

4 December 2024

Mavid Development

Via email: chrisspeek@mavidgroup.com.au

Attention: Chris Speek

1-5 Station Lane, Lochinvar

Traffic Impact Review

Introduction

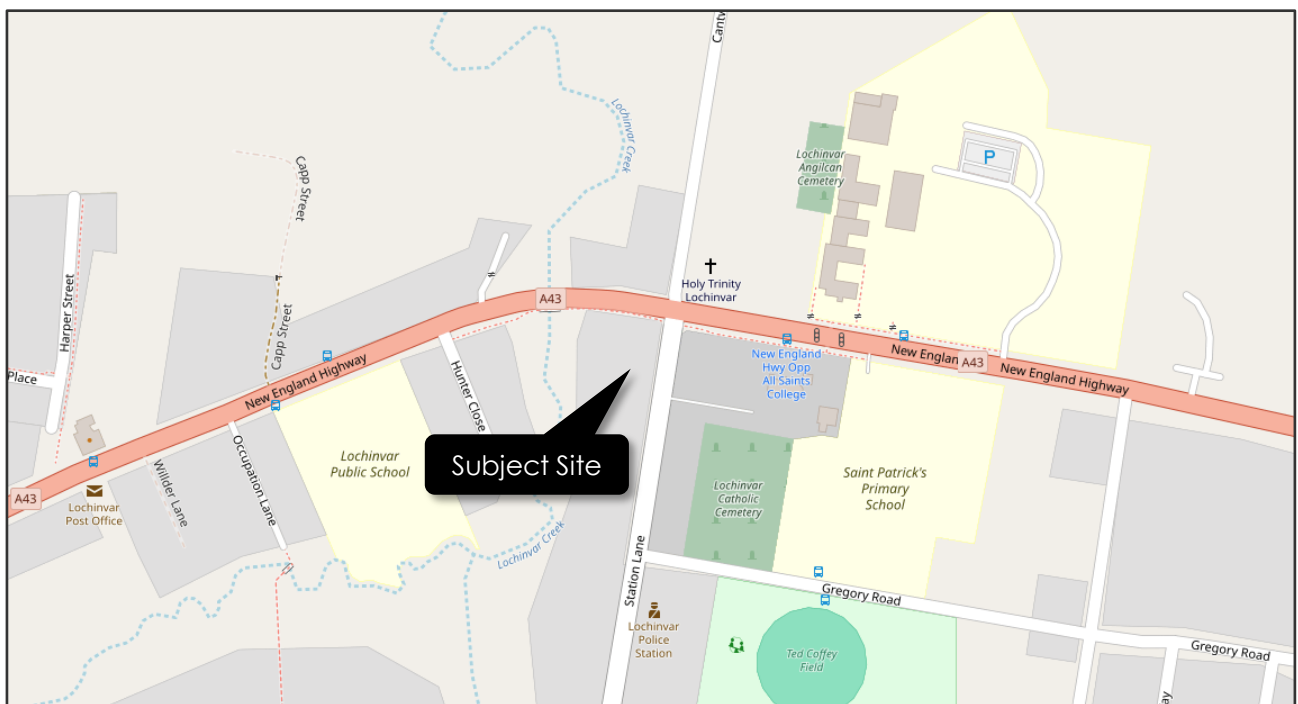
onemilegrid has been requested by Mavid Development to undertake a traffic impact assessment of the proposed child care centre at 1-5 Station Lane, Lochinvar.

Site Context

Existing Conditions

The subject site is addressed as 1-5 Station Lane, Lochinvar, and is located on the southwest corner of the New England Highway / Station Lane / Cantwell Road intersection, generally centrally within the Lochinvar Township, as shown in Figure 1.

Figure 1 Site Location



Copyright OpenStreetMap

The subject site is irregular in shape, has a 55 m and a 33 m road frontage to Station Lane and New England Highway respectively, and occupies a total site area of approximately 5,028 m².

Each of the three separate sites (1, 3 & 5 Station Lane) are occupied by a dwelling, with the northern parcel provided access via New England Highway in the form of double-width sealed crossover whilst the remaining two provided access via Station.

Land use in the immediate vicinity of the site is mixed, and includes residential, commercial, and educational land uses given the sites locations with central Lochinvar.

The site is located within a General Residential zone (R1), and abuts New England Highway which is identified as a Classified Road (SP2).

An aerial view of the subject site is provided in Figure 2.

Figure 2 Site Context (07 October 2024)



Road Network

Station Lane

Station Lane is a local road generally aligned north-south, running between New England Highway in the north, and Old North Road to the south.

Station Lane has recently been upgraded to provide a single traffic lane each direction adjacent to the site, with kerbside permitted on both sides on the road.

A 50 km/h speed limit applies to Station Lane in the vicinity of the site.

New England Highway

New England Highway is a stated controlled arterial road generally aligned north-south, running between Hexham in New South Wales, and Yarraman in Queensland.

New England Highway Street provides a single traffic lane in each direction adjacent to the site, separated by a chevroned central median provided with intermittent turn lanes. Unrestricted kerbside parking is permitted on both sides of the highway.

A 40 km/h speed limit applies to New England Highway during school hours between 8:00am and 9:30am, and 2:30am and 4:00pm. Outside of school periods, a 60 km/h speed limit applies to New England Highway in the vicinity of the site.

Planning Background

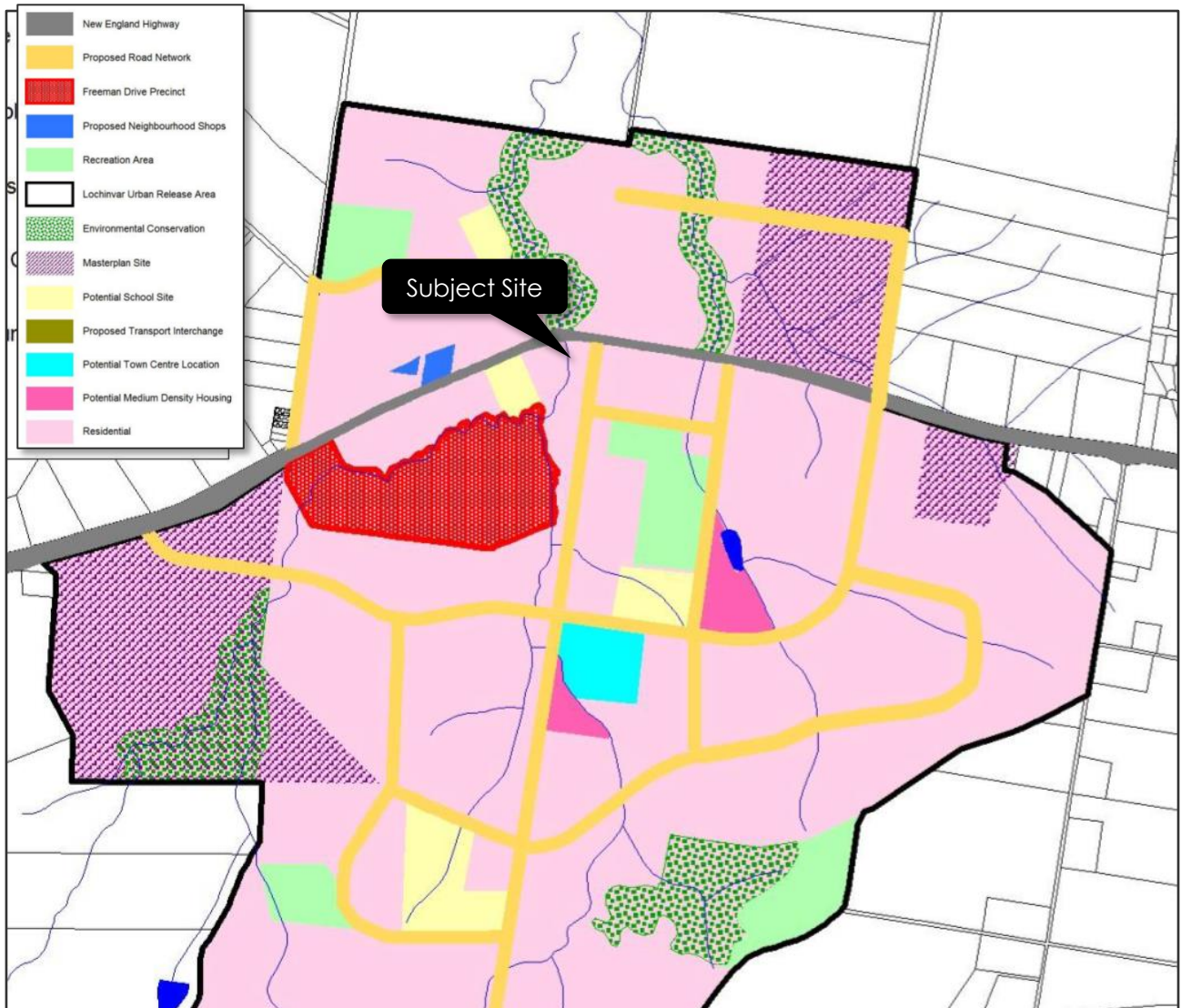
Maitland Development Control Plan (DCP)

General

The subject site is located within the Maitland Development Control Plan (DCP) 2011, where more specifically, the site is subject to Part F (Urban Release Areas) Section 9 – Lochinvar Urban Release Area (URA), which relates to the planning provision for the Lochinvar township.

An extract of the Lochinvar Area Plan with respect to the subject site is shown in Figure 3, demonstrating the site is located within 'Residential' land.

Figure 3 Lochinvar Area Plan

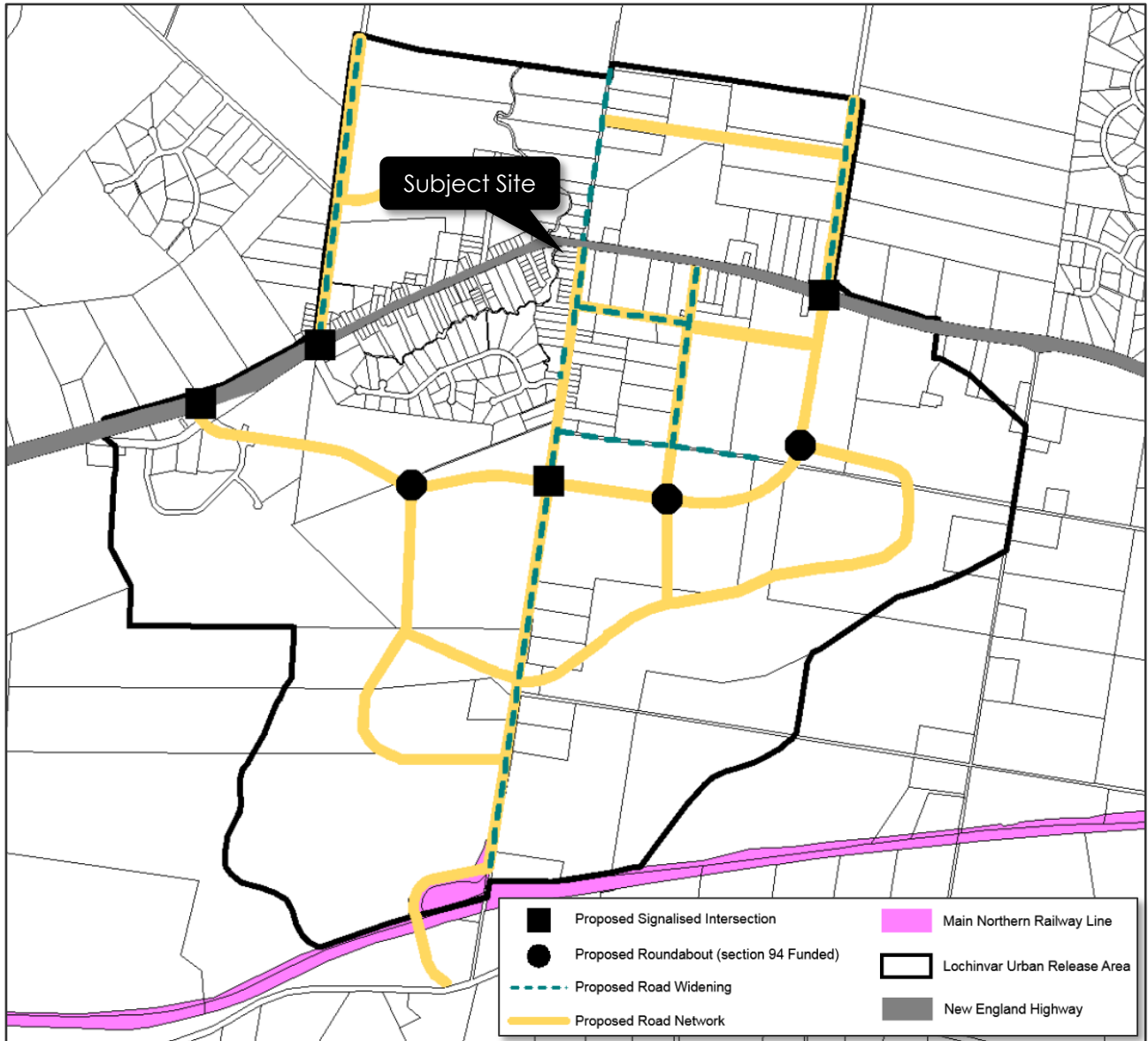


Road Network

An extract of the Lochinvar URA proposed road network, including the road widening of the existing road infrastructure within the URA, is shown in Figure 4.

Along the frontage of the subject site, Station Lane is nominated as part of the proposed road network, which shows Station Lane with proposed road widening, which has already occurred at the site.

Figure 4 Lochinvar URA Proposed Road Network and Road Widening

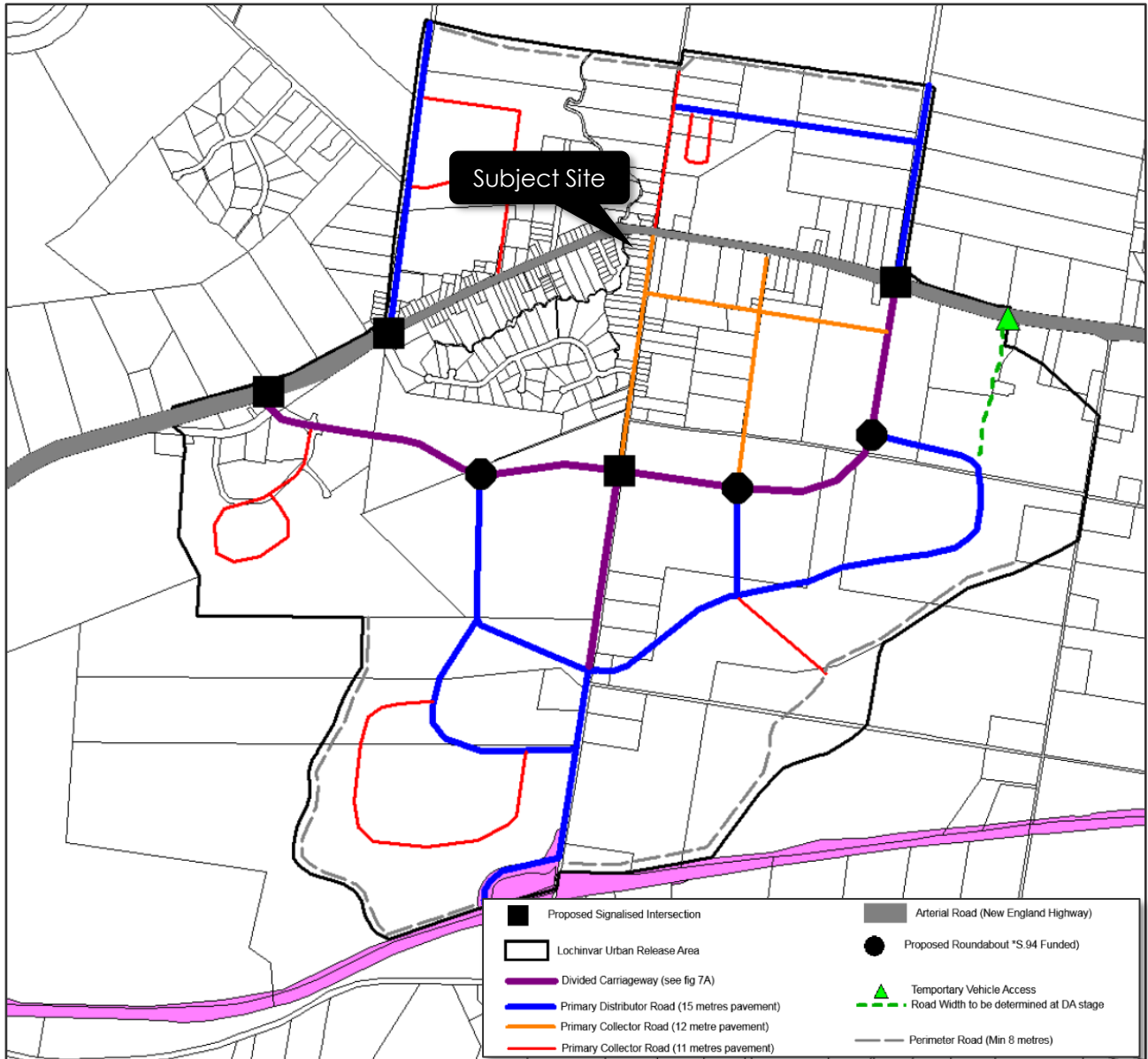


Road Hierarchy

An extract of the Lochinvar URA proposed road hierarchy is provided in Figure 5, where it is shown Station Lane along the frontage of the site is identified as a 'Primary Collector Road' (though no cross-section design is illustrated in the URA), which is to comprise a 12 m road carriageway.

Signalised connections with New England Highway are contemplated at Terriere Road to the west and Springfield Drive to the east.

Figure 5 Lochinvar URA Proposed Road Hierarchy



Traffic & Transport Study – Lochinvar Urban Release Area (2011)

A Traffic & Transport Study was undertaken in support of the Lochinvar Urban Release Area which identified the road works and traffic management facilities required to meet increase in traffic as a result of the planned development in Lochinvar.

The outcome was a schedule of transport infrastructure works, including cost estimates and timing, which were confirmed to be suitable to support the entire precinct's development.

This schedule was ultimately incorporated into the Lochinvar Section 94 Contributions Plan.

Extracts from this document are provided in Figure 6 and Table 1.

Figure 6 Road & Traffic Facilities - Lochinvar Contributions Plan

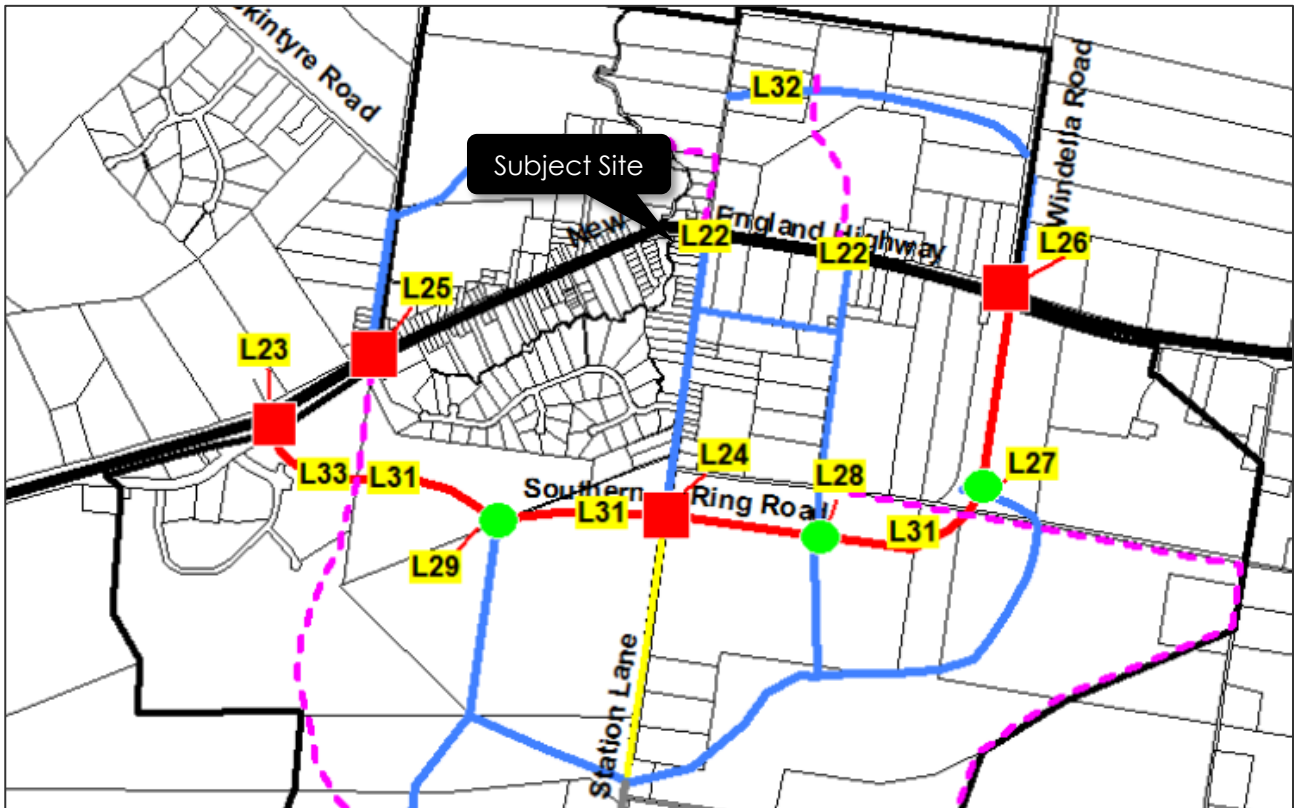


Table 1 Road & Traffic Work Schedule – Lochinvar Contributions Plan

ROAD AND TRAFFIC FACILITIES WORK SCHEDULE							
Services / Facilities		Location	Description	Est. Capital Cost	Est. Land Cost	Total Cost	Timing / Staging
Median Construction & Access Management Works	L20	Southern Ring Road	New England Highway to New England Highway	\$2,516,325	\$392,845	\$2,909,170	Various
Median Construction	L21	Station Lane	Southern Ring Road to Southern Collector Road	\$548,621	\$84,181	\$632,802	Stages 1/2
Restricted Median	L22	New England Highway	Minor Intersections with New England Highway	\$775,113	\$0	\$775,113	Stage 2
Intersections - Traffic Control Signals	L23	New England Highway	New England Highway West Intersection with Southern Ring Road	\$8,425,337	\$3,669	\$8,429,007	Stage 1
	L24	Southern Ring Road	At Station Lane	\$442,922	\$0	\$442,922	Stage 1
	L25	New England Highway	At Windermere Road	\$2,372,587	\$0	\$2,372,587	Stage 2
	L26	New England Highway	At Windella Road	\$4,098,869	\$501,131	\$4,600,000	Stage 1
Intersections - Roundabouts	L27	Southern Ring Road	East Intersection with Southern Collector Road	\$550,607	\$30,219	\$580,826	Stage 1
	L28	Southern Ring Road	Central Intersection with Southern Collector Road	\$550,607	\$30,219	\$580,826	Stage 1
	L29	Southern Ring Road	West Intersection with Southern Collector Road	\$550,607	\$30,219	\$580,826	Stage 2
Bus Stop Comfort Shelters	L30	Various		\$561,207	\$0	\$561,207	Various
Major Drainage Culverts	L31	Southern Ring Road x 3	New England Highway to New England Highway	\$1,727,395	\$0	\$1,727,395	Various
	L32	Northern Ring Road	Windella Road to Luskintyre Road	\$575,798	\$0	\$575,798	Stage 2
Road Construction	L33	Connection to St Helena	Southern Collector Road	\$1,386,450	\$0	\$1,386,450	Stage 2
Land Acquisition for Widening and Construction of Road Reserves	L34	Station Lane, Christopher Road, Gregory Road and Robert Road		\$1,349,243	\$643,586	\$1,992,829	
TOTAL				\$26,431,691	\$1,716,068	\$28,147,759	

It is noted the New England Highway / Station Lane intersection (project L22 above highlighted above) directly adjacent the subject site has been recently upgraded under application DA18/0456.

The intersection now comprises of channelised left and right turn lanes within the New England Highway carriageway to Station Lane and Cantwell Road, whilst the Station Lane leg of the intersection is restricted to left out movements only (i.e. right-turn out banned). For vehicles requiring to travel east from Station Lane to New England Highway, a 'U-turn' bay was provided 150 m to the west of the intersection to assist with eastbound vehicle movements via Station Lane.

An aerial view of prior and upgraded intersection layout is shown in Figure 7.

Figure 7 New England Highway / Station Lane Intersection Upgrade



Copyright Nearmap (Image Dates: April 2020 / Aug 2024)

Proposed Development

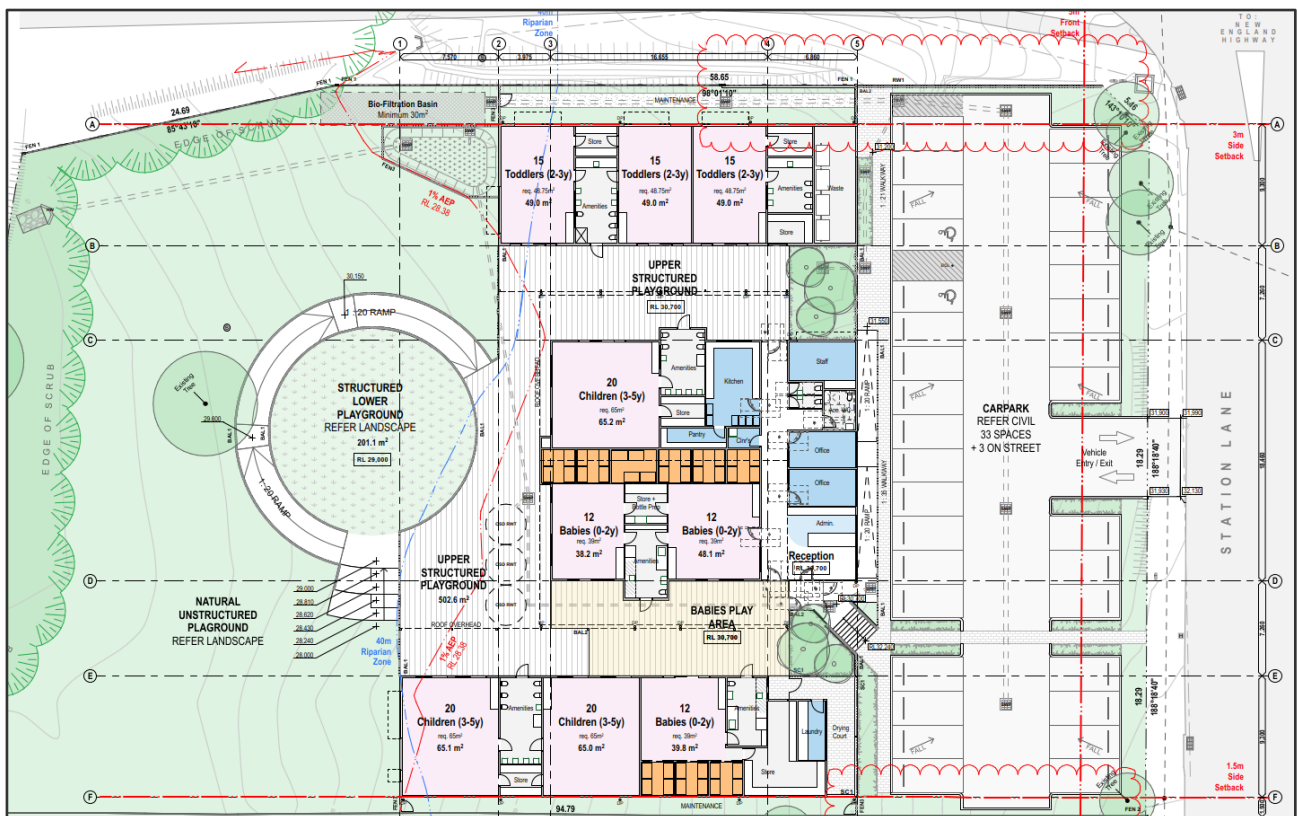
It is proposed to construct a single storey building on the subject site for the purposes of a child care centre, offering 141 places.

Vehicle access to the site is provided via two-way crossover to Station Lane located centrally located along the eastern boundary of the site, approximately 35 m south of New England Highway.

The crossover is to provide access to an on-site car park comprising 33 spaces, inclusive of two DDA spaces.

A view of the proposed site layout (ground floor) is provided in Figure 8.

Figure 8 Proposed Site Layout (GF)



Traffic Impact Assessment

Traffic Generation

Reference is made to the Transport for NSW Guide to Transport Impact Assessment (2024), which aims to assist with the assessment and preparation of development applications. The guide identifies peak traffic rates for a variety of land uses based on surveys of existing facilities.

For child care centre uses, the guide suggests the following traffic generation detailed below in Table 2.

Table 2 Child Care Traffic Generation – NSW Guide to Transport Impact Assessment (2024)

<i>Period</i>	<i>Traffic Generation</i>
AM Peak	0.77 vehicles / child
PM Peak	0.78 vehicles / child
Daily	2.27 vehicles / child

The above data is largely consistent with case study data obtained by **onemilegrid**, which is generally in the order of between 0.53 and 0.68 vehicle movements per child during peak periods.

For the purposes of a conservative assessment, the anticipated traffic generated for the proposed 141 places offered at the subject site based on the TfNSW data is shown below in Table 3, which assumes an even distribution between inbound and outbound vehicle movements.

Table 3 Anticipated Traffic Generation

<i>Period</i>	<i>Inbound</i>	<i>Outbound</i>	<i>Total</i>
AM Peak	54	54	109
PM Peak	55	55	110

It is commonly acknowledged that a high proportion of vehicle trips to a child care centre are as a result of linked trips; from a vehicle which is already on the road network as part of another trip (e.g. a vehicle diverting to a child care centre on the way from work to home). Thus, the additional traffic generated by the proposed development to the surrounding road network will likely be less than that identified above.

In order to ascertain the proportion of unlinked (unique) trips versus linked trips generated by the proposed development, data collected as part of the Victorian Integrated Survey of Travel and Activity (VISTA) was analysed specifically for child care centres, with the results shown in Table 4.

Table 4 Linked Trips Proportion – VISTA 2012-2016

<i>Use</i>	<i>Daily</i>	<i>AM Peak</i>	<i>PM Peak</i>	<i>Off Peak</i>
Child Care	49%	42%	74%	39%

It is shown above that a significant proportion of trips during peak periods are linked trips, with a particularly high proportion of linked trips during the PM peak hour.

In practical terms, this means that the net increase in movements through the New England Highway / Station Lane intersection attributable to the development will be lower than that shown in Table 3. We estimate that the number of unique vehicles trips generated by the proposed development will be approximately 63 traffic movements during the AM peak, and 29 movements in the PM peak.

Traffic Distribution

We anticipate that the child care centre will service a local catchment, primarily from within Lochinvar. In consideration of the existing residential areas and planned growth areas, we anticipate a roughly equal amount of traffic distributed to and from the south on Station Lane, and to the north to New England Highway.

Traffic Impact Review

During the critical road network peak periods, the proposal will generate approximately one additional unlinked trip in the AM peak each minute, and one unlinked trip in the PM peak every two minutes.

This level of traffic is modest, and having regard to recent upgrades at the Station Lane / New England Highway intersection, we anticipate that it will not adversely impact on capacity, queues or delays.

As traffic increases as part of the Lochinvar URA ongoing development, additional road links will be established to the south, including the east-west collector road and associated upgrades to New England Highway intersections. The ultimate road network has been extensively modelled as part of the Lochinvar URA Traffic and Transport Study, and has been confirmed to be suitable to support the entire precinct's development.

Safety Review

The site access has been located mid-way along the Station Lane frontage, providing an offset of approximately 32 metres to the New England Highway intersection.

In light of the left-only turn restrictions from Station Lane at the intersection, and modest level of traffic volumes on New England Highway, we expect that queueing is very unlikely to extend back to the site access, and that drivers may readily enter and exit the site safely.

To eliminate any potential risks in this regard, it is recommended that "Keep Clear" road markings are installed on Station Lane in the northbound carriageway to ensure that drivers approaching from the north may enter without impeding southbound through movements.

Please do not hesitate to contact the undersigned, or Max Gillespie on (03) 9982 9720 or at max.gillespie@onemilegrid.com.au, should you wish to discuss the above.

Yours sincerely



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