the health of employees. This awareness of the wellbeing of employees would have enhanced the sense of identity and belonging for employees, their families and the wider community. Accordingly, the subject site attains the requisite standards of social significance at a local level.
E. Technical/Research Significance An item has potential to yield information that will contribute to an understanding of NSW's or the local area's cultural or natural history (state/local significance).	The brick and concrete factory building is important for its ability to demonstrate technical aspects with regard to multi-storey industrial building construction. In particular, the large glazed northern and southern walls of the roasting hall which utilises clerestory aluminium framed glazing. However, the building has undergone significant modification, particularly through the replacement of the machinery and the construction of later additions. The later addition buildings were constructed in materials and with techniques still commonly used today and do not offer the potential to further our understanding of technical knowledge.

Criterion	Assessment
	Although the subject site does not offer the potential to yield further technical or research information as a whole, the Former Bushells factory building demonstrates technical significance at a local level.
F. Rarity An item possesses uncommon, rare or endangered aspects of NSW's or the local area's cultural or natural history (state/local significance).	The subject site is a rare extant example of an industrial site operating during the twentieth century in the Concord local area. Other industrial sites which were operating in the Concord area during the twentieth century, such as the Farleigh, Nettheim & Company Tannery and the Austral Bronze Factory, have since their closure, been demolished and undergone redevelopment to serve other non-industrial purposes. It is also apparent that the subject site is rare in that the whole manufacturing process is confined to one large building rather than separated between numerous smaller buildings. As such, the significance of the manufacturing process is attributed to the one building, particularly as the other buildings were constructed during later periods and are largely considered to be intrusive. Accordingly, the factory building demonstrates rarity at a local level, as a single building that has been continuously used as a factory since construction and demonstrates landmark qualities.
G. Representativeness An item is important in demonstrating the principal characteristics of a class of NSW's or the local area's cultural or natural places or cultural or natural environments (state/local significance).	The brick and concrete factory is an intact example of a purpose-built factory displaying key characteristics of multi-storey industrial building construction. The subject site also exhibits characteristics of the 'Factory Garden Movement' on a modest scale. Accordingly, the factory building and the landscaping setting demonstrates representativeness at the local level.

5.3 Statement of Cultural Significance

The Former Bushells Factory building located at 160 Burwood Road, Concord demonstrates aesthetic, historical, associative, social, technical and research significance at a local level, also displaying rare and representative qualities. As a landmark within the surrounding area, the Former Bushells Factory Building, notably the tower, can be viewed throughout Concord, particularly due to the largely low-scale residential development that has emerged in the surrounding area. Although the factory building has undergone significant modification, including the removal of original machinery, significant features such as the chimney stack, 'B' façade and the aluminium clerestory window frames have been retained and are not only socially significant but also offer the potential to further our technical knowledge.

In addition to the significance attributed to the factory building, and in particular the chimney stack, the landscaped setting is also a significant part of the historical, social and representative qualities associated with the development of the subject site. Associated with the 'Factory Garden

Movement' ideology, the site developed as a space to promote the health of employees and the aesthetic qualities of the subject site.

Although the subject site does have an association with Bushells and Robert Timms Junior, the significance of the subject site derives from the landmark qualities and production of coffee and tea within the factory building, including the chimney stack with the 'B' façade and the landscaped setting. This is due to both its aesthetic qualities and the association with the "Factory Garden Movement" and promoting the health of employees.

6.0 CONSTRAINTS AND OPPORTUNITIES

The following section discusses a series of factors which are relevant to the site and must be considered when planning for the site's future development and conservation of its heritage significance which was identified in Section 5.0. The following factors will be discussed:

- Implications arising from Heritage Significance;
- Potential Adaptive Re-Use of the Former Factory Building;
- Physical Condition and Integrity; and
- Listing under the Local Government Local Environment Plan.

6.1 Implications arising from Heritage Significance

It was determined in Section 5.0 of this report that the subject site demonstrates local significance for its historical, associative, aesthetic, technical and social values in addition to possessing rarity and representativeness values. The identified significance of the subject site places an obligation on the owners of the site (both current and future) to appropriately manage and conserve the place and its heritage values for present and future generations. The identified heritage values, associated attributes and Statement of Significance which are provided in Section 5.0 of this report should be referred to when planning development and proposing alterations to the site. Additionally, the future conservation and development of the place should be carried out in accordance with the principles of *The Burra Charter: The Australia ICOMOS Charter for the Places of Cultural Significance* 2013. The conservation processes outlined in Articles 14-25 of The Burra Charter have been reproduced in Table 1 below. It is important to note that Heritage 21 have also included a guide to the potential adaptive reuse of the factory building.

Table 1: Articles 14-25 of *The Burra Charter*

Article number	Description
Article 14	**Conservation processes**
	Conservation may, according to circumstance, include the processes of: retention or reintroduction of a *use*; retention of *associations* and *meanings*; *maintenance, preservation, restoration, reconstruction, adaptation* and *interpretation*; and will commonly include a combination of more than one of these.
Article 15	**Change**
15.1	Change may be necessary to retain *cultural significance* but is undesirable where it reduces cultural significance. The amount of change to a *place* should be guided by the *cultural significance* of the place and its appropriate *interpretation*.
15.2	Changes, which reduce cultural significance, should be reversible, and be reversed when circumstances permit.
15.3	Demolition of significant *fabric* of a *place* is generally not acceptable. However, in some cases minor demolition may be appropriate as part of *conservation*. Removed significant fabric should be reinstated when circumstances permit.
15.4	The contributions of all aspects of *cultural significance* of a *place* should be respected. If a place includes *fabric, uses, associations* or *meanings* of different periods, or different aspects of cultural significance, emphasising or interpreting one period or aspect at the

Article number	Description
	expense of another can only be justified when what is left out, removed or diminished is of slight cultural significance and that which is emphasised or interpreted is of much greater cultural significance.
Article 16	**Maintenance**
	Maintenance is fundamental to *conservation* and should be undertaken where *fabric* is of *cultural significance* and its *maintenance* is necessary to retain that *cultural significance*.
Article 17	**Preservation**
	Preservation is appropriate where the existing *fabric* or its condition constitutes evidence of *cultural significance*, or where insufficient evidence is available to allow other *conservation* processes to be carried out.
Article 18	**Restoration and reconstruction**
	Restoration and *reconstruction* should reveal culturally significant aspects of the *place*.
Article 19	**Restoration**
	Restoration is appropriate only if there is sufficient evidence of an earlier state of the *fabric*.
Article 20	**Reconstruction**
20.1	*Reconstruction* is appropriate only where a *place* is incomplete through damage or alteration, and only where there is sufficient evidence to reproduce an earlier state of the *fabric*. In rare cases, reconstruction may also be appropriate as part of a *use* or practice that retains the *cultural significance* of the place.
20.2	*Reconstruction* should be identifiable on close inspection or through additional *interpretation*.
Article 21	**Adaptation**
	Adaptation must be limited to that which is essential to a use for the place determined in accordance with Articles 6 and 7.
21.1	*Adaptation* is acceptable only where the adaptation has minimal impact on the *cultural significance* of the *place*.
21.2	*Adaptation* should involve minimal change to significant fabric, achieved only after considering alternatives.
Article 22	**New work**
22.1	New work such as additions to the *place* may be acceptable where it does not distort or obscure the *cultural significance* of the place or detract from its *interpretation* and appreciation.
22.2	New work should be readily identifiable as such.
Article 23	**Conserving use**
	Continuing, modifying or reinstating a significant *use* may be appropriate and preferred forms of *conservation*.
Article 24	**Retaining associations and meanings**
24.1	Significant associations between people and a place should be respected, retained and not obscured. Opportunities for the interpretation, commemoration and celebration of these associations should be investigated and implemented.
24.2	Significant meanings, including spiritual values, of a place should be respected. Opportunities for the continuation or revival of these meanings should be investigated and implemented.
Article 25	**Interpretation**
	The cultural significance of many places is not readily apparent and should be explained by interpretation. Interpretation should enhance understanding and engagement and be culturally appropriate.

6.2 Potential Adaptive Re-Use of the Former Factory Building

According to the *Adaptive Reuse* document produced by the Australian Government Department of the Environment and Heritage, "the adaptive reuse of a historic building should have minimal impact on the heritage significance of the building and its setting."[81] Although change is necessary to ensure the continued use of the factory building and subject site, it is important that developers understand the heritage values associated with buildings and the site in which they are located. Adaptive re-use is a sustainable practice that has environmental, social, economic and innovative benefits.

The retention of the Former Bushells Factory would, in Heritage 21's opinion, generate significant benefits to the local community, particularly if the adaptive re-use incorporated a public function. In addition, it is imperative that the landscaped setting is maintained, regardless of the proposed use of the subject site. This is due to the significance of the landscaped setting within the subject site, particularly due to its association with the Factory Garden Movement. Due to the changing needs and wants of the immediate area and local community, it is important that the subject building continues to be used and that it is not left vacant and neglected.

Heritage 21 would recommend that a Salvage Schedule be compiled for the subject site by a suitably qualified heritage consultant to ensure the retention of significant fabric prior to the commencement of any works. The significant fabric should be incorporated into the building as part of an interpretation strategy following any redevelopment.

If the factory building is listed as an item of environmental heritage, Heritage 21 would also recommend the writing of a Conservation Management Strategy (CMS) by a suitably qualified heritage consultant. The CMS would need to be submitted to Council and all proposed changes would need to be considered against the management policies based upon the principles of the Burra Charter (as listed in Table 1 above).

It is important to note that the Former Bushells Factory building has undergone significant modification. However, the significance of the site is attributed to the Factory core (as shown in Figure 5), including the chimney stack, 'B' façade and the landscaped setting. Heritage 21 is confident that change, designed in conjunction with a Conservation Management Strategy, an appropriate form and scale, materials and finishes, would respect the heritage significance of the subject site.

With regard to the machinery and mechanical infrastructure that remains in the building, Heritage 21 suggests the following;

- The machinery be categorised and inventoried;
- That significant machinery or parts thereof be retrieved in order to form part of a comprehensive interpretation strategy for the site;

[81] Australian Government Department of the Environment and Heritage, 'Adaptive Reuse', n.d., https://www.environment.gov.au/system/files/resources/3845f27a-ad2c-4d40-8827-18c643c7adcd/files/adaptive-reuse.pdf.

- Photographic Archival Recording;
- Salvage schedule; and
- CMS.

The following list of potential adaptive reuses of the subject buildings considers the potential impacts associated with the different uses.

- Retain Factory Function

  Due to the changes that have occurred within Concord, the desired future use of the surrounding area and the potential to reactivate the subject site, it is not necessarily in the public's interest to retain the subject site as a functional factory. Although retaining the original function may appear to be a preferred option, the continued use of the subject building is ultimately the priority. The retention of the factory function of the subject site would likely require the introduction of additional buildings and new machinery. Heritage 21 is confident that concerns regarding the change in function of the Former Bushells Factory could be alleviated through a cohesive interpretation strategy which acknowledges the history of the subject site.

- Commercial Use – Offices and Retail

  Several internal changes would be required to convert the Factory Building into a commercial building. The construction of partitions would be required, alongside the removal of existing machinery and fabric. However, due to the significant modifications that have already occurred within the building, the conversion of the building into office and retail spaces would not be detrimental to the significance of the site and Heritage 21 believes that such changes could be made in line with a CMS that details all significant fabric and management policies. Although the commercial use would require additional services, it would also allow for the retention of the Former Bushells Factory Building core and the landscaped setting. The proposed commercial use of the building, particularly retail, would be appropriate in that it would open up the site to the public. A clear interpretation strategy would also be required to highlight the history of the subject building and site.

- Residential Use

  Several internal changes would be required to convert the Factory Building into a residential building. The construction of partitions would be required, alongside the removal of existing machinery and fabric. However, due to the significant modifications that have already occurred within the building, the conversion of the building into apartments would not, in Heritage 21's opinion, be detrimental to the significance of the site. Although the residential use would require additional services, it would also allow for the retention of the Former Bushells Factory Building core and the landscaped setting. However, the residential use of the site would not open up the site to the public as commercial uses would have the

potential to do so. Not only should the external shell be kept, including the clerestory aluminium frames, but a clear interpretive strategy would also be required, to convey the history of the subject site to all residents and visitors.

- Mixed Use – Commercial and Residential

  If the continued use of the building and subject site as a factory is not deemed sustainable and feasible, the proposed conversion of the Former Bushells Factory building into a mixed-use facility would be encouraged due to the potential that it offers to reactivate the space for the public. As a landmark within the Concord area, the potential adaptive reuse of the building into both commercial and residential purposes would allow the public access, alongside residents and visitors. It would also include the retention of landscaping. Although changes would be required, the Factory building has undergone significant modification and the changes present the opportunity to highlight the significant features of the building.

6.3 Physical Condition and Integrity

Condition is the measure of a place's physical deterioration while integrity is the measure of the condition of a place's heritage values. The condition and integrity of a heritage place does not necessarily correlate. A heritage place may be in poor condition yet have high integrity and vice versa.

In relation to the subject site, it has been previously discussed in Section 5.0 that the identified heritage values are embedded in both tangible and intangible features (attributes) of the place. Therefore, there is a correlation between condition and integrity and this correlation needs to be taken into account with regard to future conservation management of the subject site.

Currently the subject site appears to be well maintained and generally in good condition. Similarly, the integrity of the subject site is high. In order to maintain this integrity a detailed fabric analysis is recommended (see Section 7.0) to better understand the existing elements of the site and the contribution that each makes to the overall significance of the site. This, in turn, will ascertain the level and type of conservation required for particular areas and will provide a clear understanding of where change to the site can occur without compromising integrity.

6.4 Listing under the Local Government Local Environment Plan

The Assessment of Heritage Significance provided in Section 5.0 of this report has concluded that the significance of the subject site is attributed to the existing Bushells factory building and the landscaped setting. The existing Bushells factory building and the landscaped setting demonstrate historical, associational, aesthetic, technical and social values in addition to its rarity and representativeness values at a local level. These findings were summarised in a Statement of Significance provided in Section 5.3. Thus, there is an opportunity for the inclusion of the place within Section 5 of the Canada Bay Local Environmental Plan 2013.

7.0 HERITAGE FRAMEWORK

Taking into account this identified significance and the other constraints and opportunities discussed in the previous section (see Section 6.0), Heritage 21 presents the following broad framework with regard to the subject site and the retention of its identified heritage values and significance.

7.1 General Management

- Due to the significance of the Factory Building, the listing of the building on the CLEP 2013 as an item of environmental heritage is encouraged; and
- If the proposed listing of the Factory Building proceeds, then Heritage 21 would recommend the writing of a Conservation Management Strategy ('CMS'), Interpretation Strategy and Plan, a Salvage Schedule and Photographic Archival Recording by a suitably qualified heritage consultant which would assist in the future planning, design, management and development of the site.

7.2 Use

- In a similar fashion to other industrial sites in Sydney, such as the former Arnott's Biscuit Factory site in Homebush, the site presents a unique opportunity to enable the conservation of the subject site, a place of local heritage significance, via adaptive re-use. Any new use must respect the significance of the place. The potential uses of the subject site are outlined in Section 6.2 above.

7.3 Alterations and Additions

- Prior to the construction of any additions on the subject site, a CMS should be written by a suitably qualified heritage consultant/architect; and
- New development on the site should respect the scale of the Factory.

7.4 Setting and Views

- The factory should be maintained within a landscaped setting; and
- New development should not obstruct significant views associated with the significance of the place. Specifically, views towards the eastern façade and the distinctive 'B' signage and also views of the chimney stack which are associated with the landmark qualities attributed to the subject site, because it can be seen from numerous vantage points.

Figure 56. The use of lower-scale buildings surrounding the Former Bushells Factory building would offer the potential to preserve the landmark qualities of the subject site. (Source: BVN)

7.5 Interpretation

- An Interpretation Strategy should be prepared be a heritage professional. This would identify key users of the site, develop themes and key messages for the identified audience, and propose options for communication of heritage values to visitors and users of the site. This may be in the form of graphic display, art installations, design features or other interpretive media.

  Specific forms of interpretation for the subject site could include the following:

  - Interpretive naming conventions: the naming of new precincts could take inspiration from the former use of the factory;
  - Interpretive design features: retention of notable elements of the factory such as the 'B' signage located on the façade of the chimney stack;
  - Interpretive displays: various pieces of machinery associated with Bushells could be displayed throughout the site or particular spaces within the factory could be used as display areas;
  - Interpretive signage: a series of plaques or art installations such as the Bushells advertisements could be distributed throughout the site creating a historical walk which takes community members through the historical development of the site; and

- Art installation; a local artist could be commissioned to create an artwork by recycling some elements of the site fabric that would otherwise be disposed of.

7.6 Research

- Any proposed subterranean work, both terrestrial and maritime, should be informed by a suitably qualified archaeologist who will determine the archaeological potential of the subject site. Appropriate management measures should be taken to ensure that archaeological resource is appropriately investigated and recorded prior to any action being taken that may involve any type of excavation during the carrying out of conservation works or future development to the place. No ground disturbance works should proceed in areas identified by the archaeologist as having archaeological potential without first obtaining an excavation permit from the relevant authority or an appropriate exemption. The archaeological assessment and research methodology should be prepared by a suitably qualified historic archaeologist.

7.7 Recording

- An accurate record of the subject site should be maintained. Records may consist of reports, checklists, quotations and receipts, other written records and photographs. They should include what was involved in the work, who conducted the work, when the work was conducted and the cost. Photographs taken before, during and after works will form a useful part of these records. On completion, all recording is to be placed in a retrievable archive for government and public access.

8.0 CONCLUSION AND RECOMMENDATIONS

Heritage 21 would recommend the local listing of the Former Bushells Factory Building (as outlined in Figure 5) as an item of environmental heritage in the CLEP 2013. As the significance of the subject site is attributed to the Former Bushells Factory Building, including the chimney stack, the 'B' façade, and the landscaped setting, it is imperative that these elements are retained despite whatever changes are made on the site. Due to the changes that have occurred within Concord, the existing factory use of the building is not necessarily conducive to the desired future use of the surrounding area. However, a combined residential and commercial use would assist in the retention of the significant features and in opening up the site to the public. Heritage 21 is also confident that a suitable, clear and cohesive interpretation strategy would be able to convey the history of the subject site to all visitors, potential residents, employees and visitors to the site.

Prior to the commencement of any works, it is imperative that a Conservation Management Strategy and a fabric analysis be written by a suitably qualified heritage professional to identify the significant fabric of the subject building that would require retention.

9.0 SOURCES

Angletta Leggio. 'A History of Australia's Kodak Manufacturing Plant'. AICCM Symposium, 2006.
Australian Government Department of the Environment and Heritage. 'Adaptive Reuse', n.d. https://www.environment.gov.au/system/files/resources/3845f27a-ad2c-4d40-8827-18c643c7adcd/files/adaptive-reuse.pdf.
City of Canada Bay Council. 'Canada Bay Image Library'. Accessed 16 March 2016. http://imagelibrary.canadabay.nsw.gov.au/Library/#1458173124818_0.
———. 'Canada Bay Local Environmental Plan', 2013. http://www.canadabay.nsw.gov.au/planning-controls-lep-and-dcp.html#acctab1.
———. 'Canada Bay Local Planning Strategy 2010', 2010. http://www.canadabay.nsw.gov.au/future-planning-local-planning-strategy.html.
City of Canada Bay Heritage Society. 'Aborigines: Original Occupants of the Area', 2016. http://www.concordheritage.asn.au/concord-history/aborigines.
———. 'Concord's Industrial Development', 2016. http://www.environment.nsw.gov.au/heritageapp/heritagesearch.aspx.
Concord Heritage Study: Thematic History. Perumal, Wrathall & Murphy Pty. Ltd., 1986.
'Design Report', 2015.
'Firm with History'. *The Hebrew Standard of Australasia*, 6 January 1928.
Fresh Food. 'Our Story', 2015. http://www.roberttimms.com.au/our-story/.
FreshFood. 'Bushells Coffee: Our Story', 2015. http://www.bushellscoffee.com.au/our-story/.
Gregory Blaxell. *A Pictorial History of City of Canada Bay*. Alexandria: Kingsclear Books, 2010.
'Gregory's Sydney Directory Section 40'. Concord, 1934. http://voommaps.com/historical-maps/1934-gregorys-sydney-street-directory/.
Helena Chance. '"Consulting the Genius of the Plant"', n.d. http://eprints.bucks.ac.uk/1424/1/Chance,%20Helena%20Consulting%20the%20genius%20of%20the%20plant.pdf.
'Item MM 96553Photograph - Kodak Australasia Pty Ltd, Exterior View of Kodak Factory, Abbotsford, Victoria, 1940-1955', n.d. http://collections.museumvictoria.com.au/items/1399083.
Museum Victoria Collections. 'Item MM 96557 Photogrpah - Kodak Australasia Pty Ltd, Kodak Factory, Garden & Staff, Abbotsford, Victoria, circa 1930s', n.d.
NSW Land and Property Information. 'Historical Land Records Viewer'. n.d. http://images.maps.nsw.gov.au/pixel.htm.
———. 'SIX Maps'. n.d. http://maps.six.nsw.gov.au/.
NSW Office of Environment and Heritage. 'Bayview Park'. State Heritage Inventory. Accessed 17 March 2016. http://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=2890319.
———. 'Davis Gelatine Site (Former)', n.d. http://www.environment.nsw.gov.au/heritageapp/heritagesearch.aspx.
———. 'Massey Park Golf Course and Sanders Reserve'. Accessed 16 March 2016. http://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=2890346.
Official Newsletter of the Concord Heritage Historical Society. 'More Industries on Exile Bay Bushells Pty.Ltd.' *Nurungi Remembered*, June 2007, 133 edition.
Official Newsletter of the Concord Heritage Society. 'Austral Bronze Crane Copper'. *Nurungo Remembered*, June 2007, 133 edition.
Tanner Architects. 'Former Bushells Building Conservation Management Plan', 2008.
The Sydney Morning Herald. 'Building and Construction', 28 November 1939.

HERITAGE SIGNIFICANCE ASSESSMENT

160 Burwood Road

CONCORD

Job No. 2562
April 2016

Heritage 21
CULTURAL BUILT HERITAGE IN THE 21ST CENTURY

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Cover page: Detail of the eastern façade of the factory located at 160 Burwood Road, Concord. (Source: Heritage 21, 09.03.16)

The following table forms part of the quality management control undertaken by Heritage 21 regarding the monitoring of its intellectual property as issued.

Issue	Description	Date	Initials
1	Draft report (D1) issued for comment.	31.03.16	K.B
2	Report Issued (R1) for Planning Proposal.	21.04.16	K.B
3	Report Issued (R2) for Planning Proposal.	28.04.16	K.B

1.0 INTRODUCTION

1.1 Background and Purpose

Heritage 21 was appointed by NixAnderson Pty Ltd, on the 26 February 2016, to provide Heritage and Archaeological Consultancy services in relation to the redevelopment of the former Bushells Factory located at 160 Burwood Road, Concord (subject site).

This Heritage Significance Assessment ('report'), in conjunction with a *Statement of Heritage Impact* (April 2016) and *Aboriginal Heritage Due Diligence Assessment* (April 2016), has been prepared by Heritage 21 on behalf of FreshFood Australia Holdings Pty Ltd and NixAnderson Pty Ltd to accompany a Planning Proposal which seeks to provide the framework for future development on the site.

This report will provide a review of the subject site in order to determine its heritage values, including its potential for heritage listing. Constraints and opportunities in relation to the subject site will also be discussed with a heritage framework provided which are based on the conclusions uncovered.

1.2 Site Identification

The subject site is located at 160 Burwood Road, Concord, which falls within the boundaries of the Canada Bay local government area. The site is approximately 3.9 hectares and is comprised of the following lots:

- Lot 2, DP 230294;
- Lot 398, DP 752023;
- Lot 399, DP 752023; and
- Lot 5, DP 129325.

The location of the site within the Sydney Region, the Concord local area and a current aerial photograph of the site are presented in Figure 1, Figure 2 and Figure 3.

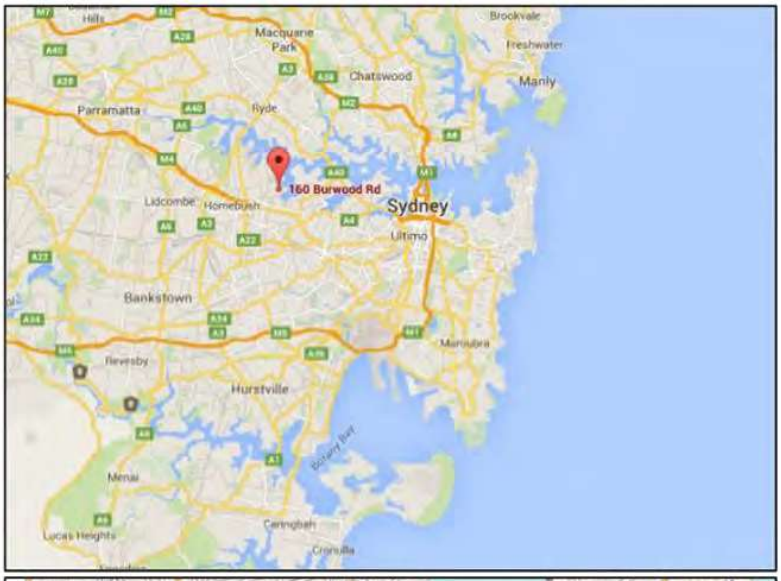

Figure 1. Map showing the location of the subject site indicated by the red arrow relative to Sydney's CBD.[1]

Figure 2. Map showing the location of the site within the Concord local area (indicated by red flag).[2]

[1] Google, 'Google Maps', 2016, http://maps.google.com.au/ accessed 8 March 2016.
[2] NSW Land and Property Information, 'SIX Maps', n.d., http://maps.six.nsw.gov.au/ accessed 8 March 2016.

Figure 3. Current aerial photograph of the site (red outline).[3]

1.3 Heritage Status

The subject site **is not** listed as an item of environmental heritage in the *Canada Bay Local Environmental Plan 2013* (CLEP) nor is it located within the boundaries of a Heritage Conservation Area. The subject site is also **not** listed in the NSW State Heritage Register, the National Heritage List, the Commonwealth Heritage List or the Register of the National Trust of Australia (NSW).

The subject site is adjacent to or within the vicinity of the following items of environmental heritage as listed in the CLEP 2013:

Name	Address	Significance	Number
• Massey Park Golf Course grounds and Sanders Reserve	1 Ian Parade (also known as 1C and 1P Ian Parade)	Local	I259
• Street trees	Burwood Road (between Crane Street and Duke Avenue)	Local	I56
• Bayview Park	166P Burwood Road	Local	I54

[3] Ibid. accessed 8 March 2016.

The site's proximity to these heritage items are shown in Figure 4 .

Figure 4. Heritage map HER_004 showing the location of subject site outlined in red and the heritage items located in the vicinity are brown.[4]

1.4 Methodology

The methodology used in this report is consistent with *Assessing Heritage Significance* published by the Heritage Branch of the NSW Office of Environment and Heritage and has been prepared in accordance with the principles contained in the most recent edition of *The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance.*

1.5 Authors

This report has been prepared by Paul Rappoport and Kaylie Beasley, of Heritage 21, Heritage Consultants.

1.6 Limitations

- This report relies on both primary and secondary sources, however, archival research has been limited to that which could be accessed within the timeframe allowed in order to complete this report.
- It is beyond the scope of this report to address Indigenous associations with the subject site or to locate or assess potential or known archaeological sub-surface deposits on the subject

[4] City of Canada Bay Council, 'Canada Bay Local Environmental Plan', 2013, http://www.canadabay.nsw.gov.au/planning-controls-lep-and-dcp.html#acctab1 accessed 8 March 2016.

site or elsewhere. Please refer to the *Aboriginal Heritage Due Diligence Assessment* (prepared by Heritage 21, April 2016) for a discussion on the Indigenous associations with the subject site.

- It is beyond the scope of this report to assess items of movable heritage.
- Heritage 21 has only assessed aspects of the subject site that were visually apparent and not blocked or closed or to which access was not given or was barred, obstructed or unsafe on the day of the arranged inspection.
- Due to the extensive nature of Sydney's industrial sites the comparative analysis provided in Section 4.1 has been restricted to a select few which have been chosen due to either their location in the Concord area and/or because of shared characteristics with the subject site. It is not an exhaustive analysis of all industrial sites within Sydney or Australia wide.

1.7 Copyright

2.0 HISTORICAL RESEARCH

2.1 Local History

2.1.1 Pre-European History

The Canada Bay area was originally occupied by the Wangal clan whose name, it is believed was derived from the word 'wanne', meaning west.[5] According to the City of Canada Bay Historical Society, the earliest recorded contact between the Wangal clan and Europeans occurred on the 5 February 1788 when Captain John Hunter led an exploratory expedition along the Parramatta River. Lieutenant Bradley, RN recorded the following:

> *At daylight having a guard of marines proceeded to the upper part of the harbour again, passing several natives in the caves as we went up and on the shore near the place we left beads and some other things, who followed us along the rocks calling to us. We landed to cook our breakfast on the opposite shore to them. We made signs for them to come over and waved green boughs. Soon after seven of them came over in two canoes and landed near our boats. They left their spears in the canoes and came to us. We tied beads, etc., about them and left them our fire to dress mussels which they went about as soon as we put off.*[6]

A number of formally recorded Aboriginal places have been identified within the City of Canada Bay, with the majority located in the vicinity of the river foreshores.[7]

2.1.2 European Settlement and Beyond

The following historical information has been extracted from Section 8 of the *Canada Bay Local Planning Strategy 2010*:

> *The first contact of Europeans in the City of Canada Bay area was the landing party of Captain Hunter, Lieutenant Bradley and their party of marines at Breakfast Point on February 5, 1788. This was followed ten days later by an expedition with Governor Phillip and Bradley on a search for good agricultural land.*
>
> *After Parramatta was established as an agricultural district, a rough track between Sydney and Parramatta was created to supplement the use of the river as the main transport link between the two towns. This track, created in 1791, marked the beginning of Parramatta Road. Longbottom Stockade was established at the midpoint of the road as an overnight detention point for the gangs of convicts. This stockade was later to develop into the suburb of Concord. Between 1840 and 1842 it held 58 Canadian exiles after whom the suburb of Canada Bay is named.*

[5] City of Canada Bay Heritage Society, 'Aborigines: Original Occupants of the Area', 2016, http://www.concordheritage.asn.au/concord-history/aborigines accessed 16 March 2016.
[6] Ibid. accessed 16 March 2016.
[7] Gregory Blaxell, *A Pictorial History of City of Canada Bay* (Alexandria: Kingsclear Books, 2010), 3.

Meanwhile, land grants close to the bays and headlands of Parramatta River were being given to settlers such as Surgeon John Harris (Five Dock), Isaac Nichols (Yaralla), Thomas Bishop (between Majors Bay and Kendall Bay).

Transport continued to focus on Parramatta River and Parramatta Road for some time. In 1829 the construction of [the] Great North Road through the present day Five Dock, Wareemba and Abbotsford was complete. This was a highly significant infrastructure project, providing a land route from Sydney to the Hunter Valley. The road relied on a punt to cross Parramatta River between Abbotsford Point and Kissing Point.

Through most of the nineteenth century, the settlement pattern in the area was a mix of large estates, small holdings and small villages. Towards the end of the nineteenth century, the establishment of industries such as the Australian Gas Light Company at Mortlake and the Dunlop Tyre Factory at Birkenhead Point (Drummoyne) led to increases in the growth of the nearby villages. Access to the river also prompted the re-development of some of the larger waterfront estates for industries such as Phoenix Iron Works. The only nineteenth century estate to remain from this period without substantial redevelopment is the Yaralla Estate of Thomas Walker.

The development of public transport routes including trams along Victoria Road, Great North Road, to Cabarita and Mortlake and the construction of the northern train line through North Strathfield and Rhodes also helped to foster industrial growth. Arnott's Biscuits established a factory at North Strathfield because of its access to the new rail line.

Much of the residential development of the Council area occurred in the late nineteenth century through to the Inter-War period. Many of the development[s] relied on access to transport as well as proximity to industrial places for employment. The influence of the garden suburb movement ensured proximity to parkland and the planting of street trees that continue to add to the amenity of the area.

The late twentieth century has seen the most dramatic change to the Council area with the rehabilitation and redevelopment of many of the large industrial sites. Most of these have been replaced with medium density residential and commercial developments that enjoy the proximity of the sites to Parramatta River.[8]

2.1.3 Industrial Development in Canada Bay

The Canada Bay area has had a long industrial history which can be roughly divided into four periods. The first period (1792-1886) was characterised by small scale agricultural industries, including dairying and crop cultivation.[9] The second period occurred towards the end of the nineteenth

[8] City of Canada Bay Council, 'Canada Bay Local Planning Strategy 2010', 2010, 175–176, http://www.canadabay.nsw.gov.au/future-planning-local-planning-strategy.html.
[9] *Concord Heritage Study: Thematic History* (Perumal, Wrathall & Murphy Pty. Ltd., 1986), 1.

century and it marked the beginning of large scale industrial development occurring in the area. The area was attractive to large scale industries due to its proximity to the river and railway for transport and inexpensive land prices during this period.[10] The subsequent two periods of industrial development occurred post World War I and World War II, when factors such as war rationing, assisting in the war effort, increasing population and suburbanisation stimulated industrial growth.[11]

The first period (c.1886-1914) of large scale industrial development in Canada Bay is generally marked by the establishment of the Australian Gas Light Company in 1886 at Mortlake.[12] Other companies, including Arnotts' Biscuits Pty Ltd and Tulloch's Phoenix Ironworks were established in Rhodes in 1907 and 1914 respectively.[13] The tannery of Farleigh, Nettheim & Company also opened their new premises in Concord in 1880.[14]

British Australian Lead Manufacturing Pty Ltd (BALM) established a plant at Cabarita during the second period of large scale industrial development which can be approximately dated to 1914 - 1939. BALM manufactured white lead, an integral material used in the production of paint, and began production of this at the Cabarita site in 1921. The company, which became Dulux Australia Limited in the 1970s, continued to utilise the Cabarita plant until 1995.[15] Timber and hardware merchants Tanner Middleton Pty Ltd established a factory at Exile Bay in 1927. The company manufactured a range of products on their four acre site including flooring, weatherboards, mouldings, windows and other joinery.[16]

Post-World War II industrial development (c. 1939-1985) brought companies such as Bushells Pty Ltd (mid 1950s), Philips Industries (1974) and the Southern Can Company (1950), which later became Containers Ltd into the area.[17]

Many of these former industrial sites which portray the development of the local area are no longer present with many sites now residential or recreational areas after having undergone substantial redevelopment.[18] A monument commemorating Concord's industries is currently located at Bayview Park, Concord.[19]

[10] Ibid.
[11] Ibid., 54.
[12] City of Canada Bay Heritage Society, 'Concord's Industrial Development', 2016, http://www.environment.nsw.gov.au/heritageapp/heritagesearch.aspx accessed 16 March 2016.
[13] *Concord Heritage Study: Thematic History*, 56.
[14] Gregory Blaxell, *A Pictorial History of City of Canada Bay*, 109.
[15] Ibid., 106.
[16] Ibid., 108.
[17] City of Canada Bay Heritage Society, 'Concord's Industrial Development'.
[18] Ibid. accessed 16 March 2016.
[19] NSW Office of Environment and Heritage, 'Bayview Park', *State Heritage Inventory*, accessed 17 March 2016, http://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=2890319.

2.2 Site History

2.2.1 Development of the Site

Natural Environment

The subject site is located on the shores of Exile Bay, one of the many bays located along the Parramatta River. Prior to European settlement it has been recorded that the natural vegetation of the site largely consisted of a mixture of Eucalypt woodland in the inland areas with mangroves distributed along the shoreline waters (see Figure 5).[20]

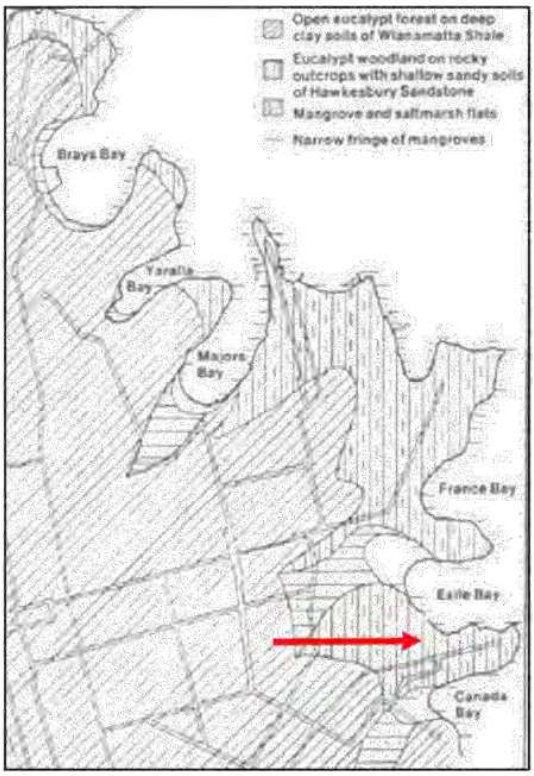

Figure 5. Detail from map showing the distribution of original natural vegetation within the Concord area including the subject site (indicated).[21]

European Settlement

It is evident from a Parish map, dated from approximately the late 1800s, that the subject site formed part of the Longbottom Stockade land area (see Figure 6). The Longbottom Stockade, as described in Section 2.1.2, was originally established to detain convicts transported west to

[20] *Concord Heritage Study: Thematic History.*
[21] Ibid.

Parramatta as it was located approximately midway between Sydney city and Parramatta. It later became the detention centre for several Canadian exiles that had been transported to Australia.[22]

By 1915, the subject site and surrounding land had been subdivided with the existing street alignments generally evident in parish maps from this period (see Figure 7). It appears that the site consisted of three different lots with each under the ownership of separate individuals who included Mick O'Toole, Esther Lewis and Thomas Hunter. The foreshore area, which currently forms part of the site, is not included within any of these three allotments, it appears to be designated separately and only identified by a number. It is evident that the existing Burwood Road was known as Wharf Road during this period (see Figure 7). It is unclear when the name was changed, however, a historical map of the area dated c. 1934 uses the existing name of Burwood Road, so it can be surmised that the change occurred sometime within the 1915 – 1934 period (see Figure 8).

Figure 6. Detail from Concord Parish map (c.1800s) with the approximate location of the subject site indicated.[23]

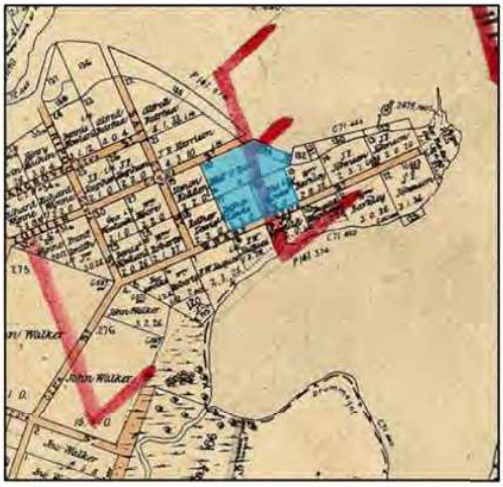

Figure 7. Detail from parish map (c. 1915) with the approximate location of the subject site indicated in blue.[24]

[22] City of Canada Bay Council, 'Canada Bay Local Planning Strategy 2010', 175–176.
[23] NSW Land and Property Information, 'Historical Land Records Viewer', n.d., n. ed 0, sheet 3, http://images.maps.nsw.gov.au/pixel.htm accessed 8 March 2016.
[24] Ibid., n. ed. 0, sheet 1 accessed 8 March 2016.

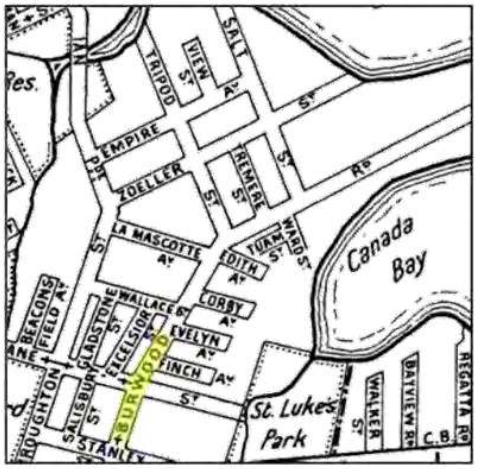

Figure 8. Detail from Gregory's Sydney Directory c.1934 using existing name of Burwood Road.[25]

Reclamation of Foreshore Areas

Beginning in the 1920s, the local Council began to undertake a series of reclamation projects in the Hen and Chicken Bay area, including in the vicinity of the subject site at Exile Bay (see Figure 9). The aim of these projects was to turn the swampy foreshore areas into developable spaces. [26] The existing nature of the foreshore areas including Massey Park Golf course[27] and Bayview Park[28] are the result of reclamation projects. According to research, 48 acres of swampland was reclaimed for the Massey Park Golf course and this took 12 years to "*fill the hungry swamp with fill from the municipality*".[29] A three metre concrete sea wall, which currently separates the site from Exile Bay, also appears to have been constructed as part of the reclamation works, however, historical photographs of the subject site indicate that it was constructed during reclamation works carried out post-1943 (see Figure 10).

[25] 'Gregory's Sydney Directory Section 40' (Concord, 1934), http://voommaps.com/historical-maps/1934-gregorys-sydney-street-directory/.
[26] *Concord Heritage Study: Thematic History*, 5–6.
[27] Ibid.
[28] NSW Office of Environment and Heritage, 'Bayview Park'.
[29] NSW Office of Environment and Heritage, 'Massey Park Golf Course and Sanders Reserve', accessed 16 March 2016, http://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=2890346.

Figure 9. Reclamation works at Exile Bay, c.1930.[30]

Pre-Construction of Factory

It is apparent from 1943 aerials of the subject site that construction on the site had occurred by this period. A timber mill and wharf were located in the northern section of the site with the remaining area largely undeveloped aside from some minor constructions such as access roads to these built structures.[31] Surrounding the site, industrial development was evident towards the east and residential development was located south of Burwood Road. The area to the west of the site, which is currently occupied by residential development, was undeveloped during this period (see Figure 10).

Figure 10. Detail from 1943 aerial imagery of the subject site with the approximate boundaries indicated.[32]

[30] City of Canada Bay Council, 'Canada Bay Image Library', accessed 16 March 2016, http://imagelibrary.canadabay.nsw.gov.au/Library/#1458173124818_0.
[31] Gregory Blaxell, *A Pictorial History of City of Canada Bay*, 110.
[32] NSW Land and Property Information, 'SIX Maps' accessed 8 March 2016.

Construction of Existing Factory

The subject site was purchased by the company Bushells Pty Ltd during the mid-1950s for a reputed sum of 85,000 pounds.[33] The purpose-built factory which currently occupies the site was constructed in two stages (see Figure 11 to Figure 13). The first stage occurred in c.1957-58 and the second stage, which saw the assembly of the chimney stack, occurred during the 1970s.[34] It is not known definitively but historical research suggests that the architects responsible for the initial 1950s factory design were Brewster Murray Architects.[35]

Property cards of the various development and building approvals in relation to the former Bushells factory, which were provided to Heritage 21 on the 23 March 2016 by the City of Canada Bay Council, indicate that regular additions and alterations have occurred at the subject site between its construction in the 1950s and the 1990s. In addition to the chimney stack, various internal additions, installation of new equipment, including a storage silo for spent coffee, and alterations to the site landscaping are suggested. The property cards also indicate that the detached office building, which is currently located east of the factory building, was constructed during the late 1980s period. Since the 1980s, only minor additions and repairs appear to have been made at the site.

Figure 11. Bushells Factory, c. 1966, without chimney.[36]

Figure 12. Massey Park weir with Bushells Factory visible on right side, c.1967.[37]

[33] FreshFood, 'Bushells Coffee: Our Story', 2015, http://staging.bushellscoffee.com.au/our-story/.
[34] City of Canada Bay Heritage Society, 'Concord's Industrial Development' accessed 16 March 2016.
[35] Tanner Architects, 'Former Bushells Building Conservation Management Plan' 2008, 17.
[36] City of Canada Bay Council, 'Canada Bay Image Library'.
[37] Ibid.

Figure 13. Bushells Factory and surrounding development, c.1970.[38]

Prior to the construction of the subject site factory, Bushells was operating from a factory located in Harrington Street, The Rocks, where it had been since 1924.[39] These premises continued to be used for operations until 1975 by which time all operations had been incrementally transferred to the subject site.[40] The printers were the first to be relocated to Concord, followed by packaging and lastly the office staff.[41] Reportedly, production commenced at the Concord site in 1958.[42]

The *Official Newsletter of the Concord Heritage Society* records the following about the Bushells factory in Concord:

> *Approximately 300 men and women were employed by the company at Concord. Their work consists mainly of the roasting and manufacture of ground and instant coffee, the production of coffee essence, and the blending and packing of tea and teabags.*[43]

Photographs dating from the 1970s show that extensive residential development to the west of the subject site had occurred prior to this period and industrial development was still present east of the site (see Figure 13 and Figure 14).

Figure 14. Detail from c.1977 aerial photograph of the subject site (indicated).[44]

Figure 15. Interior of the factory located at the subject site, c. 1980.[45]

[38] Ibid.
[39] Tanner Architects, 'Former Bushells Building Conservation Management Plan', 17.
[40] Ibid., 18.
[41] Ibid.
[42] FreshFood, 'Bushells Coffee: Our Story'.
[43] Official Newsletter of the Concord Heritage Historical Society, 'More Industries on Exile Bay Bushells Pty.Ltd.', *Nurungi Remembered*, June 2007, 133 edition.
[44] City of Canada Bay Council, 'Canada Bay Image Library'.
[45] Fresh Food, 'Our Story', 2015, http://www.roberttimms.com.au/our-story/.

Bushells Pty Ltd was sold in 1978 to Brook Bond Leibig Ltd who made large investments in the coffee side of the business. According to research, several pieces of machinery were acquired during the 1980s including a continuous roaster for instant coffee and an instant coffee agglomerator.[46] In the late 1980s, Brooke Bond Leibig Ltd was acquired by the company, Unilever. [47] Unilever went on to further improve and expand the coffee business which incorporated investment in research and the acquisition of other coffee companies including Robert Timms.[48] In April 1998, the coffee brands and business was purchased from Unilever by FreshFood Holdings Pty Ltd. The Bushells tea brands remained with Unilever.[49]

The subject site currently remains in the ownership of FreshFood Holdings who continue to manufacture coffee at the site for distinguished coffee brands including The House of Robert Timms, Bushells Coffee, Picco, Europa and Café Bar.[50] Since the 1970s, the industrial development which formally adjoined the subject site has gradually declined and has been replaced by residential development.

Figure 16. View looking west towards the subject site, c 1991.[51]

Figure 17. View towards the subject site from the eastern side of Hen and Chicken Bay, c. 1995.[52]

[46] FreshFood, 'Bushells Coffee: Our Story'.
[47] Gregory Blaxell, *A Pictorial History of City of Canada Bay*, 110.
[48] Fresh Food, 'Our Story'.
[49] Gregory Blaxell, *A Pictorial History of City of Canada Bay*, 110.
[50] Fresh Food, 'Our Story'.
[51] City of Canada Bay Council, 'Canada Bay Image Library'.

2.2.2 Associated Companies

The following section provides a summary of two recognised companies and the brands which they created which have an association with the site. Neither of these t companies is still in existence but their brands prevail and are owned and manufactured by FreshFood Australia Holdings Pty Ltd at the subject site.

Bushells Pty Ltd

Bushells Pty Ltd was founded by Alfred Bushell (1833-1910) who began selling tea and coffee in Brisbane during the early 1880s (see Figure 18). Alfred's two sons followed their father into the business and began trading in Sydney under the name of Bushell and Company. Following Alfred's death in 1910, Bushell's Limited was registered as a public company. The business continued to expand and by 1918 was operating throughout Australia. In 1920, Bushells acquired a site on Harrington Street in The Rocks and constructed a seven-storey factory and office building where they ran their operations from for the next 40 years. The Company continued to expand, forming a branch in New Zealand in 1937, acquiring coffee company J. A. D. Gibson Pty Ltd in 1955 and taking over Inglis Ltd in 1955.[53]

In the mid-1950s the Company acquired its current site located at 160 Burwood Road, Concord (the subject site). The site was suited to undergo immediate development so reputedly "*plans were drawn up and spray drying equipment and six instant coffee extractors were ordered from America*".[54] Since 1978 the Bushells Company has been bought and sold to various companies which have included Brook Bond Leibig Ltd in 1978, Unilever in 1988 and FreshFood Services Pty Ltd in 1998, who currently own the company.[55] It should be noted that FreshFood Services Pty Ltd only acquired the coffee brands from Unilever and not the Bushells tea brand.[56]

Throughout its development as a company, Bushells and its products have firmly established themselves as an iconic brand within Australia (see Figure 19). The brand continues to maintain its presence within the collective Australian conscious through its involvement with community programs such as the Driver Reviver program. During holiday periods Bushells Coffee is provided free of charge at Driver Reviver sites, located throughout Australia, to all motorists encouraging them to 'Stop, Revive, Survive'.[57]

[52] Ibid.
[53] Gregory Blaxell, *A Pictorial History of City of Canada Bay*, 109–110.
[54] FreshFood, 'Bushells Coffee: Our Story'.
[55] Gregory Blaxell, *A Pictorial History of City of Canada Bay*, 110.
[56] Ibid.
[57] FreshFood, 'Bushells Coffee: Our Story'.

Figure 18. Alfred Bushell (1833-1910).[58]

Figure 19. Examples of Bushells advertising campaigns. [59]

The House of Robert Timms

The House of Robert Timms was established by Robert Timms Jnr. Robert Timms Jnr purchased the Associated Tea Company in the 1930s and found a marketplace throughout World War II supplying fresh coffee to the Australian and US armed forces. It was during this period that Robert created the "*first fresh coffee making 'automated line' in Australia*".[60] After the war Robert expanded his business with his focus relying primarily on coffee rather than tea. Robert identified that post-war immigration was bringing many migrants from European cultures to Australia. These cultures valued fresh coffee and treated it as essential part of everyday life, so he sought to cater for this market. The House of Robert Timms pushed the boundaries of the coffee industry with innovative new technology such as self-service coffee grinders which were introduced into supermarkets during the 1950s (see Figure 20). In 1956, Robert Timms was the official supplier of the Melbourne Olympic Games and also the Sydney 2000 Olympic Games. By the 1970s, Robert Timms was the largest privately owned tea and coffee company in Australia. Robert Timms was acquired by Unilever in the 1980s and then came under the ownership of FreshFood Holdings Pty Ltd in 1998 when FreshFood purchased the coffee businesses from Unilever.[61] The House of Robert Timms brand is a recognisable household name and is found throughout Australian stores (see Figure 21).

[58] Ibid.
[59] Ibid.
[60] Fresh Food, 'Our Story'.
[61] Ibid.

Figure 20. The House of Robert Timms introduced self-service coffee grinders into supermarkets during the 1950s.[62]

Figure 21. One of the many products that are manufactured by The House of Robert Timms.[63]

[62] Ibid.
[63] Ibid.

3.0 PHYSICAL DESCRIPTION

3.1 Locality and Setting

The subject site is located in the Inner West suburb of Concord, which is located approximately 12 kilometres west of the Sydney central business district.

The site is located in a predominately residential area with one and two storey detached and semi-detached dwellings located along the western boundary and also to the south of Burwood Road, which demarcates the site's southern boundary. Similarly, medium density residential developments are located to the east and south east. The Massey Park Golf Course and Sanders Reserve (heritage item I259) adjoins the subject site to the north with Exile Bay marking the north-eastern boundary of the site.

3.2 Site Layout and Structures (see Figure 22)

A multi-storey brick and concrete factory with its imposing chimney stack is the main structure located on the subject site. The factory is orientated north-south and sited in the western portion of the site with a generous setback from all four site boundaries. The eastern and southern facades of the factory largely consist of brick and glazed areas with the northern and western facades incorporating large areas of precast concrete panels. The main façade of the factory, the eastern façade which contains a large 'B' for Bushells, in addition to a tea leaf and coffee bean, faces towards Exile Bay (see Figure 28).

A two-storey administration building is located on the eastern side of the factory with a covered walkway joining the two structures. The administration building which was constructed in the late 1980s period (see Section 2.2.1) is largely brick with timber features such as half-timbered gables and timber balconies which is reminiscent of an earlier architectural style (see Figure 30). A security booth/gatehouse and accompanying boom gates are located at the Burwood Street entrance into the site and a metal gas storage shed is also evident to the north of the factory.

Figure 22. Detail of site plan drawn by G.J.Svehla, 11.03.94 with major structures and approximate boundaries of major landscaped areas indicated.

The remainder of the site is comprised of a combination of open area bitumen car parks, concrete and bitumen driveways and landscaped areas. A memorial plaque, commemorating Ron Harrison, a previous supervisor of the factory is situated at the base of a tree, which is located in the north-eastern section of the site (see Figure 37). The site legally extends to the Exile Bay foreshore area, however at present, a chain link fence separates the site from the foreshore area. This foreshore area is currently occupied by a public walking path and concrete sea wall.

The overall nature of the subject site, the large industrial building set amidst soft landscaping on the water's edge, creates a pleasing juxtaposition enabling a physically loud structure to sit quietly within its surrounding environment. It displays characteristics of the 'Factory Garden Movement' which was developed around the ideology that situating factories within pleasant landscaped spaces which employees could enjoy would not only improve the aesthetics of the factory but so to the health of the workforce which in turn would lead to increased profits.[64]

3.3 Views

The scale of the factory, which is largely attributed to its chimney stack, is significantly greater compared to the surrounding development and therefore, is a recognisable landmark in the local area due to its high visibility from a number of vantage points (see Figure 23 to Figure 26).

The factory's eastern façade is distinctive due to the 'B'signage located on the upper storeys of the factory wall. The signage can be seen for some distance and contributes to the views of the factory, particularly from Hen and Chicken Bay and further east, and contributes to it being a recognisable landmark within the local area.

[64] Helena Chance, '"Consulting the Genius of the Plant"' n.d., http://eprints.bucks.ac.uk/1424/1/Chance,%20Helena%20Consulting%20the%20genius%20of%20the%20plant.pdf.

Due to the scale of the factory, views to and from the neighbouring heritage items (I259, I54 and I56) are evident (see Figure 23 to Figure 26).

Figure 23. View of subject site from Hen and Chicken Bay, c. 2007.[65]

Figure 24. View towards the subject site from heritage item I54: Bayview Park (I54), n.d.[66]

Figure 25.View towards the subject site from heritage item I259: Massey Park Golf Course and Sanders Reserve, c.2015.[67]

Figure 26. View towards the subject site from Burwood Road. (Heritage 21, 09.03.16)

3.4 Interiors

Internally, the factory is divided into seven storeys. The lower storeys (lower ground floor – first floor) are divided into a series of large spaces which appear to be used for later stages of the manufacturing process such as packing, quality control and distribution. The storeys above contain the equipment required to undertake the initial manufacturing processes such as roasting and drying.

The fourth storey and above is one large vertical space in which plants involved in vertical production processes are located. A series of levels to access the plants from different heights are created by open steel mesh platforms. The space is naturally illuminated as glazing covers the entire

[65] City of Canada Bay Council, 'Canada Bay Image Library'.
[66] NSW Office of Environment and Heritage, 'Bayview Park'.
[67] City of Canada Bay Council, 'Canada Bay Image Library'.

span of the northern and southern walls of this space. This area is referred to as the translucent roasting hall.[68]

Access throughout the manufacturing areas is provided by two timber floored service lifts. They are situated on either side of a crane well.

Notable features identified within the interior of the factory include the following:

- The large, relatively undivided, space of the roasting hall illustrates the nature of the specific coffee and tea making processes and equipment that the factory was purpose-built to house and operate (see Figure 44and Figure 45);
- The large glazed northern and southern walls of the roasting hall illustrates an important characteristic used in multistorey factory construction in order to provide interior illumination;
- The use of clerestorey aluminium framed glazing, which was viewed from the second floor roof space, is a construction material which only came into use from the 1960s onwards (Figure 46);
- Sliding steel fire escape doors located throughout the factory illustrate the high fire risk associated with the coffee manufacturing process (see Figure 47);
- Curved steel handrails used in the stairwell between floors three and five is a relatively unique design (see Figure 50);
- The timber floored service lifts demonstrate the nature of the manufacturing process and are characteristic of late-nineteenth century factory construction (see Figure 49) ; and
- The centralised crane well is another distinctive element of factories involved in heavy-duty manufacturing processes (see Figure 48).

The interiors of the detached office building and the security booth/guardhouse were not inspected.

3.5 Condition

The subject site, specifically the purpose-built factory is still currently in operation for the manufacturing of coffee products. When Heritage 21 inspected the site on the 9 March 2016 the subject site appeared to be well maintained and generally in good condition. The factory itself did not present any obvious signs of poor condition aside from the expected deterioration related to its regular use.

3.6 Photographic Survey

The following photographs, taken by Heritage 21 on 09.03.16, provide a visual survey of the site, its setting and notable fabric.

[68] 'Design Report', 2015.

Figure 27. View of the covered walkway joining the eastern façade of the factory to the administration building. (Source: Heritage 21, 09.03.16)

Figure 28. View of the distinctive 'B' signage with tea leaf and coffee bean within the spaces of the letter. (Source: Heritage 21, 09.03.16)

Figure 29. View towards the eastern boundary with the security booth/guardhouse on the right. (Source: Heritage 21, 09.03.16)

Figure 30. Eastern façade of administration building with half-timbered gables shown. (Source: Heritage 21, 09.03.16)

Figure 31. View south-west encompassing the northern facade of the administration building and a detail of the eastern façade of the factory. (Source: Heritage 21, 09.03.16)

Figure 32. View north-east encompassing a large lawn area and the foreshore boundary of the site. (Source: Heritage 21, 09.03.16)

Figure 33. View west encompassing a detail of the factory's eastern façade and open air car park. (Source: Heritage 21, 09.03.16)

Figure 34. View north towards Massey Park Golf Course and Sanders Reserve (I259). (Source: Heritage 21, 09.03.16)

Figure 35. Detail of northern façade of factory with precast concrete panels. (Source: Heritage 21, 09.03.16)

Figure 36. Western façade of the factory with landscaped area located along the western boundary evident on the right. (Source: Heritage 21, 09.03.16)

Figure 37. Memorial plaque located at tree base in the north-eastern section of the site. (Source: Heritage 21, 09.03.16

Figure 38. Detail of the southern façade of factory and landscaping along southern boundary is evident on the left. (Source: Heritage 21, 09.03.16)

Figure 39. Detail of space located on the lower ground floor. (Source: Heritage 21, 09.03.16)

Figure 40. Detail of space located on the ground floor. (Source: Heritage 21, 09.03.16)

Figure 41. Detail of space and equipment located on second floor. (Source: Heritage 21, 09.03.16)

Figure 42. Roof space located on second floor. (Source: Heritage 21, 09.03.16)

Figure 43. Detail of space located on the third floor. (Source: Heritage 21, 09.03.16)

Figure 44. View looking down of the roasting hall from fifth floor platform. (Source: Heritage 21, 09.03.16)

Figure 45. View looking up of the roasting hall from fifth floor platform. (Source: Heritage 21, 09.03.16)

Figure 46. View of clerestorey aluminium framed glazing as viewed from the second floor roof space. (Source: Heritage 21, 09.03.16)

Figure 47. View of sliding steel fire escape door located on the second floor. (Source: Heritage 21, 09.03.16)

Figure 48. View of the crane well centralised between two service lifts. Only one lift is in view. (Source: Heritage 21, 09.03.16)

Figure 49. View of timber floored service lift. (Source: Heritage 21, 09.03.16)

Figure 50. Curved steel handrails located in stairwell located between floor five and floor three.(Source: Heritage 21, 09.03.16)

4.0 COMPARATIVE ANALYSIS

The purpose of the following analysis is to examine the subject site in relation to other comparable places in order to gain an understanding of the place in terms of its rarity and/or representativeness. This section also examines the subject site in relation to the NSW Historical Themes as this also aids in understanding and assessing a place within the wider historic context.

4.1 Comparison with other Industrial sites

Four industrial sites have been examined in relation to the subject site. These sites have been chosen because of their location in the Concord area and/or because of shared characteristics with the subject site such as landscaped setting and include the following:

- Farleigh, Nettheim & Company Tannery (Stanley Street, Concord, NSW);
- Austral Bronze Factory (Burwood Road, Concord, NSW);
- Davis Gelatine Factory (Baker Street, Banksmeadow, NSW); and
- Kodak Australasia Factory (Southampton Crescent, Abbotsford, VIC).

A short description of each industrial site will be provided followed by a concluding section which presents the overall findings of the analysis.

Farleigh, Nettheim & Company Tannery (Stanley Street, Concord, NSW)

The Farleigh, Nettheim & Company tannery was located in Stanley Street on the site which is now occupied by Concord High School. The factory was established by John Farleigh and Cossman Nettheim on the Concord site c.1882.[69] The factory was heralded in 1928 and the most up-to-date tannery in the Southern Hemisphere.[70] It continued to operate on the site, largely producing leather for shoe and boot soles, until 1967.[71] The site consisted of a range of structures with the most prominent being a four storey brick construction with a possible water tower. Other single storey iron roofed structures, chimney stack and pits also occupied the site. There is no evidence to suggest that the structures where situated within a landscaped setting (see Figure 51).

Figure 51. The tannery site of Farleigh, Nettheim & Company, c. 1933.[72]

[69] Gregory Blaxell, *A Pictorial History of City of Canada Bay*, 109.
[70] 'Firm with History', *The Hebrew Standard of Australasia*, 6 January 1928.
[71] Gregory Blaxell, *A Pictorial History of City of Canada Bay*, 109.
[72] City of Canada Bay Council, 'Canada Bay Image Library'.

Austral Bronze Factory (Burwood Road, Concord, NSW)

The Austral Bronze Factory was initially established on its Burwood Road site as the George E. Crane Brass Foundry in the 1930s.[73] The former site of the factory, which is located on the southern side of Burwood Road slightly east of the subject site, has since been redeveloped into a residential housing estate. G. E. Crane and Sons Pty Ltd. manufactured brass, copper and aluminium and were the first Australian company to roll aluminium in Australia. The Company merged with Austral Bronze in 1968.[74]

According to *The Sydney Morning Herald* on the 28 November 1939, a 30,000 square foot single storey factory was constructed on the site.[75] This corresponds with 1943 aerial photography which shows that the site, at this time, consisted of one dominating structure with smaller structures located to the west of this main structure (see Figure 52). The factory was constructed of structural steel with brick faced walls and a fibro-cement roof. It also had a large setback from Burwood Road *"to be planted later with trees and shrubs"*.[76] Photographs of the site in c.1991 show that the number of structures evident on the site had significantly increased in the interim period.

Figure 52. Aerial view of the Austral Bronze Factory site in 1943.[77]

Davis Gelatine Factory (Baker Street, Banksmeadow, NSW)

The Davis Gelatine factory which was formally located in the Botany Bay suburb of Banksmeadow was constructed in 1917 and began operations in 1919. Sir George Francis David bought eight hectares of land on which he created a *"model environment"*.[78] The factory buildings involved in the manufacture of gelatine and glue were generally one - two storeys and were surrounded by extensive landscaping. A mixture of trees, shrubs, lawns and flower beds were situated around and amongst the buildings. The driveway landscape, which those entering the site passed through on their approach to the factory buildings, was reminiscent of a park. Tennis courts and bowling greens

[73] Official Newsletter of the Concord Heritage Society, 'Austral Bronze Crane Copper', *Nurungo Remembered*, June 2007, 133 edition.
[74] Ibid.
[75] The Sydney Morning Herald, 'Building and Construction', 28 November 1939.
[76] Ibid.
[77] NSW Land and Property Information, 'SIX Maps'.
[78] NSW Office of Environment and Heritage, 'Davis Gelatine Site (Former)', n.d., http://www.environment.nsw.gov.au/heritageapp/heritagesearch.aspx.

which were available for employee use were located to the rear of the site.[79] This extensive landscaping is evident in 1943 aerial views of the site (see Figure 53).

The factory buildings and landscaped setting is not evident on the site today. It appears that they have been replaced by contemporary warehouse buildings and are occupied by companies such as RMS Marble and Foodlink Australia.

Figure 53. Aerial view of the Davis Gelatine Factory site in 1943.[80]

Kodak Australasia Factory (Southampton Crescent, Abbotsford, VIC)

The Kodak Australasia Factory was located in the Melbourne suburb of Abbotsford alongside the Yarra River. The site of the former factory was purchased in 1881 by Thomas Baker, one half of Baker and Rouse Australia Laboratory, which merged with Kodak Limited in the early twentieth century (c.1907). As the company had expanded so too did the Abbotsford factory site. By 1949, the factory was producing film, plates and photographic chemicals in addition to the developing and processing of film and cine processing. According to evidence, the factory was the first place outside of North America to process Kodachrome film. The Company was required to acquire and move to larger premises when the Abbotsford site became inadequate. By 1966 all operations of the Company has relocated to their new factory site in Coburg.[81] The former Abbotsford site was sold off and appears to be currently used and owned by Carlton United Breweries Limited.

Historical photographs indicate that the site consisted of a number of buildings, many multi-storeys, which were situated within a landscaped setting. Extensive lawns, flower beds and trees are distributed throughout the site. Recreational areas such as tennis courts, cricket field and basketball area were also located within the landscaped area. It is unclear, how long the landscaped setting remained an integral part of the site before the pressure for increased development space lead to its demise. Evidence suggests that at least one of the garden areas was built over in 1948.[82] Aerials of the site today do not reveal any evidence of this former landscaped setting and it is not known if

[79] Ibid.
[80] NSW Land and Property Information, 'SIX Maps'.
[81] Angletta Leggio, 'A History of Australia's Kodak Manufacturing Plant' (AICCM Symposium, 2006).
[82] Museum Victoria Collections, 'Item MM 96557 Photogrpah - Kodak Australasia Pty Ltd, Kodak Factory, Garden & Staff, Abbotsford, Victoria, circa 1930s', n.d.

any of the structures existing on site today were constructed when the site in operation as the Kodak Australasia factory (see Figure 54).

Figure 54. View of the Kodak Australasia factory site, c.1940-1955.[83]

Summary

The following conclusions can be drawn from the comparison of the subject site with the four industrial sites summarised above:

- The subject site is a rare extant example of a factory operating during the twentieth century in the Concord local area. Other factories which were operating in the Concord area during the twentieth century, such as the Farleigh, Nettheim & Company Tannery and Austral Bronze Factory, have undergone demolition with the sites since redeveloped to serve other non-industrial purposes.
- As described in Section 0, the subject site exhibits characteristics of the 'Factory Garden Movement' along with other industrial sites such as the Davis Gelatine Factory and the Kodak Australasia Factory. Both the Davis Gelatine and the Kodak Australasia Factory are examples of the Factory Garden Movement applied on a large-scale with the sites displaying large expanses of landscaped areas which included recreational facilities for employees such as tennis courts. In comparison, the subject site provides an example of the factory garden movement ideology on a modest and smaller scale. Further research into other industrial sites which display characteristics of the 'Garden Factory Movement' should be undertaken to ascertain if there are others that are still extant as both the landscaped settings of the Davis Gelatine Factory and the Kodak Australasia Factory have been lost. If none or few sites where evident the subject site would also exhibit rarity for the retention of the landscaped setting.
- The subject site is noticeably different in comparison to the other industrial sites in that the whole manufacturing process is confined to one large building. It is noted that a detached

[83] 'Item MM 96553Photograph - Kodak Australasia Pty Ltd, Exterior View of Kodak Factory, Abbotsford, Victoria, 1940-1955', n.d., http://collections.museumvictoria.com.au/items/1399083.

administration building exists on the subject site, however no manufacturing or storage of the product appears to occur there. The other sites examined gradually constructed multiple structures on the sites to be used for different stages of the manufacturing process. Dissimilarly, all stages of the manufacturing process, production right down to distribution, all occur within the one factory building at the subject site.

4.2 Historical Themes

Historical Themes relevant to NSW set out by the Australian Heritage Commission and the Heritage Division, NSW Office of Environment and Heritage in the *NSW Heritage Manual* can provide a context within which the cultural significance of an item can be understood, assessed and compared. This approach provides a useful framework within which cultural significance can be assessed by emphasising the underlying historical influences which have shaped the subject site. These historical themes are general, so it is likely that the subject site will relate to more than one theme.

Historical themes relevant to the subject site are set out below.

Australian Theme	NSW Theme	Local Themes	Site examples
1. Tracing the natural evolution of Australia	Environment – naturally evolved	There are two aspects to this theme: (1) Features occurring naturally in the physical environment which have significance independent of human intervention (2) Features occurring naturally in the physical environment which have shaped or influenced human life and cultures	Foreshore location and relationship to Hen and Chicken Bay.
2. Peopling Australia	Convict	Activities relating to incarceration, transport, reform, accommodation and working during the convict period in NSW (1788-1850) – does not include activities associated with the conviction of persons in NSW that are unrelated to the imperial 'convict system': use the	The subject site formed part of the Longbottom Stockade land area. The Longbottom Stockade was initially established to detain convicts transported west to Parramatta as it was located approximately midway between Sydney city and Parramatta. It later became the detention centre for several Canadian exiles that had been transported to Australia.

Australian Theme	NSW Theme	Local Themes	Site examples
		theme of Law and Order for such activities	
3. Developing local, regional and national economies	Industry	Activities associated with the manufacture, production and distribution of goods	Coffee has been roasted at the site for over 60 years.
	Technology	Activities and processed associated with the knowledge or use of mechanical arts and applied sciences	The subject site is associated with coffee entrepreneur Robert Timms Junior. Timms pushed the boundaries of the coffee industry through innovative new technology such as the self-service coffee grinders which were introduced into supermarkets during the 1950s. The Bushells Company, incorporating the companies which later acquired the Bushells brand, dedicated funds to research with the purpose of producing fine quality coffee products.
	Transport	Activities associated with the moving of people and good from one place to another, and systems for the provision of such movements	Prior to the construction of the Bushells factory in the 1950s, a timber mill and wharf occupied the subject site. Industrial sites, such as timber mills, were often situated near the foreshore areas as the Parramatta River was invaluable for transportation of products.
5. Working	Labour	Activities associated with work practises and organised and unorganised labour	The situating of an industrial building within a landscaped setting displays characteristics of the 'Factory Garden Movement' which developed around the ideology that locating factories within pleasant landscaped spaces would positively benefit employees health.
8. Developing Australia's cultural life	Domestic Life	Activities associated with creating, maintaining, living in and working around houses and institutions	Bushells products were largely focused on the premise of allowing people to enjoy good quality coffee within the comfort of their own homes. Throughout its development as a company, Bushells and its products have firmly established themselves as an iconic brand within Australia and is still commonly found within Australian households.
9. Marking the phases of life	Persons	Activities of, and associations with identifiable individuals, families and communal groups	The subject site is associated with two identifiable individuals and the brands which they created. These individuals are Alfred Bushell and Robert Timms Junior.

5.0 ASSESSMENT OF SIGNIFICANCE

5.1 NSW Heritage Assessment Guiding Principles

The following Assessment of Significance of the subject site located at 160 Burwood Road, Concord is drawn in part from the guidelines set out in the *NSW Heritage Manual (*prepared by the Heritage Division, NSW Office of Environment and Heritage) which identifies the criteria below for assessing heritage significance. These guidelines incorporate the cultural heritage values identified in *The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance 2013.* The Burra Charter defines cultural significance as: "*...aesthetic, historic, scientific, social or spiritual value for past, present or future generations.*" Under the *NSW Heritage Manual* guidelines, an item is assessed in accordance with the following specific criteria:

(a) An item is important in the course, or pattern, of NSW's cultural or natural history (or the cultural or natural history of the local area);
(b) An item has strong or special association with the life or works of a person, or group of persons, of importance in NSW's cultural or natural history (or the cultural or natural history of the local area);
(c) An item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW (or the local area);
(d) An item has strong or special association with a particular community or cultural group in NSW (or the local area) for social, cultural or spiritual reasons;
(e) An item has potential to yield information that will contribute to an understanding of NSW's cultural or natural history (or the cultural or natural history of the local area);
(f) An item possesses uncommon, rare or endangered aspects of NSW's cultural or natural history (or the cultural or natural history of the local area); and
(g) An item is important in demonstrating the principal characteristics of a class of NSW's
    - cultural or natural places; or
    - cultural or natural environments.

    (or a class of the local areas'
    - cultural or natural places; or
    - cultural or natural environments).

Items assessed as being of State significance may be considered for inclusion on the State Heritage Register (SHR) by the Heritage Council of NSW.

5.2 Heritage Values and Attributes

Criterion	Assessment of Heritage Value	Attributes
A. Historical Significance An item is important in the course, or pattern, of NSW's cultural or natural history (state significance); OR it is important in the course, or pattern of the local area's cultural or natural history (local significance).	The subject site is capable of demonstrating the historical development of the Concord area from a convict detention settlement into a heavily industrialised area. Additionally, the subject site has been operating continuously as an industrial manufacturing facility for over 60 years. Accordingly, the subject site has some historical significance at the local level.	• Entire subject site. • Brick and concrete factory. • Current industrial use.
B. Associational Significance An item has strong or special association with the life or works of a person, or group of persons, of importance in NSW's cultural or natural history (state significance); OR it has strong or special association with the life or works of a person, or group of persons, of importance in the cultural or natural history of the local area (local significance).	The subject site was acquired in the 1950s by the Bushells Company. The Bushells brand has been manufactured in Sydney for over 90 years and is part of the collective public conscious as an iconic Australian brand. The subject site is also associated with coffee entrepreneur Robert Timms Junior who during the 1970s owned the largest privately owned tea and coffee company in Australia. Accordingly, the subject site has associational significance at the local level.	• 'B' signage located on the eastern façade of the factory. • Current use as a coffee manufacturing site. • Purpose-built factory. • Coffee manufacturing equipment evident within the factory.
C. Aesthetic Significance An item is important in demonstrating	The scale of the factory is significantly greater compared to the surrounding development and therefore, is a recognisable landmark in the local area due to its high visibility. Its distinctive	• Views to the site from surrounding areas. • The scale of the factory in comparison to the adjacent development.

Criterion	Assessment of Heritage Value	Attributes
aesthetic characteristics and/or high degree of creative or technical achievement in NSW (state significance); OR it is important in demonstrating aesthetic characteristics and/or high degree of creative or technical achievement in the local area (local significance).	chimney stack and 'B' signage also contribute to its landmark qualities. The overall nature of the subject site with the large industrial building set amidst soft landscaping on the water's edge, creates a pleasing juxtaposition enabling a physically loud structure to sit quietly within its surrounding environment. The factory also demonstrates characteristics specific to multi-storey industrial buildings. These include the following: • The large glazed northern and southern walls of the roasting hall which utilises clerestorey aluminium framed glazing; • Sliding steel fire escape doors; • The timber floored service lifts; and • The centralised crane well.	• The factory and surrounding landscaped elements. • 'B' signage. • Chimney stack. • Northern and southern glazed walls of the roasting hall ; • The clerestorey aluminium framed glazing; • Sliding steel fire escape doors. • Timber floored service lifts. • Centralised crane well.
D. Social Significance An item has a strong or special association with a particular community or cultural group in NSW for social, cultural or spiritual reasons (state significance); OR has strong or special association with a particular community or cultural group in NSW for social, cultural or spiritual reasons (local significance).	Throughout the operational history of the subject site a large contingent of people would have been employed such that the site would be important for its special association with the local community as well as for engendering that sense of place within the wider Sydney community. A plaque commemorating the employment of a supervisor was observed at the subject site which suggests that there was a great deal of respect between employer and employees. The factory with its 'B' signage would have and continues to be widely known within the local Concord area. Additionally, the subject site shows characteristics of the 'Factory Garden Movement' which was developed around the ideology that by situating factories within pleasant landscaped spaces which	• 'B' signage. • Views to the factory from the surrounding area. • Landscaped setting of the factory which shows characteristics of the 'Factory Garden Movement'. • Commemorative plaque.

Criterion	Assessment of Heritage Value	Attributes
	employees could enjoy, not only would enhance the aesthetics of the factory but also the health of employees. This awareness of the wellbeing of employees would have enhanced the sense of identity and belonging for employees, their families and the wider community. Accordingly, the subject site has some social significance at a local level.	
E. Technical/Research Significance An item has potential to yield information that will contribute to an understanding of NSW's cultural or natural history (state significance); OR has potential to yield information that will contribute to an understanding of the area's cultural or natural history (local significance).	The brick and concrete factory is important for its ability to demonstrate technical aspects with regard to multi-storey industrial building construction. • The large glazed northern and southern walls of the roasting hall which utilises clerestorey aluminium framed glazing; • Sliding steel fire escape doors; • The timber floored service lifts; • The centralised crane well. Accordingly, the subject site has some technical significance at a local level.	The brick and concrete factory and particular features which are characteristic of multi-storey factories: • Large glazed northern and southern walls of the roasting hall which utilises clerestorey aluminium framed glazing; • Timber floored service lifts; and • The centralised crane well is a distinctive element of factories involved in heavy-duty manufacturing processes.
F. Rarity An item possesses uncommon, rare or endangered aspects of NSW's cultural or natural history (state significance); OR possesses uncommon, rare or endangered aspects of the area's cultural or natural history (local significance).	The subject site is a rare extant example of an industrial site operating during the twentieth century in the Concord local area. Other industrial sites which were operating in the Concord area during the twentieth century, such as the Farleigh, Nettheim & Company Tannery and the Austral Bronze Factory, have since their closure been demolished and undergone redevelopment to serve other non-industrial purposes. It is also apparent that the subject site is rare in that the whole manufacturing process is confined to one large building rather than separated between numerous smaller buildings. Accordingly the subject	• Subject site. • The brick and concrete factory. • Industrial use.

Criterion	Assessment of Heritage Value	Attributes
	site has some rarity value at a local level.	
G. Representativeness An item is important in demonstrating the principal characteristics of a class of NSW's cultural or natural places or cultural or natural environments (state significance); OR is important in demonstrating the principal characteristics of a class of the area's cultural or natural places or cultural and natural environments (local significance).	The brick and concrete factory is an intact example of a purpose built factory displaying key characteristics of multi-storey industrial building construction. The subject site also exhibits characteristics of the 'Factory Garden Movement' on a modest scale. Accordingly the subject site has some representativeness value at the local level.	The brick and concrete factory and particular features which are characteristic of multi-storey factories: • Large glazed northern and southern walls of the roasting hall which illustrates a method used in multi-storey factory construction to provide interior illumination; • Timber floored service lifts; and • The centralised crane well is a distinctive element of factories involved in heavy-duty manufacturing processes.

5.3 Statement of Cultural Significance

The subject site at 160 Burwood Road, Concord is an intact example of a purpose built factory which displays key characteristics of multi-storey industrial building construction. The entire subject site, consisting of a large industrial building situated within a landscaped setting, also exemplifies the 'Factory Garden Movement' ideology. The subject site has rarity as an extant example of an industrial site which was operating in the Concord area during the twentieth century. Additionally, the subject site exhibits rarity because the manufacturing processes are confined to one large building rather than several smaller buildings distributed throughout the site. The subject site also possesses historical, associational, aesthetic, technical and social significance at a local level.

The subject site has the ability to demonstrate important aspects of the historical development of the Concord area, most specifically its period of heavy industrialisation. The subject site is also historically significant as it has been continuously operating as an industrial manufacturing facility for over 60 years.

Associated with the iconic Australian brand Bushells, which has been manufactured in Sydney for over 90 years, the site also has a strong connection with coffee entrepreneur Robert Timms Junior. The scale and form of the factory building give it a distinctive landmark quality and the siting of a

large industrial building amidst soft landscaping on the foreshore of Exile Bay creates a pleasing juxtaposition. The factory also demonstrates distinct attributes of multi-storey industrial buildings. Socially, the subject site is important to the sense of place of the local and wider Sydney community as an iconic building associated with a household brand which provided innovative amenities for its staff. The factory also has technical significance for its ability to yield information in relation to multi-storey industrial building construction.

6.0 CONSTRAINTS AND OPPORTUNITIES

The following section discusses a series of factors which are relevant to the site and must be considered when planning for the site's future development and conservation of its heritage significance which was identified in Section 5.0. The following factors will be discussed:

- Implications arising from Heritage Significance;
- Condition and Integrity;
- Owner's Requirements and Use; and
- Listing under the Local Government Local Environment Plan.

6.1 Implications arising from Heritage Significance

It was determined in Section 5.0 of this report that the subject site demonstrates local significance for its historical, associational aesthetic, technical and social values in addition to possessing rarity and representativeness values. The identified significance of the subject site places an obligation on the owners of the site (both current and future) to appropriately manage and conserve the place and its heritage values for present and future generations. The identified heritage values, associated attributes and Statement of Significance which are provided in Section 5.0 of this report should be referred to when planning development and proposing alterations to the site. Additionally, the future conservation and development of the place should be carried out in accordance with the principles of *The Burra Charter: The Australia ICOMOS Charter for the Places of Cultural Significance* 2013. The conservation processes outlined in Articles 14-25 of *The Burra Charter* have been reproduced in Table 1 below.

Table 1: Articles 14-25 of *The Burra Charter*

Article number	Description
Article 14	**Conservation processes**
	Conservation may, according to circumstance, include the processes of: retention or reintroduction of a *use*; retention of *associations* and *meanings*; *maintenance, preservation, restoration, reconstruction, adaptation* and *interpretation*; and will commonly include a combination of more than one of these.
Article 15	**Change**
15.1	Change may be necessary to retain *cultural significance*, but is undesirable where it reduces cultural significance. The amount of change to a *place* should be guided by the *cultural significance* of the place and its appropriate *interpretation*.
15.2	Changes, which reduce cultural significance, should be reversible, and be reversed when circumstances permit.
15.3	Demolition of significant *fabric* of a *place* is generally not acceptable. However, in some cases minor demolition may be appropriate as part of *conservation*. Removed significant fabric should be reinstated when circumstances permit.
15.4	The contributions of all aspects of *cultural significance* of a *place* should be respected. If a place includes *fabric*, *uses*, *associations* or *meanings* of different periods, or different aspects of cultural significance, emphasising or interpreting

Article number	Description
	one period or aspect at the expense of another can only be justified when what is left out, removed or diminished is of slight cultural significance and that which is emphasised or interpreted is of much greater cultural significance.
Article 16	**Maintenance**
	Maintenance is fundamental to *conservation* and should be undertaken where *fabric* is of *cultural significance* and its *maintenance* is necessary to retain that *cultural significance*.
Article 17	**Preservation**
	Preservation is appropriate where the existing *fabric* or its condition constitutes evidence of *cultural significance*, or where insufficient evidence is available to allow other *conservation* processes to be carried out.
Article 18	**Restoration and reconstruction**
	Restoration and *reconstruction* should reveal culturally significant aspects of the *place*.
Article 19	**Restoration**
	Restoration is appropriate only if there is sufficient evidence of an earlier state of the *fabric*.
Article 20	**Reconstruction**
20.1	*Reconstruction* is appropriate only where a *place* is incomplete through damage or alteration, and only where there is sufficient evidence to reproduce an earlier state of the *fabric*. In rare cases, reconstruction may also be appropriate as part of a *use* or practice that retains the *cultural significance* of the place.
20.2	*Reconstruction* should be identifiable on close inspection or through additional *interpretation*.
Article 21	**Adaptation**
	Adaptation must be limited to that which is essential to a use for the place determined in accordance with Articles 6 and 7.
21.1	*Adaptation* is acceptable only where the adaptation has minimal impact on the *cultural significance* of the *place*.
21.2	*Adaptation* should involve minimal change to significant fabric, achieved only after considering alternatives.
Article 22	**New work**
22.1	New work such as additions to the *place* may be acceptable where it does not distort or obscure the *cultural significance* of the place, or detract from its *interpretation* and appreciation.
22.2	New work should be readily identifiable as such.
Article 23	**Conserving use**
	Continuing, modifying or reinstating a significant *use* may be appropriate and preferred forms of *conservation*.
Article 24	**Retaining associations and meanings**
24.1	Significant associations between people and a place should be respected, retained and not obscured. Opportunities for the interpretation, commemoration and

Article number	Description
	celebration of these associations should be investigated and implemented.
24.2	Significant meanings, including spiritual values, of a place should be respected. Opportunities for the continuation or revival of these meanings should be investigated and implemented.
Article 25	**Interpretation**
	The cultural significance of many places is not readily apparent, and should be explained by interpretation. Interpretation should enhance understanding and engagement, and be culturally appropriate.

6.2 Physical Condition and Integrity

Condition is the measure of a place's physical deterioration while integrity is the measure of the condition of a place's heritage values. The condition and integrity of a heritage place do not necessarily correlate. A heritage place may be in poor condition yet have high integrity and vice versa.

In relation to the subject site, it has been previously discussed in Section 5.0 that the identified heritage values are embedded in both tangible and intangible features (attributes) of the place. Therefore there is a correlation between condition and integrity and this correlation needs to be taken into account with regard to future conservation management of the subject site.

Currently the subject site appears to be well maintained and generally in good condition. Similarly, the integrity of the subject site is high. In order to maintain this integrity a detailed fabric analysis is recommended (see Section 7.0) to better understand the existing elements of the site and the contribution that each makes to the overall significance of the site. This, in turn, will ascertain the level and type of conservation required for particular areas and will provide a clear understanding of where change to the site can occur without compromising integrity.

6.3 Owner Requirements and Proposed Use

The subject site is currently owned by FreshFood Australia Holdings Pty Ltd and as Heritage 21 understands it, the factory in its current capacity may be nearing the end of its use. Therefore, the current owners would like to investigate the possibility of redeveloping the site for a non-industrial purpose.

6.4 Listing under the Local Government Local Environment Plan

The Assessment of Heritage Significance provided in Section 5.0 of this report has concluded that the subject site has local significance for its historical, associational, aesthetic, technical and social values in addition to its rarity and representativeness values. These findings were summarised in a Statement of Significance provided in Section 5.3. Thus, there is an opportunity for the inclusion of the place within Section 5 of the *Canada Bay Local Environmental Plan 2013*.

Listing of a heritage item requires an amendment to be made to the Local Government's Local Environmental Plan (LEP). This is a lengthy process consisting of numerous stages such as notifying the proposed listing to all stakeholders in the catchment area and allowing time for their comment. Additionally, listing of local heritage items often only occurs when numerous items have been identified, as a result of a heritage study, with Council generally reluctant to consider one single listing. Once an item is locally listed, owners do have the opportunity to use the Conservation Incentives clause under 5.10(10) of the LEP. This Clause allows for development which would not normally be permissible under the current zoning to be investigated and potentially achieved once it has been determined that the future conservation of the heritage item would be facilitated by the non-permissible development.

7.0 HERITAGE FRAMEWORK

Taking into account this identified significance and the other constraints and opportunities discussed in the previous section (see Section 6.0), Heritage 21 presents the following broad framework with regard to the subject site and the retention of its identified heritage values and significance.

7.1 General Management

- Formal heritage listing of the subject site would be desirable, however, it is unlikely that a heritage status would be given to the site in the timeframe of its redevelopment. Therefore, the following guidelines provided in this section, the Statement of Cultural Significance (see Section 5.3) along with a Detailed Fabric Analysis would assist in the future planning, design, management and development of the site.

- Expert heritage advice should be sought where necessary to provide advice on heritage management issues and to assist in the conservation and maintenance of the place.

7.2 Use

- In a similar fashion to other industrial sites in Sydney, such as the former Arnott's Biscuit Factory site in Homebush, the site presents a unique opportunity to enable the conservation of the subject site, a place of local heritage significance, via adaptive re-use. Any new use must respect the significance of the place. Possible uses which could be compatible include residential, commercial, educational or industrial.

7.3 Alterations and Additions

- A heritage architect should be commissioned to ascertain the condition and significance of each element of the factory's fabric (a Detailed Fabric Analysis) and subsequently identify required conservation actions to guide future development.

- New development on the site should respect the scale of the Factory.

7.4 Setting and Views

- The factory should be maintained within a landscaped setting.

- New development should not obstruct significant views associated with the significance of the place, specifically views towards the eastern façade and the distinctive 'B' signage and also views of the chimney stack which give the place landmark qualities because it can be seen from numerous vantage points.

7.5 Interpretation

- An Interpretation Strategy should be prepared be a heritage professional. This would identify key users of the site, develop themes and key messages for the identified audience, and propose options for communication of heritage values to visitors and users of the site. This may be in the form of graphic display, art installations, design features or other interpretive media.

  Specific forms of interpretation for the subject site could include the following:

  - Interpretive naming conventions: the naming of new precincts could take inspiration from the former use of the factory;
  - Interpretive design features: retention of notable elements of the factory such as the steel sliding fire escape doors;
  - Interpretive displays: various pieces of machinery associated with Bushells could be displayed throughout the site or particular spaces within the factory could be used as display areas such as the centralised crane well;
  - Interpretive signage: a series of plaques or art installations such as the Bushells advertisements could be distributed throughout the site creating a historical walk which takes community members through the historical development of the site; and
  - Art installation; a local artist could be commissioned to create an artwork by recycling some elements of the site fabric that would otherwise be disposed of.

7.6 Research

- Any proposed subterranean work, both terrestrial and maritime, shall first be informed by a suitably qualified archaeologist who will determine archaeological potential. Appropriate management measures shall be taken to ensure that archaeological resource is appropriately investigated and recorded prior to any action being taken that may involve any type of excavation during the carrying out of conservation works or future development to the place. No ground disturbance works shall proceed in areas identified by the archaeologist as having archaeological potential without first obtaining an excavation permit from the relevant authority or an appropriate exemption. The archaeological assessment and research methodology shall be prepared by a suitably qualified historic archaeologist.

7.7 Recording

- An accurate record of the subject site should be maintained. Records may consist of reports, checklists, quotations and receipts, other written records and photographs. They should include what was involved in the work, who conducted the work, when the work was conducted and the cost. Photographs taken before, during and after works will form a useful

part of these records. On completion, all recording is to be placed in a retrievable archive for government and public access.

8.0 SOURCES

Angletta Leggio. 'A History of Australia's Kodak Manufacturing Plant'. AICCM Symposium, 2006.
City of Canada Bay Council. 'Canada Bay Image Library'. Accessed 16 March 2016. http://imagelibrary.canadabay.nsw.gov.au/Library/#1458173124818_0.
———. 'Canada Bay Local Environmental Plan', 2013. http://www.canadabay.nsw.gov.au/planning-controls-lep-and-dcp.html#acctab1.
———. 'Canada Bay Local Planning Strategy 2010', 2010. http://www.canadabay.nsw.gov.au/future-planning-local-planning-strategy.html.
City of Canada Bay Heritage Society. 'Aborigines: Original Occupants of the Area', 2016. http://www.concordheritage.asn.au/concord-history/aborigines.
———. 'Concord's Industrial Development', 2016. http://www.environment.nsw.gov.au/heritageapp/heritagesearch.aspx.
Concord Heritage Study: Thematic History. Perumal, Wrathall & Murphy Pty. Ltd., 1986.
'Design Report', 2015.
'Firm with History'. *The Hebrew Standard of Australasia*, 6 January 1928.
FreshFood. 'Bushells Coffee: Our Story', 2015. http://staging.bushellscoffee.com.au/our-story/.
Fresh Food. 'Our Story', 2015. http://www.roberttimms.com.au/our-story/.
Google. 'Google Maps', 2016. http://maps.google.com.au/.
Gregory Blaxell. *A Pictorial History of City of Canada Bay*. Alexandria: Kingsclear Books, 2010.
'Gregory's Sydney Directory Section 40'. Concord, 1934. http://voommaps.com/historical-maps/1934-gregorys-sydney-street-directory/.
Helena Chance. '"Consulting the Genius of the Plant"', n.d. http://eprints.bucks.ac.uk/1424/1/Chance,%20Helena%20Consulting%20the%20genius%20of%20the%20plant.pdf.
'Item MM 96553Photograph - Kodak Australasia Pty Ltd, Exterior View of Kodak Factory, Abbotsford, Victoria, 1940-1955', n.d. http://collections.museumvictoria.com.au/items/1399083.
Museum Victoria Collections. 'Item MM 96557 Photogrpah - Kodak Australasia Pty Ltd, Kodak Factory, Garden & Staff, Abbotsford, Victoria, circa 1930s', n.d.
NSW Land and Property Information. 'Historical Land Records Viewer', n.d. http://images.maps.nsw.gov.au/pixel.htm.
———. 'SIX Maps', n.d. http://maps.six.nsw.gov.au/.
NSW Office of Environment and Heritage. 'Bayview Park'. *State Heritage Inventory*. Accessed 17 March 2016. http://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=2890319.
———. 'Davis Gelatine Site (Former)', n.d. http://www.environment.nsw.gov.au/heritageapp/heritagesearch.aspx.
———. 'Massey Park Golf Course and Sanders Reserve'. Accessed 16 March 2016. http://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=2890346.
Official Newsletter of the Concord Heritage Historical Society. 'More Industries on Exile Bay Bushells Pty.Ltd.' *Nurungi Remembered*, June 2007, 133 edition.
Official Newsletter of the Concord Heritage Society. 'Austral Bronze Crane Copper'. *Nurungo Remembered*, June 2007, 133 edition.
Tanner Architects. 'Former Bushells Building Conservation Management Plan', 2008.
The Sydney Morning Herald. 'Building and Construction', 28 November 1939.

Heritage21

160 Burwood Road, Concord

10 September 2019

To Whom It May Concern

160 BURWOOD ROAD, CONCORD

RESPONSE TO LOCAL PLANNING PANEL EXTRAORDINARY MEETING MINUTES

1. Preamble

Heritage 21 has been asked to address the heritage issues outlined in the City of Canada Bay Council's Local Planning Panel Extraordinary Meeting Minutes dated 5 June 2019. Specifically, we have been asked to turn our attention to the following issues:

How the heritage values of the built form and landscape have influenced the concept plan need to be better defined.

It is not clear:

- *What is the appropriate curtilage for the retained building?*
- *What are the principles around the adaptive reuse?*
- *How the concept plan responds to the elements of a "factory in a garden setting"?*

Accordingly, we will deal with each of these issues separately below:

2. Heritage Value, Built Form and Landscaping

Heritage 21 has been working closely with Colliers, BVN and AJ+C for more than 18 months on the subject proposal. In order to inform our understanding of the site, we prepared a detailed Heritage Significance Assessment, dated April 2016. This assessment has indicated that the primary form on the site is the Bushell's Roasting Tower, which can be seen from the foreshore in the round as a prominent feature, currently sitting in an industrial landscaped setting. In our view, it is very important to maintain these views from the surrounding foreshore.

In light of the most recent updated plans that we have received from Colliers (BVN Issue E dated 03 September 2019), we are of the opinion that these views will be maintained in the context of the proposed residential accommodation. We stress that views from the foreshore constitute the most important heritage aspect of the subject site.

The current concept plans indicate that all of the residential blocks (C1, C2, C3, C4, C5, C5a, C6, C7, C8, C9; E2, E3, E4; W1, W2, W3, W4, W5) are lower in height than the Roasting Tower. Our

Heritage Significance Assessment indicates that the most important aspects to the current heritage setting is:

a. A visually prominent Roasting Tower; and
b. The characteristic industrial landscape setting.

Views to the Roasting Tower have already been discussed in this letter. However, the industrial landscape setting, which is typical of Inter-War and Post-War industrial complexes in Sydney, will also be maintained in accordance with the recent updated BVN drawings (Issue E dated 03 September 2019). Much of the grassed area surrounding the Roasting Tower will be maintained and therefore, it is our opinion that the historical industrial landscape setting will continue to be understood and interpreted by future owners and visitors to the site. This is particularly the case on the north-eastern part of the site which constitutes public open space. The arrangement of the new buildings around the tower is, in our view, an intelligent response to the design constraints. This is illustrated by the fact that:

- Views to the tower from the foreshore round will remain undisturbed;
- The proposed buildings are to be clustered around the prominent Roasting Tower which will remain the highest form on the site;
- There will be expansive private open space in and around the building which is characteristic of the industrial landscape setting;
- Articulated built forms to break up the bulk and scale of the introduced buildings.

Figure 1. Proposed Roof Plan (BVN, Issue E dated 03.09.19)

Figure 2. Proposed Plan Level 01 (BVN, Issue E dated 03.09.19)

3. Curtilage

Our understanding of the curtilage for the site is premised on the two notions enunciated above, i.e. the continued visual prominence of the Roasting Tower and the expansive private open space around the proposed residential blocks. The design responds to these notions, by ensuring that no structure is higher or would compete with the prominence of the Roasting Tower and that the residential blocks have been articulated into lower forms and various configurations in order to break up and minimise the bulk on the site. By doing this, the efficacy of these notions will be upheld.

In this manner, Heritage 21 is confident that the proposal would support the industrial landscaped setting of the site albeit that new building forms will have been introduced into that setting.

4. Adaptive Reuse

The Roasting Tower is proposed to be adaptively reused to accommodate residential, commercial and community uses. AJ+C has prepared drawings which indicate how the existing structure of the Roasting Tower could be adaptively reused without altering the exterior or interior spaces except where the upper floors are to be converted into residential apartments.

As we understand it, all the prominent structural elements, i.e. beams and columns, that frame the spaces, will be conserved. From Level 3, the Roasting Tower will be converted into six levels (including penthouse) of residential use.

In terms of the other uses to which the existing structures will be put, there will be a retail food hall on the ground floor, community workshops and studios on the first floor and an indoor pool, with residential and communal facilities that will maintain the three storey internal height of the Roasting Hall itself. Importantly, all of the original structural elements (beams, columns and large internal open area) will be maintained. In this manner, AJ+C have appropriately employed adaptive reuse principles which allow all of the building's structure and form to be maintained without having to remove, alter or demolish a significant amount of original fabric.

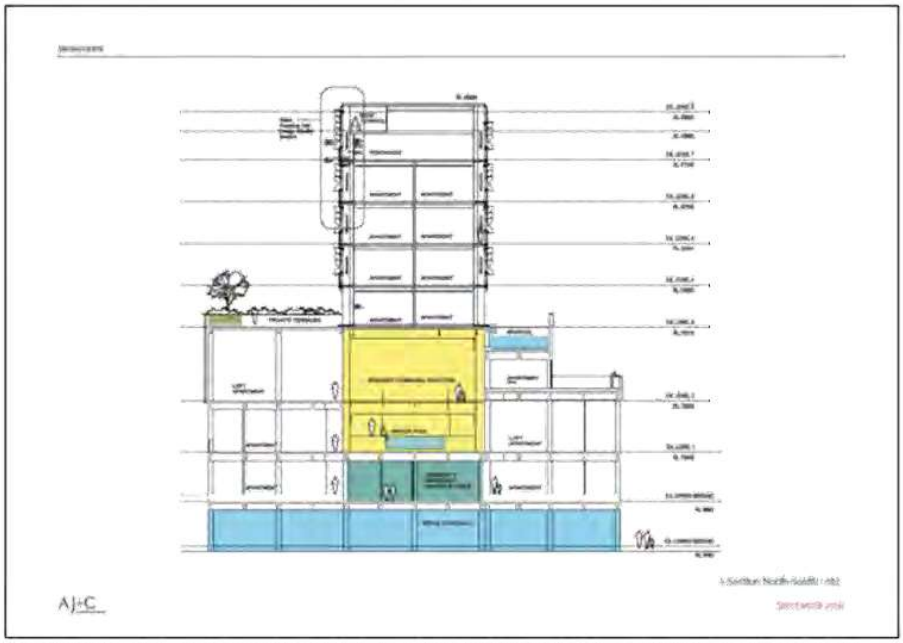

Figure 3. Proposed Section North-South (AJ+C, dated September 2019). This section illustrates that all of the existing roasting tower and hall will be conserved.

It is noted that AJ+C has intelligently maintained the prominent glazed elements on the northern and southern facades of the tower. A winter garden has been designed in order to not rely directly on the glazed curtain wall for light and air. The winter garden establishes a secondary line of glazing specific to the required residential use, while still allowing the glazed curtain wall to be maintained as an element. For reasons of BCA and NCC requirements, the existing glass and aluminium framing cannot be retained. Nonetheless, as shown in the AJ+C drawings dated September 2019, a contemporary style of curtainwall glazing with all

necessary elements to control solar access, heat build-up and ventilation, has been introduced. This allows the aesthetic components of the original tower to be maintained while at the same time introducing a highly refined, contemporary curtain wall system, not dissimilar to that which already exists, insofar, as to the views to the tower from the foreshore are concerned. When viewed from a distance, the contemporary curtain wall, in our opinion, would read closely to that which already exists. From this point of view, we find that, the principles of adaptive reuse for the design has been intelligently and appropriately employed.

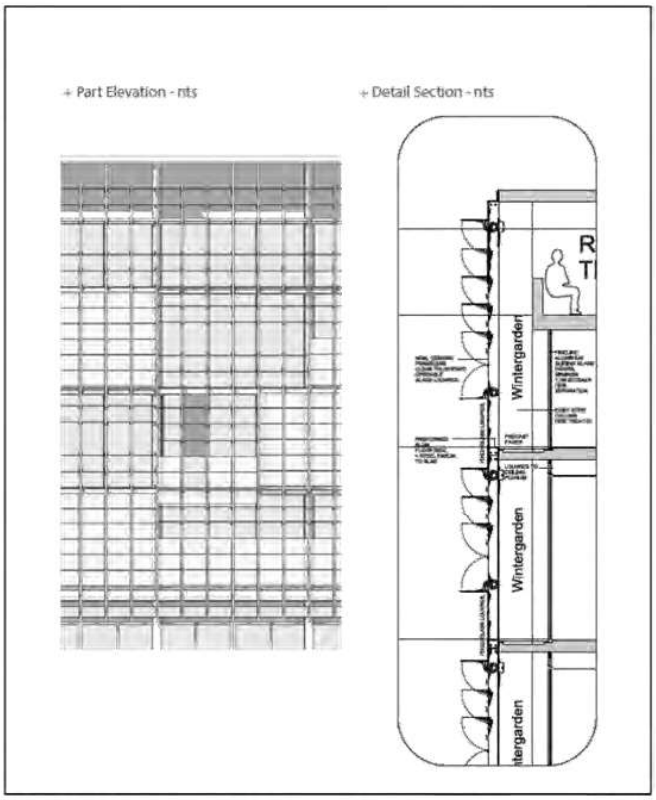

Figure 4. Proposed Curtain Wall Detail (AJ+C, dated September 2019). Note the curtain wall entity on the northern and the southern facades of the roasting tower are to be kept, but as a new BCA compliant glazed system for the upper residential levels.

5. Factory in a Garden Setting

As discussed above, it is our opinion that the factory building will be maintained and its structure will be conserved. All proposed uses will, in our opinion, have a minimal impact in terms of the existing fabric. At the same time, the curtain wall glazing which must be replaced

for BCA and NCC reasons, will have a contemporary adaptable curtain wall glazing system that is capable of meeting NCC requirements.

The introduction of a winter garden system would minimise the impacts to the glazed components of the tower via a method of introducing a secondary glazing that is able to deal with the specific requirements of the residential facilities without impacting the curtain wall itself. Further, the proposed residential blocks have been broken up into smaller forms which constitutes a design principle applied in order to reduce the bulk and scale on the site.

By converting the factory building into retail, commercial and community uses, with appropriate interpretation, the public will begin to have greater access to the building than that which currently exists. Large areas of private open space will also be provided. Consequently, the factory building will become a public facility rather than its current inaccessible and limited use.

6. Conclusion

In light of the issues raised above, it is the opinion of Heritage 21 that the current proposal would achieve a positive heritage outcome mainly due to the employment of an intelligent adaptive reuse strategy and the articulation and diminution of the proposed built forms which cluster around the prominent Roasting Tower. Simultaneously, the proposal would maintain a large private open space similar to the original historic industrial landscape setting of the Bushell's Factory.

Yours sincerely,

Paul Rappoport – Heritage Architect

Director

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STATEMENT OF HERITAGE IMPACT

Bushells Factory Redevelopment

160 Burwood Road,

CONCORD

Job No. 8364
September 2019

Heritage 21
CULTURAL BUILT HERITAGE IN THE 21ST CENTURY

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Heritage Impact Statements	Conservation Management Plans	On-site Conservation Architects
Photographic Archival Recordings	Interpretation Strategies	Expert Heritage Advice
Fabric Analyses	Heritage Approvals & Reports	Schedules of Conservation Work

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Cover page: Eastern façade of the factory located at 160 Burwood Road, Concord. (Source: Heritage 21, 09 March 2016)

The following table forms part of the quality management control undertaken by Heritage 21 regarding the monitoring of its intellectual property as issued.

Issue	Description	Date	Initials
1	Draft report (D1) issued for comment.	07.06.17	K.B
2	Report Issued (RI) for Planning Proposal.	13.06.17	K.B
3	Draft report (D1) issued for comment.	22.06.18	L.S
4	Report issued (RI).	30.07.18	L.S.
5	Draft report (D2) for Job 8364 issued for comment.	31.01.19	L.S.
6	Report issued (RI) for Job 8364.	06.02.19	L.S.
7	Report Issued (RI2) for Job 8364	100919	MN

1.0 INTRODUCTION

1.1 Background

Heritage 21 was appointed by Colliers International Project Management (formerly NixAnderson), in February 2016, to provide Heritage and Archaeological Consultancy services in relation to the redevelopment of the former Bushells Factory located at 160 Burwood Road, Concord ('subject site').

In November 2017, the City of Canada Bay Council reviewed the planning proposal for the site, raising their concerns and outlining their recommendations for the future redevelopment of the site. The updates made to the proposal have taken these recommendations into consideration and Colliers International has engaged Heritage 21 to update this Statement of Heritage Impact ('SOHI' or 'report') to reflect the changes made to the proposal and to assess the heritage impact of the proposed development.

1.2 Site Identification

The subject site is located at 160 Burwood Road, Concord, which falls within the boundaries of the Canada Bay Local Government Area ('LGA'). The site is approximately 3.9 hectares and is comprised of the following lots:

- Lot 2, DP 230294;
- Lot 398, DP 752023;
- Lot 399, DP 752023; and
- Lot 5, DP 129325.

The location of the site within the Concord local area and a current aerial photograph of the site are presented in Figures 1 and Figure 2.

Figure 1. Map showing the location of the site 160 Burwood Road within the Concord local area, as indicated by the red flag and yellow shading. (Source: NSW Land and Property Information, 'SIX Maps', n.d., http://maps.six.nsw.gov.au/).

Figure 2. Current aerial photograph of the site, outlined in red. (Source: NSW Land and Property Information, 'SIX Maps', n.d., http://maps.six.nsw.gov.au/)

Figure 3. Plan of the existing site, the Former Bushells Factory Building core is outlined in black. (Source: Colliers International)

1.3 Heritage Context

1.3.1 Heritage Listings

The subject site is **not** listed as an item of environmental heritage in the *Canada Bay Local Environmental Plan 2013* (CLEP) nor is it located within the boundaries of a heritage conservation area.

The subject site is also **not** listed in the NSW State Heritage Register, the National Heritage List, the Commonwealth Heritage List or the Register of the National Trust of Australia (NSW).

A Heritage Listing Nomination Report was prepared by Heritage 21 in January 2019 that will be submitted to the City of Canada Bay Council, for the proposed inclusion of the subject building as an item of environmental heritage in the Canada Bay Local Environmental Plan 2013. As the Former Bushells Factory Building is not presently listed as an item of environmental heritage, this report does not treat the subject site as a heritage item. However, an assessment of the cultural significance of the subject site is undertaken in Section 3.0.

1.3.2 Heritage Items in the Vicinity

The subject site is adjacent to or within the vicinity of the following items of environmental heritage as listed in the CLEP 2013:

Name	Address	Significance	Number
Massey Park Golf Course grounds and Sanders Reserve	1 Ian Parade (also known as 1C and 1P Ian Parade)	Local	I259
Street trees	Burwood Road (between Crane Street and Duke Avenue)	Local	I56
Bayview Park	166P Burwood Road	Local	I54

The site's proximity to these heritage items are shown in Figure 4 below.

Figure 4. Heritage map HER_004 showing the location of subject site outlined in red and the heritage items located in the vicinity are brown. (Source: City of Canada Bay council, 'Canada Bay Local Environmental Plan,' 2013, https://www.legislation.nsw.gov.au/#/view/EPI/2013/389/maps)

1.4 Purpose

The subject site is located within the vicinity of several heritage items as listed under Schedule 5 of the CLEP 2013. Sections 5.10(4) and 5.10(5) of the CLEP 2013 require Council to assess the potential heritage impact of non-exempt development such as the proposed (refer to Section 4.0) onto the cultural significance of heritage items that are located within the vicinity. This report has been prepared on behalf of the owner of the subject site to enable Canada Bay Council to ascertain whether or not the proposal would have a negative, neutral or positive impact upon the significance of these heritage items.

1.5 Methodology

The methodology used in this SOHI is consistent with *Statements of Heritage Impact* (1996) and *Assessing Heritage Significance* (2001) published by the Heritage Division of the NSW Office of Environment and Heritage and has been prepared in accordance with the principles contained in the most recent edition of *The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance* 2013 ('Burra Charter').

1.6 Authors

This SOHI has been prepared by Paul Rappoport and Kaylie Beasley, of Heritage 21, Heritage Consultants. Further updates to the report have been made by Lauren Schutz, Heritage Consultant of Heritage 21, overseen by Paul Rappoport.

1.7 Limitations

- This SOHI is based upon an assessment of the heritage issues only and does not purport to have reviewed or in any way endorsed decisions or proposals of a planning or compliance nature. It is assumed that compliance with non-heritage aspects of Council's planning instruments, the BCA and any issues related to services, contamination, structural integrity, legal matters or any other non-heritage matter is assessed by others.
- This report relies on both primary and secondary sources; however, archival research has been limited to that which could be accessed within the timeframe allowed in order to complete this report.
- It is beyond the scope of this report to address Indigenous associations with the subject site or to locate or assess potential or known archaeological sub-surface deposits on the subject site or elsewhere. Please refer to the *Aboriginal Heritage Due Diligence Assessment* (prepared by Heritage 21, June 2017) for a discussion on the Indigenous associations with the subject site.
- It is beyond the scope of this report to assess items of movable heritage.
- Heritage 21 has only assessed aspects of the subject site that were visually apparent and not blocked or closed or to which access was not given or was barred, obstructed or unsafe on the day of the arranged inspection.

1.8 Copyright

2.0 HISTORICAL RESEARCH

2.1 Local History

2.1.1 Pre-European History

The Canada Bay area was originally occupied by the Wangal clan whose name, it is believed was derived from the word 'wanne', meaning west.[1] According to the City of Canada Bay Historical Society, the earliest recorded contact between the Wangal clan and Europeans occurred on the 5 February 1788 when Captain John Hunter led an exploratory expedition along the Parramatta River. Lieutenant Bradley, RN recorded the following:

> *At daylight having a guard of marines proceeded to the upper part of the harbour again, passing several natives in the caves as we went up and on the shore near the place we left beads and some other things, who followed us along the rocks calling to us. We landed to cook our breakfast on the opposite shore to them. We made signs for them to come over and waved green boughs. Soon after seven of them came over in two canoes and landed near our boats. They left their spears in the canoes and came to us. We tied beads, etc., about them and left them our fire to dress mussels which they went about as soon as we put off.*[2]

A number of formally recorded Aboriginal places have been identified within the City of Canada Bay, with the majority located in the vicinity of the river foreshores.[3]

2.2.2 European Settlement and Beyond

The following historical information has been extracted from Section 8 of the *Canada Bay Local Planning Strategy 2010*:

> *After Parramatta was established as an agricultural district, a rough track between Sydney and Parramatta was created to supplement the use of the river as the main transport link between the two towns. This track, created in 1791, marked the beginning of Parramatta Road. Longbottom Stockade was established at the midpoint of the road as an overnight detention point for the gangs of convicts. This stockade was later to develop into the suburb of Concord. Between 1840 and 1842 it held 58 Canadian exiles after whom the suburb of Canada Bay is named.*
>
> *Meanwhile, land grants close to the bays and headlands of Parramatta River were being given to settlers such as Surgeon John Harris (Five Dock), Isaac Nichols (Yaralla), Thomas Bishop (between Majors Bay and Kendall Bay).*

[1] City of Canada Bay Heritage Society, 'Aborigines: Original Occupants of the Area', 2016, http://www.concordheritage.asn.au/concord-history/aborigines accessed 16 March 2016.
[2] Ibid. accessed 16 March 2016.
[3] Gregory Blaxell, *A Pictorial History of City of Canada Bay* (Alexandria: Kingsclear Books, 2010), 3.

Transport continued to focus on Parramatta River and Parramatta Road for some time. In 1829 the construction of [the] Great North Road through the present day Five Dock, Wareemba and Abbotsford was complete. This was a highly significant infrastructure project, providing a land route from Sydney to the Hunter Valley. The road relied on a punt to cross Parramatta River between Abbotsford Point and Kissing Point.

Through most of the nineteenth century, the settlement pattern in the area was a mix of large estates, small holdings and small villages. Towards the end of the nineteenth century, the establishment of industries such as the Australian Gas Light Company at Mortlake and the Dunlop Tyre Factory at Birkenhead Point (Drummoyne) led to increases in the growth of the nearby villages. Access to the river also prompted the re-development of some of the larger waterfront estates for industries such as Phoenix Iron Works. The only nineteenth century estate to remain from this period without substantial redevelopment is the Yaralla Estate of Thomas Walker.

The development of public transport routes including trams along Victoria Road, Great North Road, to Cabarita and Mortlake and the construction of the northern train line through North Strathfield and Rhodes also helped to foster industrial growth. Arnott's Biscuits established a factory at North Strathfield because of its access to the new rail line.

Much of the residential development of the Council area occurred in the late nineteenth century through to the Inter-War period. Many of the development[s] relied on access to transport as well as proximity to industrial places for employment. The influence of the garden suburb movement ensured proximity to parkland and the planting of street trees that continue to add to the amenity of the area.

The late twentieth century has seen the most dramatic change to the Council area with the rehabilitation and redevelopment of many of the large industrial sites. Most of these have been replaced with medium density residential and commercial developments that enjoy the proximity of the sites to Parramatta River.[4]

2.2 Site History

2.2.1 Development of the Site

Natural Environment

The subject site is located on the shores of Exile Bay, one of the many bays located along the Parramatta River. Prior to European settlement it has been recorded that the natural vegetation of

[4] City of Canada Bay Council, 'Canada Bay Local Planning Strategy 2010', 2010, 175–176, http://www.canadabay.nsw.gov.au/future-planning-local-planning-strategy.html.

the site largely consisted of a mixture of Eucalypt woodland in the inland areas with mangroves distributed along the shoreline waters (see Figure 5).[5]

Figure 5. Detail from map showing the distribution of original natural vegetation within the Concord area including the subject site (indicated).[6]

European Settlement

It is evident from a Parish map, dated from approximately the late 1800s, that the subject site formed part of the Longbottom Stockade land area (see Figure 6). The Longbottom Stockade, as described in Section 0, was originally established to detain convicts transported west to Parramatta as it was located approximately midway between Sydney city and Parramatta. It later became the detention centre for several Canadian exiles that had been transported to Australia. [7]

By 1915, the subject site and surrounding land had been subdivided with the existing street alignments generally evident in parish maps from this period (see Figure 7). It appears that the site consisted of three different lots with each under the ownership of separate individuals who included Mick O'Toole, Esther Lewis and Thomas Hunter. The foreshore area, which currently forms part of

[5] *Concord Heritage Study: Thematic History* (Perumal, Wrathall & Murphy Pty. Ltd., 1986).
[6] Ibid.
[7] City of Canada Bay Council, 'Canada Bay Local Planning Strategy 2010', 175–176.

the site, is not included within any of these three allotments, it appears to be designated separately and only identified by a number. It is evident that the existing Burwood Road was known as Wharf Road during this period (see Figure 7). It is unclear when the name was changed, however, a historical map of the area dated c. 1934 uses the existing name of Burwood Road, so it can be surmised that the change occurred sometime within the 1915 – 1934 period (see Figure 8).

Figure 6. Detail from Concord Parish map (c.1800s) with the approximate location of the subject site indicated.[8]

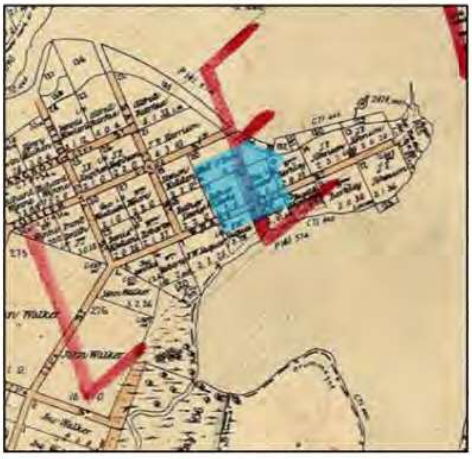


Figure 7. Detail from parish map (c. 1915) with the approximate location of the subject site indicated in blue.[9]

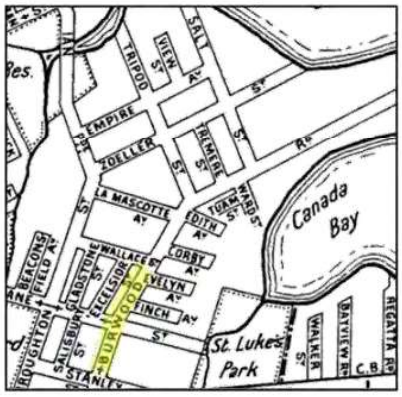


Figure 8. Detail from Gregory's Sydney Directory c.1934 using existing name of Burwood Road.[10]

Reclamation of Foreshore Areas

Beginning in the 1920s, the local Council began to undertake a series of reclamation projects in the Hen and Chicken Bay area, including in the vicinity of the subject site at Exile Bay (see Figure 9). The

[8] NSW Land and Property Information, 'Historical Land Records Viewer', n.d., n. ed 0, sheet 3, http://images.maps.nsw.gov.au/pixel.htm accessed 8 March 2016.
[9] Ibid., n. ed. 0, sheet 1 accessed 8 March 2016.
[10] 'Gregory's Sydney Directory Section 40' (Concord, 1934), http://voommaps.com/historical-maps/1934-gregorys-sydney-street-directory/.

aim of these projects was to turn the swampy foreshore areas into developable spaces.[11] The existing nature of the foreshore areas including Massey Park Golf course[12] and Bayview Park[13] are the result of reclamation projects. According to research, 48 acres of swampland was reclaimed for the Massey Park Golf course and this took 12 years to "*fill the hungry swamp with fill from the municipality*".[14] A three metre concrete sea wall, which currently separates the site from Exile Bay, also appears to have been constructed as part of the reclamation works, however, historical photographs of the subject site indicate that it was constructed during reclamation works carried out post-1943 (see Figure 10).

Figure 9. Reclamation works at Exile Bay, c.1930.[15]

Pre-Construction of Factory

It is apparent from 1943 aerials of the subject site that construction on the site had occurred by this period. A timber mill and wharf were located in the northern section of the site with the remaining area largely undeveloped aside from some minor constructions such as access roads to these built structures.[16] Surrounding the site, industrial development was evident towards the east and residential development was located south of Burwood Road. The area to the west of the site, which is currently occupied by residential development, was undeveloped during this period (see Figure 10).

[11] *Concord Heritage Study: Thematic History*, 5–6.
[12] Ibid.
[13] NSW Office of Environment and Heritage, 'Bayview Park', *State Heritage Inventory*, accessed 17 March 2016, http://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=2890319.
[14] NSW Office of Environment and Heritage, 'Massey Park Golf Course and Sanders Reserve', accessed 16 March 2016, http://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=2890346.
[15] City of Canada Bay Council, 'Canada Bay Image Library', accessed 16 March 2016, http://imagelibrary.canadabay.nsw.gov.au/Library/#1458173124818_0.
[16] Gregory Blaxell, *A Pictorial History of City of Canada Bay*, 110.

Figure 10. Detail from 1943 aerial imagery of the subject site. [17]

Construction of Existing Factory

The subject site was purchased by the company Bushells Pty Ltd during the mid-1950s for a reputed sum of 85,000 pounds.[18] The purpose-built factory which currently occupies the site was constructed in two stages (see Figure 11 to Figure 13). The first stage occurred in c.1957-58 and the second stage, which saw the assembly of the chimney stack, occurred during the 1970s.[19] It is not known definitively but historical research suggests that the architects responsible for the initial 1950s factory design were Brewster Murray Architects.[20]

Property cards of the various development and building approvals in relation to the former Bushells factory, which were provided to Heritage 21 on the 23 March 2016 by the City of Canada Bay Council, indicate that regular additions and alterations have occurred at the subject site between its construction in the 1950s and the 1990s. In addition to the chimney or metal exhaust stack, various internal additions, installation of new equipment, including a storage silo for spent coffee, and alterations to the site landscaping are suggested. The property cards also indicate that the detached office building, which is currently located east of the factory building, was constructed during the late 1980s period. Since the 1980s, only minor additions and repairs appear to have been made at the site.

[17] NSW Land and Property Information, 'SIX Maps' accessed 8 March 2016.
[18] FreshFood, 'Bushells Coffee: Our Story', 2015, http://www.bushellscoffee.com.au/our-story/.
[19] City of Canada Bay Heritage Society, 'Concord's Industrial Development', 2016, http://www.environment.nsw.gov.au/heritageapp/heritagesearch.aspx accessed 16 March 2016.
[20] Tanner Architects, 'Former Bushells Building Conservation Management Plan' 2008, 17.

Figure 11. Bushells Factory, c. 1966, without chimney.[21]

Figure 12. Massey Park weir with Bushells Factory visible on right side, c.1967.[22]

Figure 13. Bushells Factory and surrounding development, c.1970.[23]

Prior to the construction of the subject site factory, Bushells was operating from a premises located in Harrington Street, The Rocks, and had been since 1924.[24] These premises continued to be used for operations until 1975 by which time all operations have been incrementally transferred to the subject site.[25] The printers were the first to be relocated to Concord, followed by packaging and lastly the office staff.[26] Reportedly, production commenced at the Concord site in 1958.[27]

The *Official Newsletter of the Concord Heritage Society* records the following about the Bushells factory in Concord:

> *Approximately 300 men and women were employed by the company at Concord. Their work consists mainly of the roasting and manufacture of ground and instant coffee, the production of coffee essence, and the blending and packing of tea and teabags.*[28]

Photographs dating from the 1970s show that extensive residential development to the west of the subject site had occurred prior to this period and industrial development was present east of the site (see Figure 13 and Figure 14).

[21] City of Canada Bay Council, 'Canada Bay Image Library'.
[22] Ibid.
[23] Ibid.
[24] Tanner Architects, 'Former Bushells Building Conservation Management Plan', 17.
[25] Ibid., 18.
[26] Ibid.
[27] FreshFood, 'Bushells Coffee: Our Story'.
[28] Official Newsletter of the Concord Heritage Historical Society, 'More Industries on Exile Bay Bushells Pty.Ltd.', *Nurungi Remembered*, June 2007, 133 edition.

Figure 14. Detail from c.1977 aerial photograph of the subject site (indicated).[29]

Figure 15. Interior of the factory located at the subject site, c. 1980.[30]

Bushells Pty Ltd was sold in 1978 to Brook Bond Leibig Ltd who made large investments in the coffee side of the business. According to research, a several pieces of machinery were acquired during the 1980s including a continuous roaster for instant coffee and an instant coffee agglomerator.[31] In the late 1980s, Brooke Bond Leibig Ltd was acquired by the company, Unilever. [32] Unilever went on to further improve and expand the coffee business which incorporated investment in research and the acquisition of other coffee companies including Robert Timms.[33] In April 1998, the coffee brands and business was purchased from Unilever by FreshFood Holdings Sydney Pty Ltd. The Bushells tea brands remained with Unilever.[34]

The subject site currently remains in the ownership of FreshFood Holdings Sydney Pty Ltd who continue to manufacture coffee at the site for distinguished coffee brands including The House of Robert Timms, Bushells Coffee, Picco, Europa and Café Bar.[35] Since the 1970s, the industrial development which formally adjoined the subject site has gradually declined and has been replaced by residential development.

[29] City of Canada Bay Council, 'Canada Bay Image Library'.
[30] Fresh Food, 'Our Story', 2015, http://www.roberttimms.com.au/our-story/.
[31] FreshFood, 'Bushells Coffee: Our Story'.
[32] Gregory Blaxell, *A Pictorial History of City of Canada Bay*, 110.
[33] Fresh Food, 'Our Story'.
[34] Gregory Blaxell, *A Pictorial History of City of Canada Bay*, 110.
[35] Fresh Food, 'Our Story'.

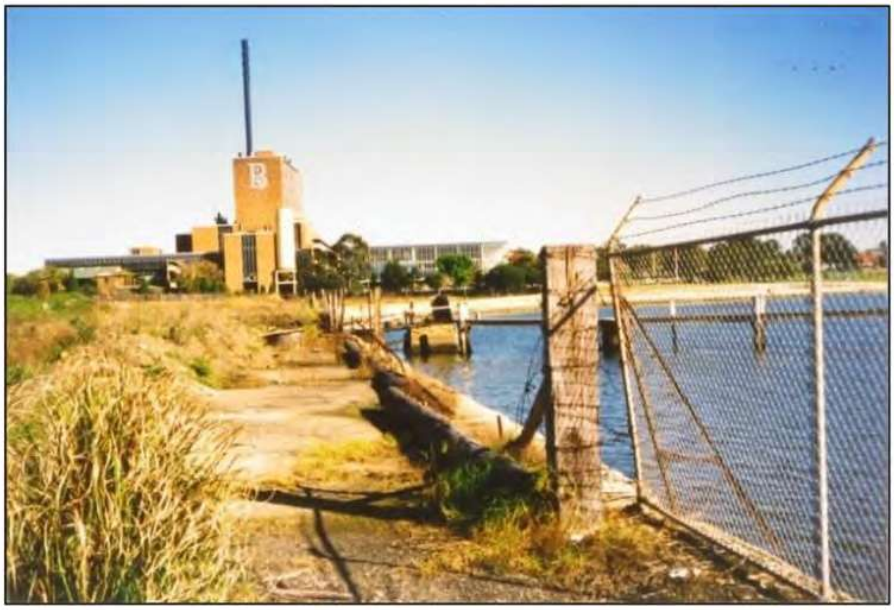


Figure 16. View looking west towards the subject site, c 1991.[36]

Figure 17. View towards the subject site from the eastern side of Hen and Chicken Bay, c. 1995.[37]

[36] City of Canada Bay Council, 'Canada Bay Image Library'.
[37] Ibid.

3.0 PHYSICAL DESCRIPTION

3.1 Locality and Setting

The subject site is located in the Inner West suburb of Concord, which is located approximately 12 kilometres west of the Sydney CBD.

The site is located in a predominately residential area with one and two storeys detached and semi-detached dwellings located along the western boundary and also to the south of Burwood Road, which demarcates the site's southern boundary. Similarly, medium density residential developments are located to the east and south east. The Massey Park Golf Course and Sanders Reserve (heritage item I259) adjoins the subject site to the north with Exile Bay marking the north-eastern boundary of the site.

3.2 Site Layout and Structures

3.2.1 Former Bushells Factory Building

A multi-storey brick and concrete factory with its imposing chimney stack is the main structure located on the subject site. The factory is orientated north-south and sited in the western portion of the site with a generous setback from all four site boundaries. The eastern and southern facades of the factory largely consist of brick and glazed areas with the northern and western facades incorporating large areas of precast concrete panels. The main façade of the factory, the eastern façade which contains a large B for Bushells in addition to a tea leaf and coffee bean, overlooks Exile Bay (see Figure 24). In addition to the Former Roasting Hall core tower (see Figure 3), the building also includes later additions that were constructed to incorporate warehouse areas and the new blending tower.

3.2.2 Administration Building

A two-storey administration building is located on the eastern side of the factory with a covered walkway joining the two structures. The administration building which was constructed in the late 1980s period is largely brick with timber features such as half-timbered gables and timber balconies which is reminiscent of an earlier architectural style (see Figure 26). A security booth/gatehouse and accompanying boom gates are located at the Burwood Street entrance into the site and a metal gas storage shed is also evident to the north of the factory.

Figure 18. Detail of site plan drawn by G.J.Svehla, 11.03.94 with major structures and approximate boundaries of major landscaped areas indicated.

3.3 Exterior

The remainder of the site comprises of a combination of open area bitumen car parks, concrete and bitumen driveways and landscaped areas. A memorial plaque, commemorating a previous supervisor of the factory, is situated at the base of a tree which is located in the north-eastern section of the site. The site legally extends to the Exile Bay foreshore area, however at present, a chain link fence separates the site from the foreshore area. This foreshore area is currently occupied by a public walking path and concrete sea wall.

3.4 Setting

The overall nature of the subject site, the large industrial building set amidst soft landscaping on the water's edge, creates a pleasing juxtaposition enabling a physically loud structure to sit quietly within its surrounding environment. It displays characteristics of the 'Factory Garden Movement' which was developed around the ideology that situating factories within pleasant landscaped spaces which employees could enjoy would not only improve the aesthetics of the factory but so to the health of the workforce which in turn would lead to increased profits.[38]

3.5 Views

Due to the scale of the factory , namely its chimney stack, the site has a high visibility from a number of vantage points in the local area (see Figure 19 to Figure 22)The factory's eastern façade is distinctive due to the 'B' signage that is located on the upper storeys of the factory wall (see Figure

[38] Helena Chance, '"Consulting the Genius of the Plant"' n.d., http://eprints.bucks.ac.uk/1424/1/Chance,%20Helena%20Consulting%20the%20genius%20of%20the%20plant.pdf.

24). The signage can be seen for some distance and contributes to the views of the factory, particularly from Hen and Chicken Bay and further east.

Due to the scale of the factory in comparison with the surrounding smaller scale development, views between the site and the neighbouring heritage items (I259, I54 and I56) are evident (see Figure 19 to Figure 22). These existing views are largely limited to the upper storeys of the factory and chimney stack. The adjacent Massey Park Golf Course grounds and Sanders Reserve (I259) is the only heritage item which is highly visible from within the subject site.

Figure 19. View of subject site from Hen and Chicken Bay, c. 2007.[39]

Figure 20. View towards the subject site from heritage item I54: Bayview Park (I54). (Heritage 21, 30.03.16)

Figure 21.View towards the subject site from heritage item I259: Massey Park Golf Course and Sanders Reserve, c.2015.[40]

Figure 22. View towards the subject site from heritage item I56: Street Trees. (Heritage 21, 30.03.16)

3.6 Interiors

Internally, the factory is divided into seven storeys. The lower storeys (lower ground floor – first floor) are divided into a series of large spaces which appear to be used for later stages of the manufacturing process such as packing, quality control and distribution. The storeys above contain the equipment required to undertake the initial manufacturing processes such as roasting and drying.

[39] City of Canada Bay Council, 'Canada Bay Image Library'.
[40] Ibid.

The fourth storey and above is one large vertical space in which plants involved in vertical production processes are located. A series of levels to access the plants from different heights are created by open steel mesh platforms. The space is naturally illuminated as glazing covers the entire span of the northern and southern walls of this space. This area is referred to as the translucent roasting hall.[41]

The interiors of the detached office building and the security booth/guardhouse were not inspected.

3.7 Condition

The subject site, specifically the purpose-built factory is still currently in operation for the manufacturing of coffee products. When Heritage 21 inspected the site on the 9 March 2016 the subject site appeared to be well maintained and generally in good condition. The factory itself did not present any obvious signs of poor condition aside from the expected deterioration related to its regular use.

3.8 Photographic Survey

The following photographs, taken by Heritage 21 on 09 March 2016, provide a visual survey of the site, its setting and notable fabric.

Figure 23. View of the covered walkway joining the eastern façade of the factory to the administration building.

Figure 24. View of the distinctive 'B' signage with tea leaf and coffee bean within the spaces of the letter.

[41] 'Design Report', 2015.

Figure 25. View towards the eastern boundary with the security booth/guardhouse on the right.

Figure 26. Eastern façade of administration building with half-timbered gables shown.

Figure 27. View south-west encompassing the northern facade of the administration building and a detail of the eastern façade of the factory.

Figure 28. View north-east encompassing a large lawn area and the foreshore boundary of the site.

Figure 29. View west encompassing a detail of the factory's eastern façade and open-air car park.

Figure 30. View north towards Massey Park Golf Course and Sanders Reserve (I259).

Figure 31. Detail of northern façade of factory with precast concrete panels.

Figure 32. Western façade of the factory with landscaped area located along the western boundary evident on the right.

Figure 33. Memorial plaque located at tree base in the north-eastern section of the site.

Figure 34. Detail of the southern façade of factory and landscaping along southern boundary is evident on the left.

Figure 35. Detail of space located on the lower ground floor.

Figure 36. Detail of space located on the second floor.

Figure 37. Roof space located on second floor.

Figure 38. Detail of space located on the third floor.

Figure 39. View looking down of the roasting hall from fifth floor platform.

Figure 40. View looking down of the roasting hall from fifth floor platform.

Figure 41. View of clerestory aluminium glazing as viewed from the second-floor roof space.

Figure 42. Curved steel handrails located in stairwell lo:ated between floor five and floor three.

4.0 HERITAGE SIGNIFICANCE

4.1 Heritage items in the Vicinity

In order to make an assessment of whether or not the proposed development at the subject site would have either a negative, neutral or positive impact upon the significance of the heritage items which are located within the vicinity of the subject site, it is necessary to first ascertain the significance of these pertinent heritage assets.

The following Statements of Cultural Significance for the relevant heritage listed items have been extracted in full from the relevant site cards provided on the NSW State Heritage Inventory.

Table 1: STATEMENTS OF CULTURAL SIGNIFICANCE FOR RELEVANT HERITAGE ITEMS

Heritage Item	Address	Heritage Number	Statement of Cultural Significance
Massey Golf Course and Sanders Reserve	1 Ian Parade (also known as 1C and 1P Ian Parade)	I259	*Park originating from drainage and filling works from 1930s Depression period. Displays planting character from the Post-war period, dating from after the layout of the golf course fairways and roughs in 1953, to recent periods, reflecting a shift in community values and increasing environmental awareness after the 1970s and 80s period. Visually significant from the bay.*[42]
Bayview Park	Burwood Road (between Crane Street and Duke Avenue)	I56	*Foreshore park in prominent location conserving mangroves and notable for monument to the Canadian exiles who were discharged at this point in 1840 and held at the nearby Longbottom Stockade. Replanting from c.1980 forms an important focal point in the riverscape.*[43]
Street Trees	166P Burwood Road	I54	*Characteristic street trees from c.1940. Notable as streetscape element.*[44]

[42] NSW Office of Environment and Heritage, 'Massey Park Golf Course and Sanders Reserve'.
[43] NSW Office of Environment and Heritage, 'Bayview Park'.
[44] NSW Office of Environment and Heritage, 'Street Trees', n.d., http://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=2890321.

4.2 Subject Site

In assessing the appropriateness of nominating the site for heritage listing, it is crucial to understand the cultural heritage value of a place. This understanding of significance then informs and guides decision-making so as to retain values into the future. The assessment to ascertain the significance of a place is carried out below, based upon criteria specified by NSW OEH.

Criterion	Assessment
A. Historical Significance An item is important in the course, or pattern, of NSW's or the local area's cultural or natural history (state/local significance).	The subject site is associated with the historical development of the Concord area, emerging from a convict detention settlement into a heavily industrialised area. Developing during the second phase of industrialisation of Concord, the subject site was continuously used for the production of coffee and tea for over 60 years. The reduced operations at the subject site reflects the overall reduction of industrial operations within the surrounding area, and the redevelopment of Concord into a residential area. The development of the subject site is also closely associated with the broader development of the "Factory Garden Movement." Encouraging the establishment of landscaped gardens to both improve the aesthetic of the subject site, alongside promoting the health of employees, the evolution of the subject site reflects the concepts associated with the movement. Accordingly, the subject site demonstrates historical significance at a local level due to its association with the development of Concord and the Factory Garden Movement.
B. Associative Significance An item has strong or special association with the life or works of a person, or group of persons, of importance in NSW's or the local area's cultural or natural history (state/local significance).	The subject site was acquired in the 1950s by the Bushells Company. The Bushells brand has manufactured in Sydney for over 90 years and is part of the collective public consciousness as an iconic Australian brand. The subject site is also associated with coffee entrepreneur Robert Timms Junior who during the 1970s owned the largest privately-owned tea and coffee company in Australia. Accordingly, due to the connection between the subject site and the Bushells and Robert Timms companies, the subject site attains the requisite standards of associational significance at the local level.
C. Aesthetic Significance An item is important in demonstrating aesthetic characteristics and/or high degree of creative or technical achievement in NSW or the local area (state/local significance).	The scale of the factory is significantly greater compared to the surrounding development and therefore, is a recognisable landmark in the local area due to its high visibility. Its distinctive chimney stack and 'B' signage also contribute to its landmark qualities. The factory also demonstrates characteristics specific to multi-storey industrial buildings. These include the large glazed northern and southern walls of the roasting hall which utilises clerestory aluminium framed glazing.

Criterion	Assessment
	The overall nature of the subject site with the large industrial building set amidst soft landscaping on the water's edge, creates a pleasing juxtaposition enabling a physically loud structure to sit quietly within its surrounding environment. As a landmark, the former Bushells Factory building attains the requisite standard of aesthetic significance at a local level. While the subject site has undergone significant modification since construction, particularly through the construction of additional buildings and additions to the existing, the aesthetic significance of the subject site can be attributed to the factory building, notably the tower, and the landscaped setting.
D. Social Significance An item has a strong or special association with a particular community or cultural group in NSW or the local area for social, cultural or spiritual reasons (state/local significance).	Throughout the operational history of the subject site a large contingent of people would have been employed. As such, the site would be important for its special association with the local community as well as for engendering that sense of place within the wider Sydney community. A plaque commemorating the employment of a supervisor was observed at the subject site which suggests that there was a great deal of respect between employer and employees. The factory with its 'B' signage would have and continues to be widely known within the local Concord area. Additionally, the subject site incorporates key characteristics of the 'Factory Garden Movement' which was developed around the ideology that by situating factories within pleasant landscaped spaces which employees could enjoy, not only would the spaces enhance the aesthetics of the factory but also the health of employees. This awareness of the wellbeing of employees would have enhanced the sense of identity and belonging for employees, their families and the wider community. Accordingly, the subject site attains the requisite standards of social significance at a local level.
E. Technical/Research Significance An item has potential to yield information that will contribute to an understanding of NSW's or the local area's cultural or natural history (state/local significance).	The brick and concrete factory building is important for its ability to demonstrate technical aspects with regard to multi-storey industrial building construction. In particular, the large glazed northern and southern walls of the roasting hall which utilises clerestory aluminium framed glazing. However, the building has undergone significant modification, particularly through the replacement of the machinery and the construction of later additions. The later addition buildings were constructed in materials and with techniques still commonly used today and do not offer the potential to further our understanding of technical knowledge.

Criterion	Assessment
	Although the subject site does not offer the potential to yield further technical or research information as a whole, the Former Bushells factory building demonstrates technical significance at a local level.
F. Rarity An item possesses uncommon, rare or endangered aspects of NSW's or the local area's cultural or natural history (state/local significance).	The subject site is a rare extant example of an industrial site operating during the twentieth century in the Concord local area. Other industrial sites which were operating in the Concord area during the twentieth century, such as the Farleigh, Nettheim & Company Tannery and the Austral Bronze Factory, have since their closure, been demolished and undergone redevelopment to serve other non-industrial purposes. It is also apparent that the subject site is rare in that the whole manufacturing process is confined to one large building rather than separated between numerous smaller buildings. As such, the significance of the manufacturing process is attributed to the one building, particularly as the other buildings were constructed during later periods and are largely considered to be intrusive. Accordingly, the factory building demonstrates rarity at a local level, as a single building that has been continuously used as a factory since construction and demonstrates landmark qualities.
G. Representativeness An item is important in demonstrating the principal characteristics of a class of NSW's or the local area's cultural or natural places or cultural or natural environments (state/local significance).	The brick and concrete factory is an intact example of a purpose-built factory displaying key characteristics of multi-storey industrial building construction. The subject site also exhibits characteristics of the 'Factory Garden Movement' on a modest scale. Accordingly, the factory building and the landscaping setting demonstrates representativeness at the local level.

4.3 Statement of Cultural Significance

The Former Bushells Factory building located at 160 Burwood Road, Concord demonstrates aesthetic, historical, associative, social, technical and research significance at a local level, also displaying rare and representative qualities. As a landmark within the surrounding area, the Former Factory Building can be viewed throughout Concord, particularly due to the largely low-scale residential development that has emerged in the surrounding area. Although the building has undergone significant modification, including the removal of original machinery, significant features such as the chimney stack, 'B' façade and the aluminium clerestory window frames have been retained and are not only socially significant but also offer the potential to further our technical knowledge.

In addition to the significance attributed to the factory building, and in particular the chimney stack, the landscaped setting is also a significant part of the historical, social and representative qualities associated with the development of the subject site. Associated with the 'Factory Garden

Movement' ideology, the site developed as a space to promote the health of employees and the aesthetic qualities of the subject site.

Although the subject site does have an association with Bushells and Robert Timms Junior, the significance of the subject site derives from the landmark qualities and production of coffee and tea within the factory building, including the chimney stack with the 'B' façade and the landscaped setting. This is due to both its aesthetic qualities and the association with the "Factory Garden Movement" and promoting the health of employees.

5.0 IDENTIFICATION & ASSESSMENT OF IMPACT

5.1 Proposed Works

The Proposed Masterplan includes the following proposed works:

- The Former Bushells Factory Building would be retained;
- Numerous buildings are to be constructed on the site including three 6-storey buildings, five 5-storey buildings, one 4-storey buildings, six 3-storey buildings, a single 2-storey building, and a single 9-storey building;
- The proposed buildings would be constructed to ensure that the buildings located along Burwood Road would match the existing scale located along the street;
- The proposed buildings to be constructed closer to the waterfront would also be lower with the higher buildings to be constructed within the centre of the redevelopment to minimise the impact of the proposed development on the public views to the subject site and the heritage items in the vicinity;
- The significant landscape boundaries would be retained;
- A public park would be created on the foreshore;
- The proposed buildings would be used for a mixture of residential and recreational uses, including the existing factory building which would be adaptively reused for residential, retail and sporting facilities; and
- A new public street network would be created in addition to the existing grid.

5.2 Drawings

Specific details of the proposed development are shown in plans prepared by BVN Architects Issue F, dated 06 September 2019, received by Heritage 21 on 10 September 2019. These are partly reproduced below at small scale for reference purposes; the full-size drawings accompanying the application should be referred to for any details.

Figure 43. Roof Plan, 002.

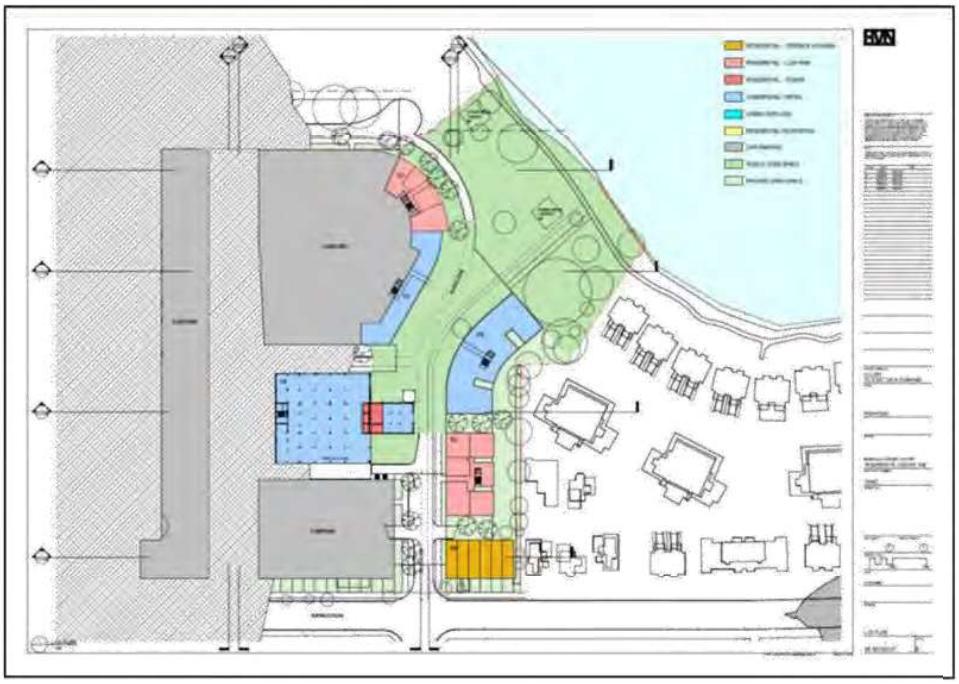


Figure 44. Level 01 Plan, 003.

Figure 45. L-01 Plan, 004.

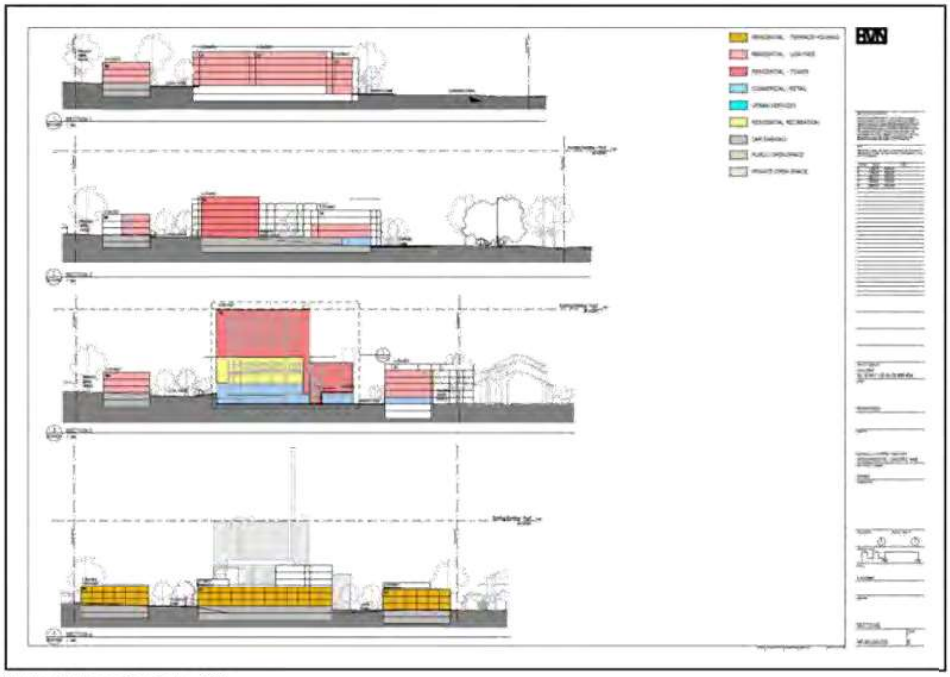


Figure 46. Long Sections, 005.

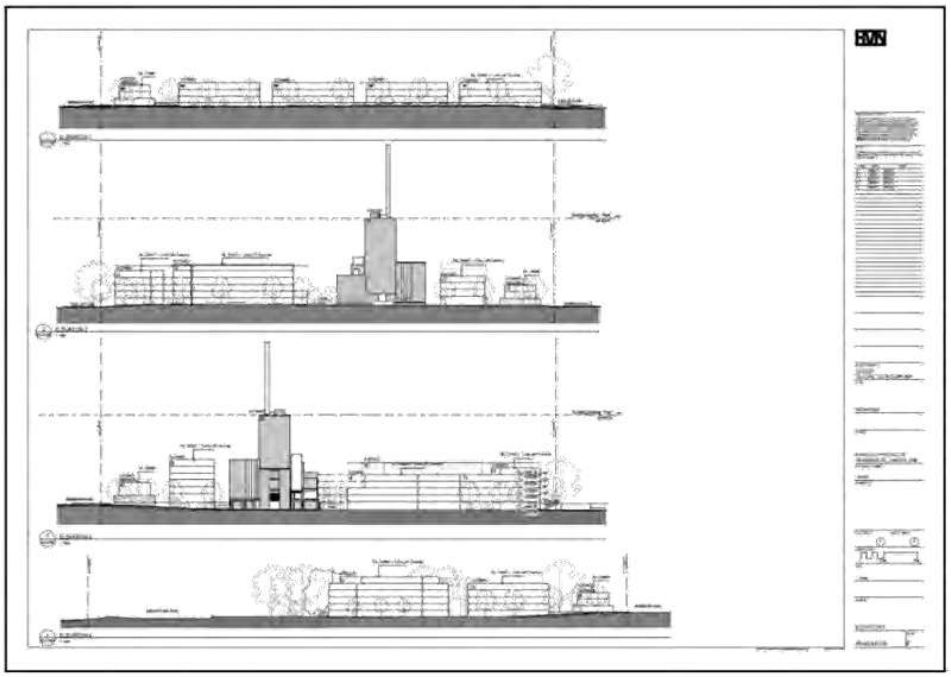


Figure 47. Elevations, 006.

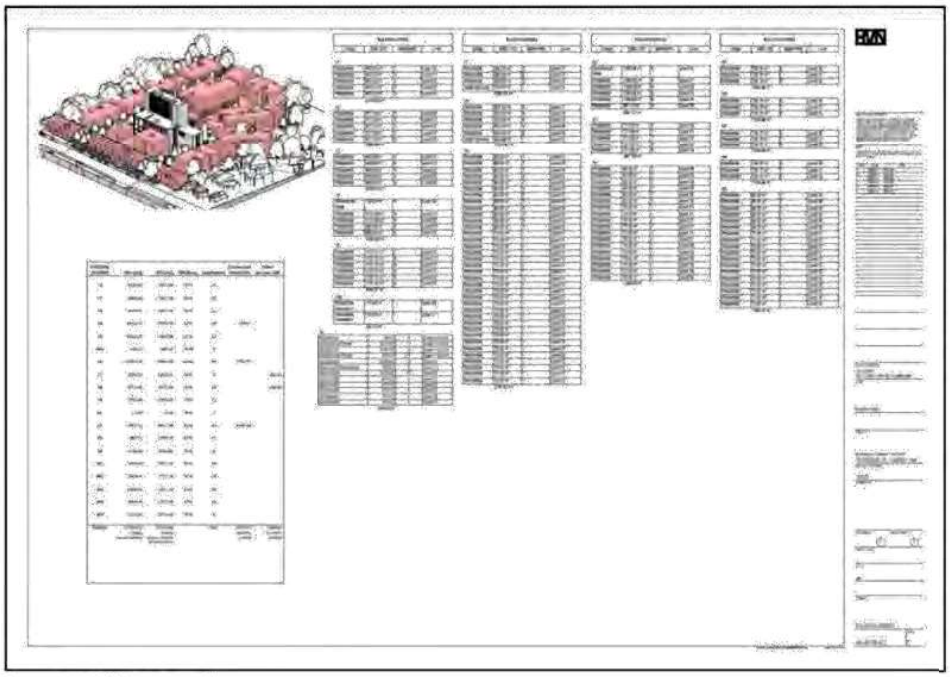


Figure 48. Building Mass, 001.

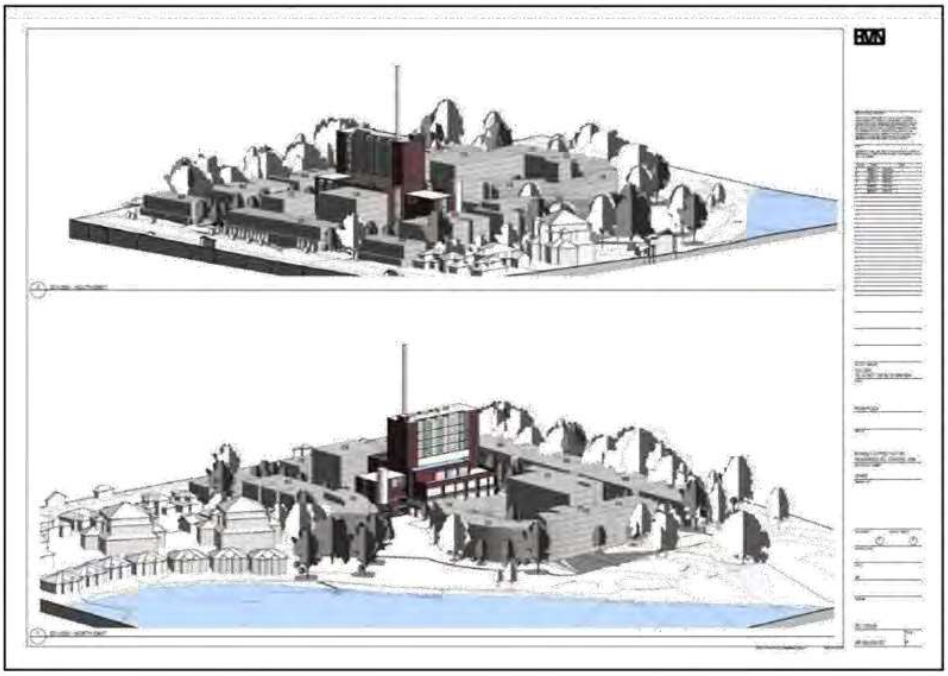


Figure 49. 3D Views, 007.

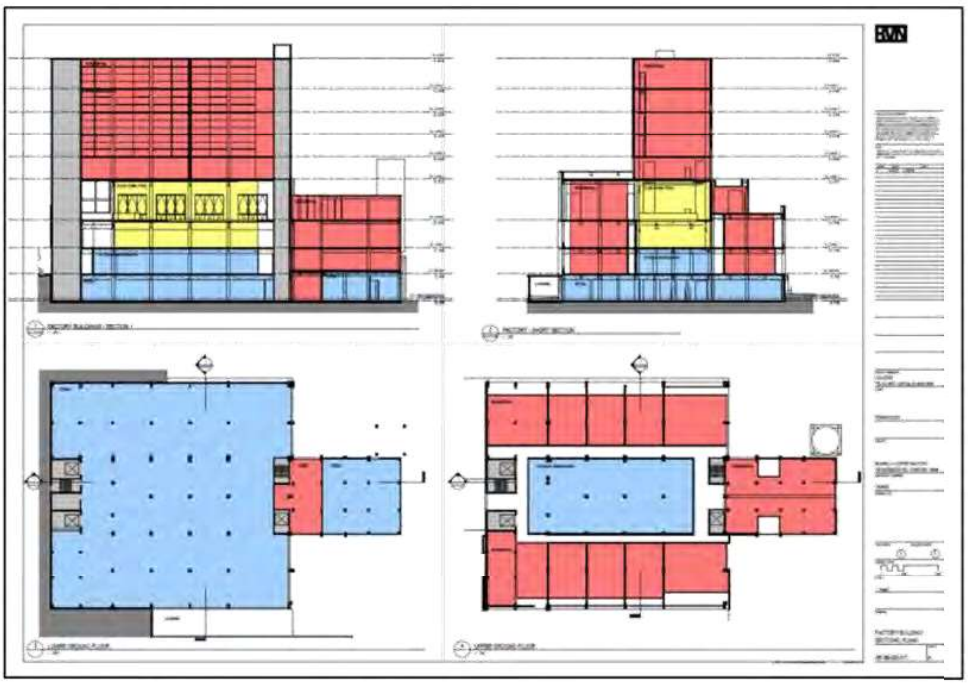


Figure 50. Factory Building – Sections, Plans, 011.

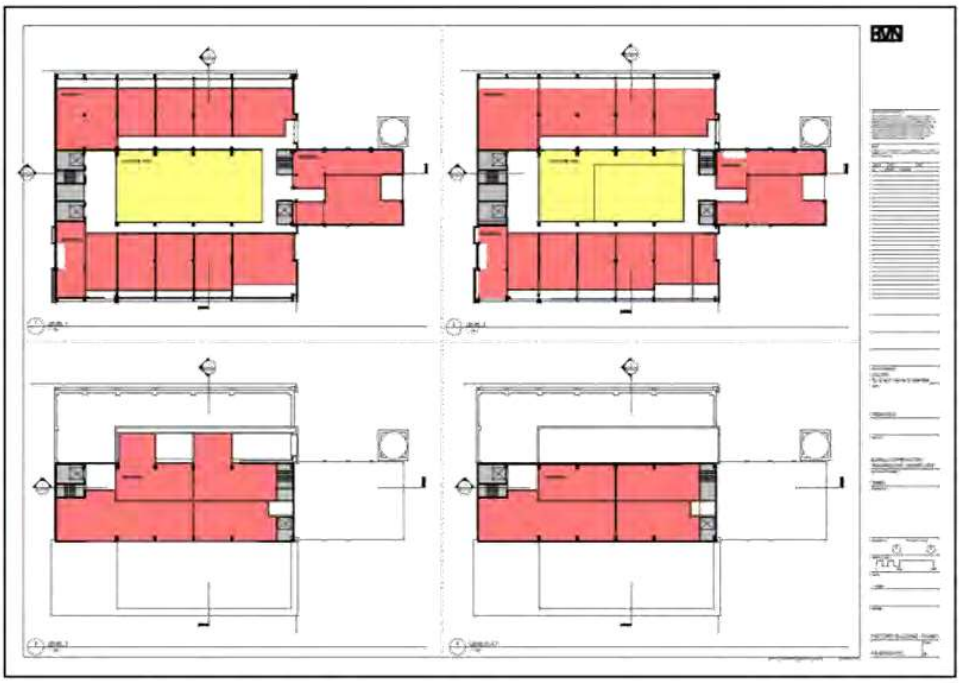


Figure 51. Factory Building – Plans, 012.

5.3 Heritage Management Framework

Below we outline the heritage-related statutory and non-statutory constraints applicable to the subject site including the objectives, controls and considerations which are relevant to the proposed development as described in Section 4.0 above. These constraints and requirements form the basis of our Heritage Impact Assessment in Section 5.4 of this report.

4.3.1 Canada Bay Local Environment Plan 2013

The statutory heritage conservation requirements contained in Section 5.10 of the CLEP 2013 are pertinent to any heritage impact assessment for future development on the subject site. The relevant clauses for the site and proposal are outlined below:

(1) Objectives

(2) Requirement for Consent

(4) Effect of proposed development on heritage significance

(5) Heritage assessment

4.3.2 Canada Bay Development Control Plan

Our assessment of heritage impact also considers the heritage-related sections of the Canada Bay Development Control Plan (CDCP) that are pertinent to the subject site and the proposed development. These include:

Part D – Heritage

D3 Development in the vicinity of heritage items

- **D3.1** Setting
- **D3.2** Scale
- **D3.3** Siting
- **D3.4** Materials and Colours

4.3.3 NSW Office of Environment & Heritage guidelines

In its guidelines for the preparation of Statements of Heritage Impact, the NSW Office of Environment & Heritage provides a list of considerations in the form of questions aimed at directing and triggering heritage impact assessments.[45] These are divided into sections to match the different types of proposal that may occur on a heritage item, item in a heritage conservation area or in the

[45] NSW Office of Environment and Heritage, 'Statements of Heritage Impact' (Heritage Office and Department of Urban Affairs & Planning, 1996), NSW Heritage Manual, http://www.environment.nsw.gov.au/resources/heritagebranch/heritage/hmstatementsofhi.pdf.

vicinity of heritage. Below are listed the considerations which are most relevant to the proposed development as outlined in Section 4.1 of this report.

New development adjacent to a heritage item (including additional buildings and dual occupancies)

- *How is the impact of the new development on the heritage significance of the item or area to be minimised?*
- *Why is the new development required to be adjacent to a heritage item?*
- *How does the curtilage allowed around the heritage item contribute to the retention of its heritage significance?*
- *How does the new development affect views to, and from, the heritage item? What has been done to minimise negative effects?*
- *Is the development sited on any known, or potentially significant archaeological deposits? If so, have alternative sites been considered? Why were they rejected?*
- *Is the new development sympathetic to the heritage item? In what way (e.g. form, siting, proportions, design)?*
- *Will the additions visually dominate the heritage item? How has this been minimised?*
- *Will the public, and users of the item, still be able to view and appreciate its significance?*

5.4 Heritage Impact Assessment

Below we assess the impact that the proposed works would have upon the heritage items in the vicinity. This assessment is based upon the Site Investigation (refer to Section 2.3), the Heritage Significance (refer to Section 3.1), the Proposed Works (refer to Section 4.0) and a review of the Heritage Management Framework (refer to Section 4.3).

4.4.1 Character and Social Use

The proposed redevelopment of the site, in accordance with the Masterplan, would have no impact on the curtilage or the physical fabric of the heritage items located within the vicinity as all works would be located within the boundaries of the subject site.

In terms of character, the proposed redevelopment of the site would differ from the existing nature of the subject site. The site is currently an oddity, both in terms of its character and scale within its immediate surrounds, as it is the last remaining site that maintains a link with the industrial history of the Concord area. The proposed redevelopment would be a reinterpretation of the site's distinctiveness and through this continue to provide an important link with the industrial history of the Concord area. In terms of the potential impact that this increased scale and bulk would have on the heritage items located within the vicinity, it is Heritage 21's opinion that the impact generated would not be substantially different to the neutral impact that the existing site currently has on the surrounding heritage items. The legibility of the surrounding heritage items would not be disturbed and through the redevelopment, and the maintenance of Concord's industrial history, the site would act as an important link in the understanding of the significance of the surrounding heritage items.

Additionally, the proposed redevelopment of the site would not interrupt the existing social use of these heritage items. The proposed redevelopment would create a site which encourages people to use the area, particularly with the recreational spaces that would be created. The site would provide a link between the site and the heritage items both visually and historically, demonstrating the history of the local area, the relationship between the heritage items and the continued use of the heritage items.

The inclusion of landscaped areas as part of the proposed redevelopment, including a public park, would provide a link with the surrounding heritage items and would respect the significance of the subject site, which is in part attributed to the contribution of the site to the Factory Garden Movement.

4.4.2 Views to and from heritage items

Views between the heritage items I54 (Bayview Park) and I56 (Street trees) and the subject site currently exist, although these existing views are largely limited to the upper storeys of the factory and its chimney stack. These views of the site would remain consistent particularly as the proposed development would include the construction of higher forms in the centre of the site, located within the site and away from the nearby heritage items and the waterfront. This would minimise the visual

impact of the proposed development on the existing views, particularly as the scale and layout of the proposed buildings has been carefully considered with the topography of the site and the existing Bushells Factory building in mind. The layout would minimise the visual impact that the proposed development would have on the Massey Park Golf Course and the waterfront particularly as the primary existing views to the factory and its chimney stack would be retained with lower forms constructed around it. It is also noted that the proposed development would be consistent with the scale of the existing adjacent residential development.

Views between heritage item I259 (Massey Park Golf Course), which is located adjacent to the northern boundary of the site, would be further enhanced by the landscape works proposed by the proposed development.

Although the redevelopment of the site would potentially introduce new views between the subject site and the nearby heritage items, Heritage 21 would argue that these view lines would not detract from the significance of these heritage items.

4.4.3 Additional Considerations

The construction of lower buildings along the perimeter of the site would be consistent with the existing scale of Concord Road, per the recommendation of the City of Canada Bay Council. The scale of the buildings that would be constructed throughout the site have additionally been considered, with the lower forms to be placed along the boundaries and near the waterfront, to ensure that the impact upon the existing views to the site would be minimal. The highest form to be placed on the site would be located within the centre of the site and the scale has considered that of the existing factory building.

It is also important to note that aside from the consideration of the scale of the buildings that the proposed development would incorporate the creation of a public park on the foreshore and the introduction of additional recreational spaces. The proposed works would ensure the continued use of the site through the creation of an active village centre and open public spaces.

The proposed adaptive re-use of the Former Bushells Factory building is considered in depth in the Heritage Nomination Listing Report produced by Heritage 21 in February 2019. However, Heritage 21 is confident that in conjunction with a Salvage Schedule, a Conservation Management Strategy and an appropriate Interpretation Strategy that the significance of the subject building can be respected despite the proposed change of use of the subject site. A clear interpretation strategy would offer the potential to highlight the history of the subject site to all visitors, residents and employees on the subject site.

4.4.4 Relevant OEH Questions

New development adjacent to a heritage item (including additional buildings and dual occupancies)

- *How is the impact of the new development on the heritage significance of the item or area to be minimised?*

Response – The lower forms of the proposed development would be located adjacent to the heritage items to minimise the impact that the proposed development would generate upon the views to and from the heritage items.

- *Why is the new development required to be adjacent to a heritage item?*

Response – The existing site is largely vacant; the proposed development would improve the contribution that the site is presently making to the local area and would strengthen the connection between the local site and the heritage items in the vicinity.

- *How does the curtilage allowed around the heritage item contribute to the retention of its heritage significance?*

Response – The proposed development would be located within the Bushells site and the higher forms would be setback from the golf course, ensuring that the proposed development would have a minimal impact upon the views to the Former Bushells Factory building from the golf course which is the basis of the relationship between the golf course and the existing site.

- *How does the new development affect views to, and from, the heritage item? What has been done to minimise negative effects?*

Response – The layout of the proposed development has sought to minimise the effects on views from both the heritage items in the vicinity and the waterfront through the proposed construction of higher forms in the centre of the site, with lower buildings to be constructed in addition, to minimise the impact of the public views upon the heritage item.

- *Is the new development sympathetic to the heritage item? In what way (e.g. form, siting, proportions, design)?*

Response – Yes, predominately through the siting of the buildings, as the lower forms would be constructed along the boundaries of the site and would minimise the visual impact upon the heritage items.

- *Will the public, and users of the item, still be able to view and appreciate its significance?*

Response – Yes, the proposed development would not impact upon the significance of the heritage items, nor minimise their significance. The proposed development would in fact include a number of open public spaces which would reinvigorate the area and would create greater links between the heritage items and the site.

6.0 CONCLUSION & RECOMMENDATIONS

6.1 Impact Summary

The NSW Office of Environment & Heritage's guidelines require the following aspects of the Architectural Concept Plan to be summarised.[46] This is based on the assessment of impact provided in Section 4.4 of this report.

5.1.1 Aspects of the proposal which respect or enhance heritage significance

In our view, the following aspects respect the heritage significance of the items in the vicinity:

- The redevelopment does not propose to alter the curtilage or the physical fabric of the surrounding heritage items;
- The site, through its scale and bulk, would be an interpretation of the site's distinct character within the local area;
- The views between the subject site and the heritage items would remain largely consistent with views from the heritage items dominated by the highest elements of the subject site;
- The proposed higher forms would be located in the centre of the site which would minimise the visual impact of the proposed buildings on existing views, particularly from Concord Road, the waterfront and the Massey Park Golf Course;
- The redevelopment would encourage and facilitate ongoing social use of the heritage items;
- The existing Former Bushells Factory Building would be retained; and
- Landscaping elements make reference to the nature of the surrounding heritage items and would reinvigorate the local area, particularly through the creation of a large public park on the foreshore.

5.1.2 Aspects of the proposal which could have detrimental impact on heritage significance

In our view, there are no aspects of the proposal which could be detrimental to the significance of heritage items in the vicinity. The positive impacts of the proposal have been addressed above in Section 5.1.1.

Mitigation Measures have been included in Section 5.3 below.

5.1.3 Sympathetic alternative solutions which have been considered and discounted

Heritage 21 was not involved in the design process of the proposed development. However, the previous proposal for the site did not take the heritage items or the existing Bushells Factory building into consideration. Additional changes have been made to the proposal, including the reduction in the scale of the proposed buildings, which has reduced the visual impact of the proposed works on the heritage items in the vicinity and the subject site.

[46] Ibid.

6.2 General Conclusion

In Heritage 21's opinion, the proposed redevelopment would positively contribute to the surrounding heritage items by encouraging and facilitating their ongoing use and appreciation. By locating the higher forms of the proposed development in the centre of the site, it would minimise the visual impact that the proposed works would have on the nearby heritage items, the waterfront and the streetscape. Locating the smaller forms next to the waterfront and the boundaries of the site would also minimise the impact of the proposed development upon the views to the former Bushells Factory building.

Heritage 21 is confident that the proposed development complies with the pertinent heritage framework and that the proposed character, scale and bulk of the proposed redevelopment would have a neutral impact on the significance of the heritage items located within the vicinity.

6.3 Mitigation Measures

To ensure maximum conservation of significance of the subject site Heritage 21 recommends the following:

- The listing of the Former Bushells Factory building as an item of environmental heritage in Schedule 5 of the Burwood Local Environmental Plan 2012. Heritage 21 have produced a Heritage Listing Nomination Report to be submitted to the City of Canada Bay Council for listing consideration.

- Due to historical evidence suggesting that a wharf was located in the subject site's foreshore area, Heritage 21 recommends that a marine archaeological potential assessment is carried out prior to any redevelopment of the foreshore area as remnant footings or similar which relate to this historical structure would be highly significant.

- An Interpretation Strategy should be prepared by a heritage professional for the subject site. This strategy should address the interpretation of the site's history and incorporate discussion on its relationship with the industrial development of Concord and the surrounding heritage items. This interpretation may include but should not be limited to the use of interpretive naming conventions, public signage and public art work.

- A Photographic Archival Recording (PAR) should be prepared by a suitably qualified Heritage Consultant prior to any development being carried out on the site. The report must consist of an archival standard photographic record of the site and buildings externally including the existing character of the streetscape and the views to and from the subject site and heritage items in the vicinity and general views to and from the site. The recording shall be undertaken in accordance with the guidelines for Photographic Recording of Heritage Items Using Film or Digital Capture (2006) prepared by the NSW Office of Environment & Heritage and copies should be retained in Council's Archives and Local Studies collection.

- Salvage Schedule. A Salvage Schedule should be prepared by a suitably qualified heritage consultant, to ensure the retention of significant fabric.

7.0 SOURCES

Apperley, Richard, Robert Irving, and Peter Reynolds. *A Pictorial Guide to Identifying Australian Architecture Styles and Terms from 1788 to the Present*. Sydney: Angus & Robertson, 1994.

Australia ICOMOS. 'The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance'. Australia ICOMOS, 2013. http://australia.icomos.org/publications/charters/.

City of Canada Bay Council. 'Canada Bay Image Library'. Accessed 16 March 2016. http://imagelibrary.canadabay.nsw.gov.au/Library/#1458173124818_0.

———. 'Canada Bay Local Environmental Plan', 2013. http://www.canadabay.nsw.gov.au/planning-controls-lep-and-dcp.html#acctab1.

———. 'Canada Bay Local Planning Strategy 2010', 2010. http://www.canadabay.nsw.gov.au/future-planning-local-planning-strategy.html.

City of Canada Bay Heritage Society. 'Aborigines: Original Occupants of the Area', 2016. http://www.concordheritage.asn.au/concord-history/aborigines.

———. 'Concord's Industrial Development', 2016. http://www.environment.nsw.gov.au/heritageapp/heritagesearch.aspx.

Concord Heritage Study: Thematic History. Perumal, Wrathall & Murphy Pty. Ltd., 1986.

'Design Report', 2015.

FreshFood. 'Bushells Coffee: Our Story', 2015. http://www.bushellscoffee.com.au/our-story/.

Fresh Food. 'Our Story', 2015. http://www.roberttimms.com.au/our-story/.

Gregory Blaxell. *A Pictorial History of City of Canada Bay*. Alexandria: Kingsclear Books, 2010.

'Gregory's Sydney Directory Section 40'. Concord, 1934. http://voommaps.com/historical-maps/1934-gregorys-sydney-street-directory/.

Helena Chance. '"Consulting the Genius of the Plant"', n.d. http://eprints.bucks.ac.uk/1424/1/Chance,%20Helena%20Consulting%20the%20genius%20of%20the%20plant.pdf.

National Trust of Australia (New South Wales). 'National Trust Register', n.d. http://www.heritagespace.com.au/register/list/9.

NSW Land and Property Information. 'Historical Land Records Viewer', n.d. http://images.maps.nsw.gov.au/pixel.htm.

———. 'SIX Maps', n.d. http://maps.six.nsw.gov.au/.

NSW Office of Environment and Heritage. 'Assessing Heritage Significance'. NSW Heritage Office, 2001. NSW Heritage Manual. http://www.environment.nsw.gov.au/resources/heritagebranch/heritage/listings/assessingheritagesignificance.pdf.

———. 'Bayview Park'. *State Heritage Inventory*. Accessed 17 March 2016. http://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=2890319.

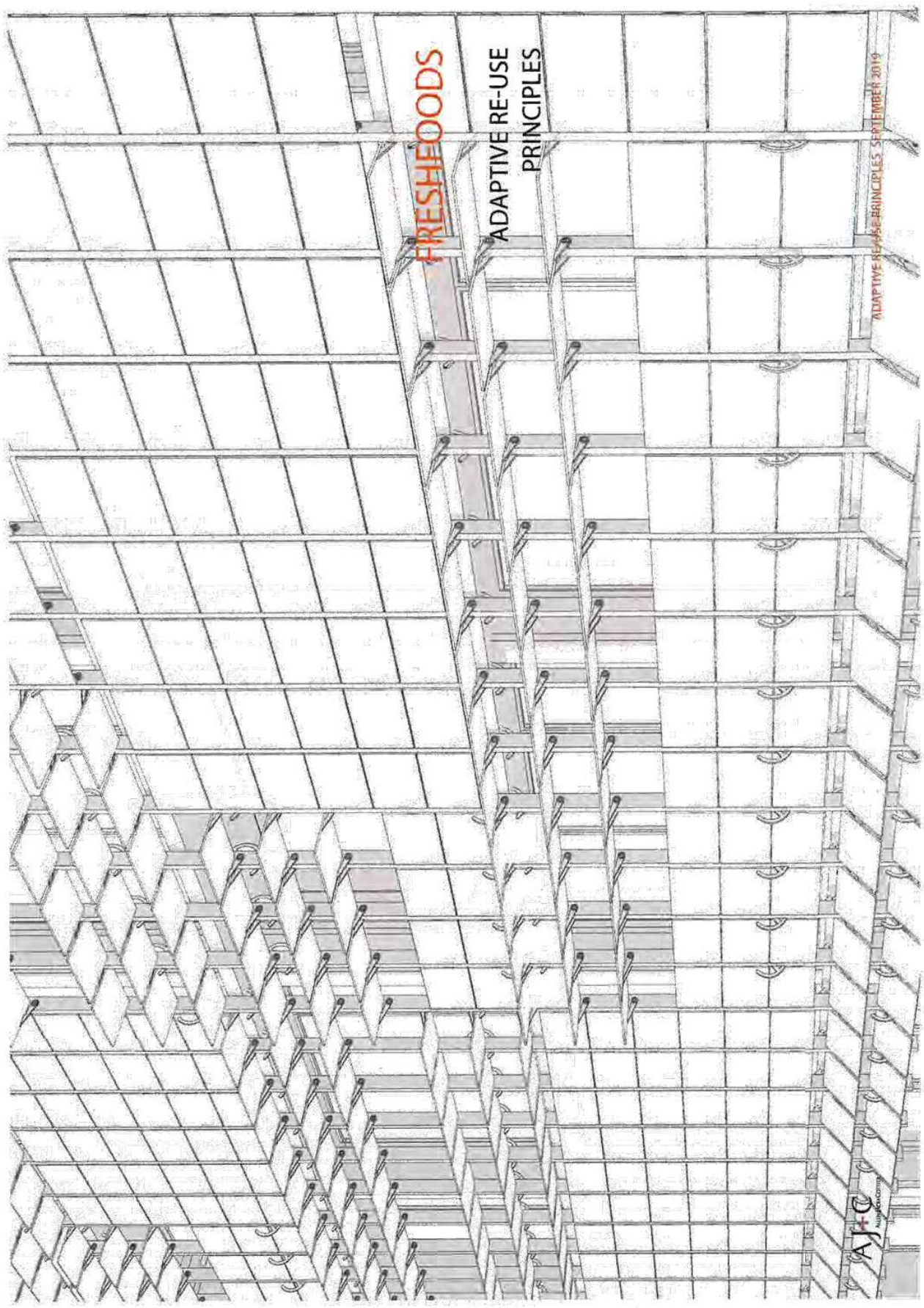
———. 'Massey Park Golf Course and Sanders Reserve'. Accessed 16 March 2016. http://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=2890346.

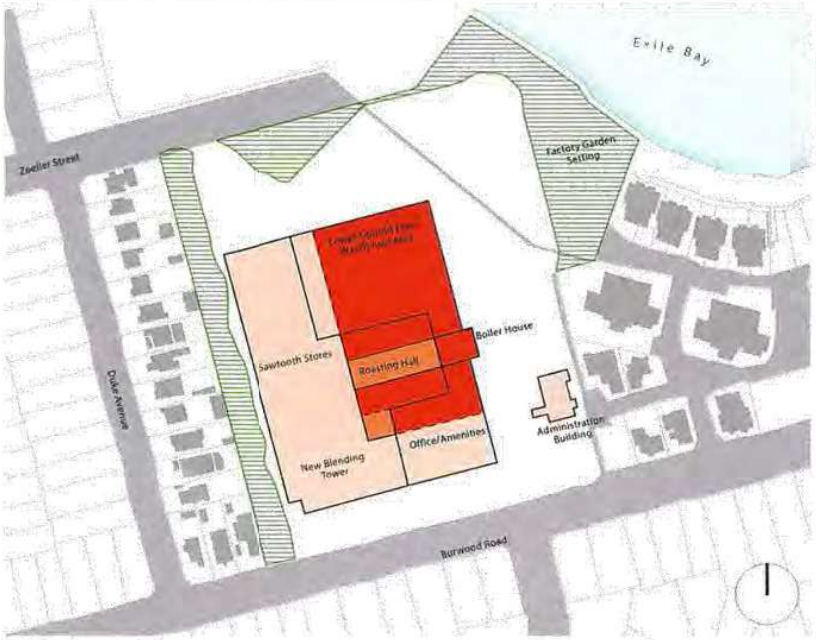
———. 'Statements of Heritage Impact'. Heritage Office and Department of Urban Affairs & Planning, 1996. NSW Heritage Manual. http://www.environment.nsw.gov.au/resources/heritagebranch/heritage/hmstatementscfhi.pdf.

———. 'Street Trees', n.d. http://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=2890321.

Official Newsletter of the Concord Heritage Historical Society. 'More Industries on Exile Bay Bushells Pty.Ltd.' *Nurungi Remembered*, June 2007, 133 edition.

Pollon, Frances, ed. *The Book of Sydney Suburbs*. Sydney: Cornstalk, 1996.
'Sydney Subdivision Plans'. State Library of NSW, n.d. Mitchell Map Collection. http://www.sl.nsw.gov.au/.
Tanner Architects. 'Former Bushells Building Conservation Management Plan', 2008.


FRESHFOODS
ADAPTIVE RE-USE
PRINCIPLES
ADAPTIVE RE-USE PRINCIPLES SEPTEMBER 2019
AJC



Key

- Category 1: Not Adaptable - Existing structure not fit for proposed new uses
- Category 2: Not Easily Adaptable - Building may require structural change or substantial alterations to be fit for new purpose
- Category 3: Adaptable - Buildings that can be adapted to other uses with minimal change

01 Roasting Hall Interior
02 Roasting Hall (background) vBoiler Room (foreground)
03 Boiler Room Interior
04 Lower Ground Floor Warehouse Area

ADAPTIVE RE-USE & HERITAGE

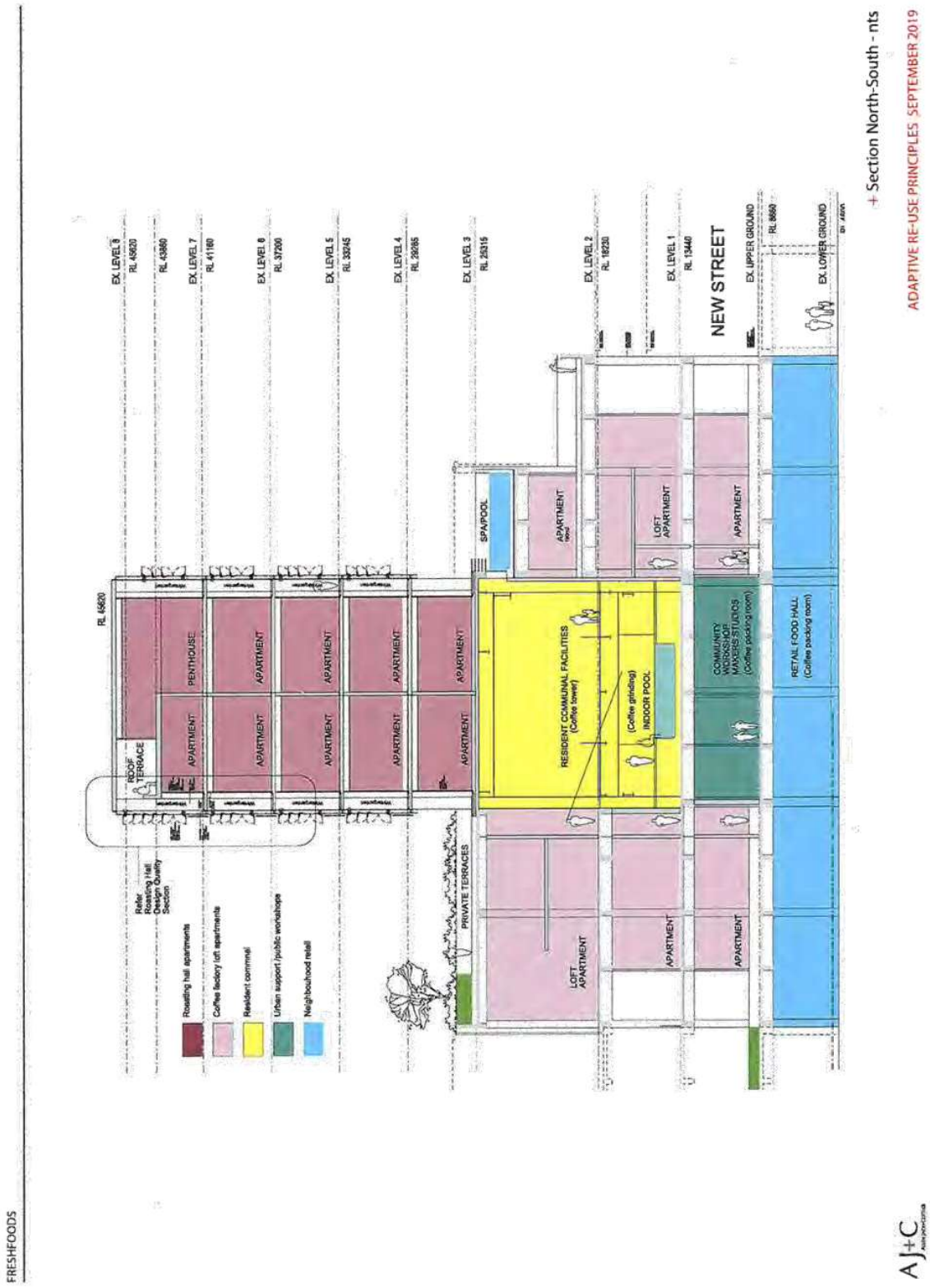
A high level visual assessment of the general construction and condition of the principal internal and external elements and review of existing building documentation was undertaken to assess the functional condition of building elements and identify those areas which would be suitable for adaptive re-use. Future uses proposed include multi residential flat buildings, recreation facilities for residents, cultural facilities, retail premises and community facilities. A future Detailed Fabric Analysis is required to confirm initial assessment to ensure no significant fabric of potential heritage value will be lost.

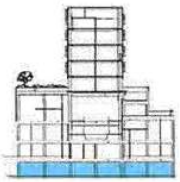
The existing factory is in a landscaped setting which is has been identified in the Statement of Heritage Impact, by heritage consultants Heritage 21, as being of cultural significance as a representative example of the "Garden Factory Movement".

The large central factory is generally well maintained and in good condition and consists of the following building elements;

- Lower Ground Floor Warehouse Area: Large spaces with deep beam concrete structures designed to support high loads. Spans are in excess of 6m.
- Ground Floor Warehouse Area (North): High bay steel portal structure with metal deck roofing.
- Sawtooth Warehouse/Distribution Area and Tea Store: Steel truss structure with sawtooth clerestory lighting.
- Roasting Hall: This element is a brick and concrete structure divided into seven storeys. The lower ground floor and ground floor are deep beam concrete structures used for packing and distribution. The upper floors contain vertical circulation elements in the brick cores which are connected one large vertical space with open steel mesh platforms above the fourth storey. The space is naturally illuminated by a glazed curtain wall.
- Roasting Hall Annex Spaces: Large volume spaces for coffee grinding, coffee packing and associated plant on the first and second floors connecting to the Roasting Hall. Brick facades with large vertical curtain wall glazed areas are provided to external walls.
- Boiler House: Three storey high volume at Ground Floor level with concrete framed brick infill structure over lower ground floor compressor area and disused Coal Dock. Lower Ground floor ceiling heights to the underside deep concrete beams are in the order of 5m high.
- New Blending Tower: A recent addition concrete structure with large vertical volumes and brick and glass detailing to match existing original tower fabric.
- Burwood Road Office wing: Three level concrete framed structure with continuous glazed curtain wall to offices and staff amenities facing Burwood Road. Coffee storage within a deep beam structure occupies the lower ground floor.

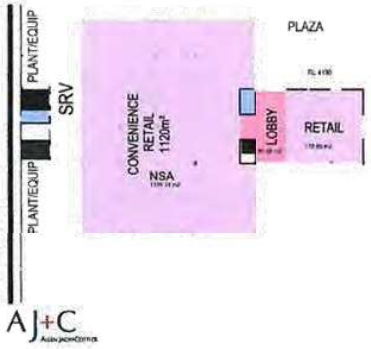
AJ+C


FRESHFOODS
+ Section North-South - nts
ADAPTIVE RE-USE PRINCIPLES SEPTEMBER 2019
NEW STREET
EX. LEVEL 9
RL 45620
RL 43860
EX. LEVEL 7
RL 41160
EX. LEVEL 6
RL 37200
EX. LEVEL 5
RL 33245
EX. LEVEL 4
RL 29285
EX. LEVEL 3
RL 25315
EX. LEVEL 2
RL 18230
EX. LEVEL 1
RL 13440
EX. UPPER GROUND
RL 8660
EX. LOWER GROUND
RL 45620
ROOF TERRACE
PENTHOUSE
APARTMENT
SPA/POOL
LOFT APARTMENT
RESIDENT COMMUNAL FACILITIES (Coffee tower)
(Coffee grinding)
INDOOR POOL
COMMUNITY WORKSHOP MAKERS STUDIOS (Coffee packing room)
RETAIL FOOD HALL (Coffee packing room)
PRIVATE TERRACES
Refer Roasting Hall Design Quality Section
Roasting hall apartments
Coffee factory/ loft apartments
Resident communal
Urban support / public workshops
Neighbourhood retail
AJ+C



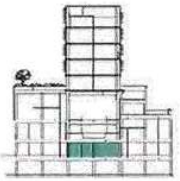
+ Lower ground floor - NEIGHBOURHOOD RETAIL

The entry to the Coffee Roasting Hall building is signified by a beautifully proportioned former Boiler House, which is a 3 level volume above the lower ground floor Compressor Room and Coal Dock. The lower ground floor of the Coffee Roasting Hall connects to this space which is high bay space with a massive concrete ceiling structure. This space is envisaged as a restaurant or food and beverage space with a visual connection to the residential lobby serving the Coffee Roasting hall apartments and resident club. This space could be themed as a museum space telling the storey of the site and housing industrial artefacts. The coffee grounds storage tanks are to be retained and mark the proposed location of a new plaza which will provide access to a neighbourhood minimarket. The fit out and character of the small supermarket would be similar to that in the Harold Park Tramsheds shown in the reference image.

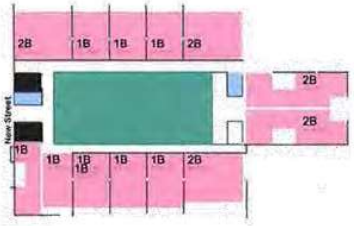


Existing

Precedents



+ Upper ground floor - COMMUNITY WORKSHOPS

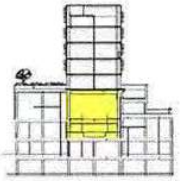


The upper ground level of the Coffee Roasting is at the level of the New Street that connects Zoeller Street with Burwood Road. An second entry to the Roasting Hall will be provided at this level from New Street.

In the centre of the Roasting Hall building are existing industrial spaces without access to natural light. These spaces have a massive concrete structure suited to its purpose as part of the warehouse coffee packing area. As spaces capable of being acoustically attenuated from adjacent uses they are suited to uses such as a community workshops like Men's Sheds, creative studios or music studios for residents and the general community. Access to loft apartments on the same level are able to be discrete and legible from the publically accessible areas.

Existing

Precedents

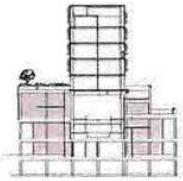


+ Level 1 -
RESIDENT COMMUNITY FACILITIES

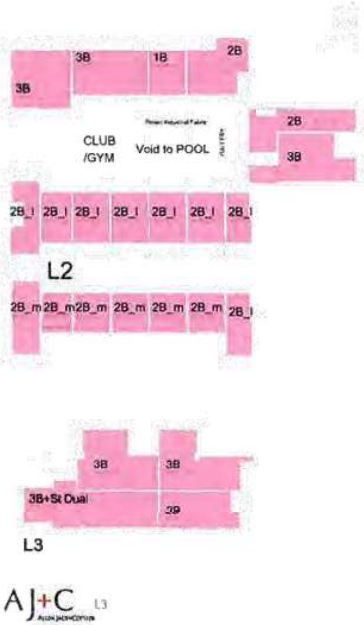
On Levels 1 and 2 in the central volume of the Roasting Hall is double height volume which was used for Extraction processes . The space is intersected by a structural steel superstructure which is able to be retained and adapted for use a residents club with meeting rooms, reading room, well-being facilities and lounge, gymnasium and an indoor swimming pool. Precedent images shown here illustrate the potential of the adaptive re-use of similar industrial spaces, such as the La Fabrica home of Ricardo Bofill and the Melbourne concept store for Ausnviro, to create memorable spaces adapted to new uses.

Precedents

Existing



+ Upper ground to Level 2 - LOFT APARTMENTS



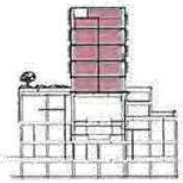
The robust brick forms on levels Upper ground Floor , Levels 1 and 2, flanking the translucent Coffee Roasting Hall were designed to house laboratories, coffee roasting spaces, tote bin storage rooms, and tea blending areas. Where these spaces adjoin the sawtooth factory on Upper ground and Level 1 are generally not provided with brick skins and the existing raw concrete frame is exposed. When demolition is completed these concrete frames will be retained and expressed so the memory and understanding of what was internal space and external wall will be retained. On Level 2 the roasting spaces are double height and are day lit by two storey high glazed walls. In the spaces the glazed walls will be reinterpreted with a new glazed envelope and new steel framed mezzanine floors will be inserted to create 'loft' apartments.

The interior finishes and materiality will be retained where possible. A similar approach has been followed in AJ+C Burcham project in Rosebery where the office and warehouse spaces of the original Wrigley's factory create new distinctive living spaces adding to the diversity of housing available in the development.

Existing

Precedents

AJ+C L3

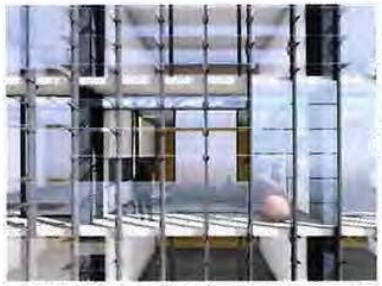


+ Level 3 to 7: Roasting hall
APARTMENTS

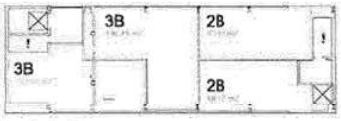
The Canada Bay LSPS Action 6.3 requires the Central Roasting Hall, chimney and "B" sign is heritage listed. The Central Roasting Hall is the main structure on the site and is a recognisable landmark in the local area due to its high visibility from a number of vantage points. The Roasting hall's eastern façade is distinctive due to the 'B' sign which will be retained.

The existing facades to the north and south elevations consist of large glazed areas, with vertically articulated substructure at approximately 1200m centres with a fine vertical glazing bar at 600mm centres. These glazed curtain walls deliver abundant natural light to the plant area which contains a number of production processes accessed by a series of open mesh platforms.

The alignment between the glazing and brick face will be maintained.



The proposed facade maintains the rhythm of the mullion spacing . High levels of operability are introduced as a function of human inhabitation behind the facade.

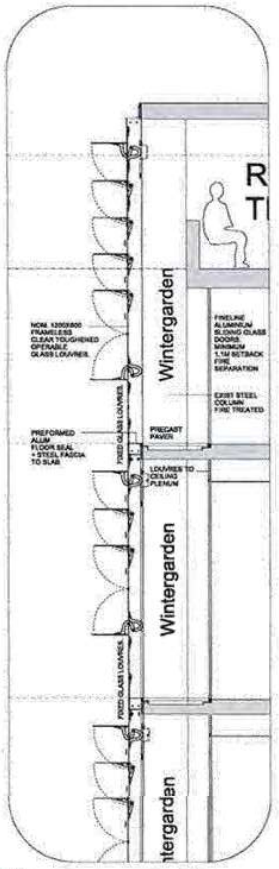


L4-L7

AJ+C L3

ADAPTIVE RE-USE PRINCIPLES SEPTEMBER 2019

+ Detail Section - nts



AJ+C L3

The proposed facade concept is in keeping with the pattern of the mullions and scale of the glazing as a whole. A wintergarden of a minimum depth of 1100mm for fire seperation mediates between by two, highly operable glazed facade systems. The exterior skin utilises louvres over the entire apature of each apartment, offering uninterupted views and ventilation when in the open position. The internal skin consists of sliding doors that fold away to one side, in effect creating an outdoor living space anytime the users desire.

Both skins work in tandem to offer thermal and solar control without resulting in the use of fixed and projecting sun shades, which would be an adverse heritage outcome. The two skins can mediate heat loss in the winter and heat gain in the summer to suit the users. This in turn creates a dynamic translucent patchwork across the facade throughout any time of day or season.

A wind deflection zone is created at the base of the facade via 45 degree rotated lourves whose supporting mullions cantilever past the supporting slab edge. The sliding doors to the terrace apartments are set back to create a wind break zone and to enhance the lightness of the external facade.

The mezzanine roof decks at the top are sheltered by the louvred facade from southerly winds but open up to appreciate uninterupted city and district views, creating a year long activated roof entertainment experience.

10 February 2022

The General Manager
City of Canada Bay Council
1A Marlborough Street
Drummoyne NSW

Attention: Paul Dewar

Dear Sir,

Updated Letter of Offer – Planning Proposal PP2017/005,
160 Burwood Road, Concord

PURPOSE

This letter has been prepared by LFA (Pacific) Pty Ltd, on behalf of the owner of the site. This letter represents an offer to enter into a Voluntary Planning Agreement (VPA) in relation to an Amended Planning Proposal that seeks to rezone the land at 160 Burwood Road, Concord. It sets out various public benefits that are included as part of the Amended Planning Proposal and attributes values to these benefits which is supported by analysis prepared by others. This updated letter of offer supersedes and replaces any previous letter of offer.

The Proponent reserves its right to review the offer set out within this letter in the event the contents of the Planning Proposal (and the architectural Concept Plan which supports it) require any alteration by Council as part of its assessment.

THE AMENDED PLANNING PROPOSAL

This offer accompanies and supports the Amended Planning Proposal dated June 2020, which has been prepared in response to the recommendations made by the Sydney Eastern City Planning Panel following the Rezoning Review held on 31 March 2020.

The Amended Planning Proposal seeks to provide for the development of the site as per the Concept Plan and Urban Design Report (Appendix C of the Amended Planning Proposal) as follows:

- Retention and adaptive re-use of the Central Roasting Hall factory building;
- Approximately 400 new dwellings in the form of shop top housing, residential flat buildings and multi-unit dwellings. The buildings will range in height from 3 storeys to 6 storeys (21m), including the adaptive re-use of the existing Central Roasting Hall factory building;
- Approximately 10,000m^2 on non-residential uses, of which a minimum 3,000m^2 shall be provided for urban services (aka light industrial uses)
- Approximately 774 car parking spaces (or as required by Council);
- Approximately 5,900m^2 of public open space in the form of a new foreshore park;
- New local roads connecting to Zoeller Street and the foreshore park; and
- Bicycle and pedestrian access to the foreshore.

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NOMINATED ARCHITECTS
ALF LESTER NO 7128
STEPHEN ANDERS NO.5764

ABN 92 830 134 905

Accordingly, the proposed development scheme seeks to:

- Create a mixed-use neighbourhood with residential, retail, commercial, light industrial/urban services, and community uses to support the changing social and demographic characteristics of the community;
- Provide for increased employment opportunities than currently available on the site with the existing factory use
- Improve pedestrian, cycle, vehicular and waterfront access to the site
- Enhance the industrial character of the site through the retention and adaptive re-use of the Central Roasting Hall
- Provide new public open space and associated landscape embellishments
- Activate the foreshore harbour frontage by improving the site connectivity, public access and landscape amenity of the site; and
- Protect and enhance of the natural environment through appropriate landscaping and various ESD initiatives.

VPA OFFER

1. Public Benefit

The public benefits provided as part of the Amended Planning Proposal include:

- 5,900m^2 of land for public open space, including remediation (if required) and embellishment of that land, to be dedicated to Council upon completion of the development project (Attachment A); and
- Restoration works to the seawall and additional waterfront edge landscaping to provide access to the water (estimated value of $2,100,000). These restoration works will be completed prior to the dedication of the land to Council for public open space.

2. Section 7.11 Contributions

Development contributions for a subsequent development application (DA) would be levied under Council's Section 7.11 Development Contributions Plan (November 2017).

Given the value of public benefits provided within this offer exceed the notional target of 50% of the uplift in land value, this offer seeks to confirm that an off-set be applied to any Section 7.11 contributions that would otherwise be applied to the DA.

NEXT STEPS

Any subsequent VPA will comply with the requirements of the EP&A Act and Environmental Planning and Assessment Regulation 2000,

We look forward to working with Council to finalise the terms of the VPA.

Kind Regards,
LFA (Pacific) Pty Ltd

Jason Duda
Director

LFA (PACIFIC) PTY LTD

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Attachments:

- Attachment A – Proposed Public Open Space

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