



# **Ordinary Meeting of Council**

**22 September 2021**

**UNDER SEPARATE COVER  
ATTACHMENTS**

**ITEMS 9.7 TO 9.10**



**QUEANBEYAN-PALERANG REGIONAL COUNCIL  
ORDINARY MEETING OF COUNCIL**

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# **QUEANBEYAN-PALERANG REGIONAL COUNCIL**

## **Council Meeting Attachment**

**22 SEPTEMBER 2021**

ITEM 9.7            PROPOSED EXHIBITION OF INTERSECTION LAYOUT -  
                              BUNYIP DRIVE/OLD COOMA ROAD, GOOGONG

ATTACHMENT 1    BUNYIP DRIVE/OLD COOMA ROAD INTERSECTION FORM  
                              REVIEW



## GOOGONG NH345

OLD COOMA ROAD & BUNYIP DRIVE INTERSECTION FORM REVIEW  
3<sup>RD</sup> SEPTEMBER 2021





## 1. INTERSECTION FORMS CONSIDERED

For the intersection of Old Cooma Road/Bunyip Drive the following intersection layouts were assessed:

1. Roundabout
2. Roundabout with a bypass lane
3. Priority give-way
4. Signalised Intersection
5. Signalised Intersection with a bypass lane

For the purposes of this analysis Urban Design features have not been considered. It has also been assumed that pedestrian crossings from Googong to the western verge of Old Cooma Road is not warranted.

This memo should be read in conjunction with the Working Paper 1: TRACKS Model Updates Report, which supplies road volumes for each road in Googong and Working Paper 2: Bunyip Drive – Cross Section Review.

## 2. TRAFFIC MODELLING ASSUMPTIONS

### 2.1 Intersection Traffic Forecasts

Intersection volumes were extracted from the TRACKS model discussed in Working Paper 1: TRACKS Model Updates Report. As there is the potential for a planning proposal that would increase the traffic on these intersections, the planning proposal volumes are used as the primary planning figures rather than the yield at the completion of the subdivision development application for Neighbourhood 3, 4 & 5. This provides certainty to Council that the intersections are appropriately future-proofed, and no further works would be required in that potential future application.

Traffic volumes are provided in the format supplied by TRACKS in Table 1. The volumes are generally in the order of 100 to 600 vehicles per intersection approach.



Table 1: 2031 peak hour traffic forecasts at the intersection of Bunyip Drive/Old Cooma Road

Peak	Subdivision Application Scenario	Planning Proposal Scenario
AM		
PM		

## 2.2 Intersection Performance

Traffic modelling was undertaken using SIDRA 9.0 for the intersection of Old Cooma Road / Bunyip Drive. Operational performance is typically measured through an assessment of the throughput of vehicles across a traffic network, with average delay per vehicle used to assess the performance of an individual intersection. This is consistent with Roads and Maritime Service best practice and is the industry standard for the assessment of intersection performance. The average delay per vehicle measure is linked to a Level of Service (LoS) index which characterises the intersection's operational performance. Table 2 provides a summary of the LoS performance bands.



Table 2: Level of Service Index

Level of Service	Average Delay per Vehicles (sec/h)	Traffic Signals / Roundabout	Give Way / Stop Signs
A	Less than 14.5	Good operation	Good operation
B	14.5 to 28.4	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
C	28.5 to 42.4	Satisfactory	Satisfactory, but incident study required
D	42.5 to 56.4	Operating near capacity	Near capacity and incident study required
E	56.5 to 70.4	At capacity, at signals incidents will cause excessive delays. Roundabouts require other control method.	At capacity, requires other control method
F	70.5 or greater		

Source: Guide to Traffic Generating Developments; Roads and Maritime Services; 2002

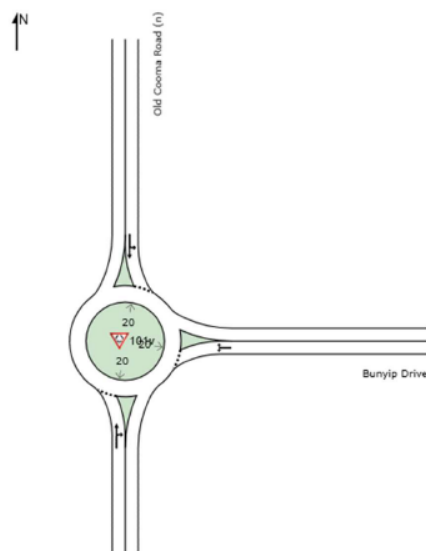
### 3. INTERSECTION ASSESSMENT

#### 3.1 Roundabout

##### 3.1.1 Traffic

A single lane roundabout was modelled as shown in Figure 1. Based on the full development of Googong's forecast traffic, as shown in Table 1, the intersection will perform at Level of Service A in the AM peak and Level of Service A in the PM peak with acceptable delays.

Figure 1: Old Cooma Road/Bunyip Drive – Roundabout





### 3.1.2 Geometry

A preliminary intersection layout demonstrating the proposed geometry has been depicted in sketch CX031 provided attached to this memo.

#### Advantages:

- ▶ Roundabouts are a beneficial intersection treatment when a high proportion of right-turning traffic is proposed,
- ▶ Promotes vehicles to reduce their speed on approach,
- ▶ Fewer conflict points and relatively low angle of conflict between entering and circulating traffic therefore reducing the number and severity of crashes; and,
- ▶ Trees and other high landscaping features may be positioned in the inner area of the central island, provided it is large enough to ensure that sight lines are not impeded, and clear zone requirements are met.

#### Disadvantages:

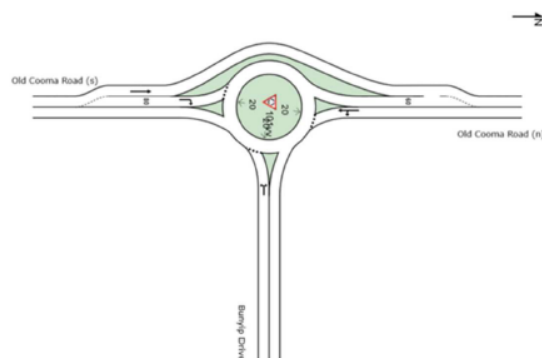
- ▶ Roundabout is offset to avoid impacting the existing western road reserve boundary. This offset positions a larger proportion of the intersection under the proposed 132kV overhead power, increasing the length of road the 132kV poles are spanning,
- ▶ The roundabout offset does not provide a desirable line of travel for southbound traffic. The offset of the roundabout creates a low-speed exit for southbound traffic and accelerating on exit will not be easily achieved.
- ▶ Speed reduction treatments are required for 80km/hr posted roundabouts to alert drivers to a change in environment and encourage a more gradual reduction in vehicle speeds; and,
- ▶ Significant increase in land take required to accommodate intersection form.

### 3.2 Roundabout with Bypass Lane

#### 3.2.1 Traffic

A single lane roundabout with a bypass lane was modelled as shown in Figure 2. Based on the full development of Googong's forecast traffic, as shown in Table 1, the intersection will perform at Level of Service A in the AM peak and Level of Service A in the PM peak with acceptable delays.

Figure 2: Old Cooma Road/Bunyip – Roundabout with Bypass Lane





### 3.2.2 Geometry

A preliminary intersection layout demonstrating the proposed geometry has been depicted in sketch CX032 provided attached to this memo.

#### Advantages (In Addition to Section 3.1.2)

- ▶ Enables northbound right turning traffic into Googong to decelerate clear of through traffic.

#### Disadvantages (In Addition to Section 3.1.2)

- ▶ Land acquisition required along the western boundary of Old Cooma Road to adequately accommodate the bypass lane,
- ▶ Promotes high speed environment when northbound traffic bypassing the intersection,
- ▶ Adequate distance for acceleration lane to merge with the bypass lane cannot be accommodated without impacting the existing intersection of Fernleigh Drive/Old Cooma Road (see Section 6 below).

### 3.3 Priority Intersection

#### 3.3.1 Traffic

A priority intersection was modelled with the same layout that was assessed at Structure Plan Phase in the *Neighbourhood 3, 4 & 5 Traffic Report* prepared by Calibre as depicted in Figure 3. Based on the full development of Googong's forecast traffic, as shown in Table 1, the intersection is forecast to perform at Level of Service A with minimal delays. A higher degree of saturation and delays is expected in the AM peak compared to the PM Peak with higher traffic volumes forecast to turn right from Bunyip Drive that need to give way to traffic on Old Cooma Road.

Figure 3: Old Cooma Road/Bunyip Drive – Priority







### 3.3.2 Geometry

A preliminary intersection layout demonstrating the proposed geometry has been depicted on sketch CX019 provided attached to this memo.

#### **Advantages – Give Way Arrangement:**

- ▶ Location of intersection is straight and generally flat which is conducive to a priority controlled T-intersection form,
- ▶ Intersection layout can be compact and minimises disturbance to adjacent land,
- ▶ There is adequate sight distance available and a good perception of the treatment,
- ▶ Traffic travelling along Old Cooma Road will not be impacted by vehicles on Bunyip Drive or waiting times associated with signals or roundabouts; and,
- ▶ Flexibility of staging the intersection if signals are warranted in the future.

#### **Disadvantages – Give Way Arrangement:**

- ▶ Motorists are required to determine an appropriate gap acceptance when completing a right turn movement; and,
- ▶ Public Transport are not provided with a priority movement.

Sketch CX018 has also been prepared to demonstrate a priority intersection seagull arrangement and has been attached to this memo. A seagull turn treatment provides a channelised protection for right turn traffic when entering a through traffic stream at a T-junction.

#### **Advantages – Seagull Intersection:**

- ▶ An operational advantage in right turners from the Bunyip Dr being able to accept a gap at the first carriageway and merge with Old Cooma Road traffic at the second carriageway,
- ▶ Appropriate at locations where right turns from the terminating leg experience delays due to lack of gaps,
- ▶ Provides storage for right turn movements,
- ▶ Enables turning traffic to accelerate clear of through traffic; and,
- ▶ Median and separation protects and guides through vehicles, remaining clear of stationary Old Cooma Road right turn traffic

#### **Disadvantages – Seagull Intersection:**

- ▶ Requires additional pavement width on major road to accommodate turning movements and merge taper for through movement,
- ▶ Adequate distance for acceleration lane cannot be accommodated without impacting the existing intersection of Fernleigh Drive/Old Cooma Road,
- ▶ If the acceleration lane is reduced too significantly and heavy vehicles merge at a much slower speed than the through traffic, it can be difficult for drivers on the through road to determine whether to brake or accelerate at the merge; and,
- ▶ Austroads cautions the use of a seagull arrangement particularly in high speed areas.



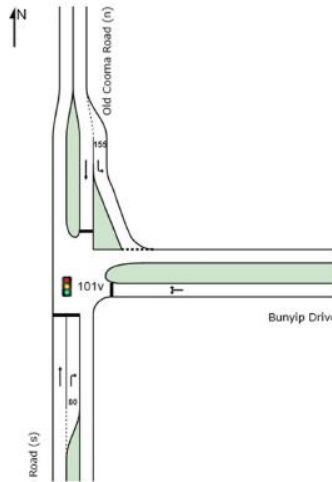


### 3.4 Signalised Intersection

#### 3.4.1 Traffic

A set of traffic signals was modelled with the layout shown in Figure 4. Based on the full development of Googong's forecast traffic, as shown in Table 1, the intersection is forecast to perform at Level of Service B with acceptable delays. The delays to be experienced by drivers will increase if this intersection is signalised when compared to priority-controlled or a roundabout.

Figure 4: Old Cooma Road/Bunyip Drive – Traffic Signals



#### 3.4.2 Geometry

A preliminary intersection layout demonstrating the proposed geometry has been depicted on sketch CX017 provided attached to this memo

##### Advantages:

- ▶ Reduced number of conflict points
- ▶ Can readily accommodate priority measures for public transport
- ▶ Eliminates the gap acceptance decision requirement for right turn movements

##### Disadvantages:

- ▶ Northbound motorists may be surprised by the location of a signalised intersection as there is no indication of an urbanised area prior to the approach.
- ▶ Austroads notes that signalised intersections are generally not desirable from a safety perspective in high-speed environments
- ▶ A significant benefit for introducing traffic signals would need to be demonstrated that cannot be achieved by other means
- ▶ Driver discipline is an essential feature of traffic signals and when not warranted can lead to noncompliance by drivers



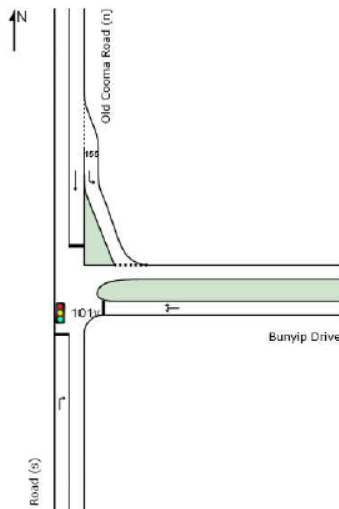
- ▶ There is no overwhelming benefit to pedestrians and cyclists by introducing traffic signals as crossing demands is foreseen as low

### 3.5 Signalised Intersection – Bypass lane

#### 3.5.1 Traffic

A set of traffic signals was modelled with the layout shown in Figure 5. It is noted that the northbound through traffic lane and the associated traffic volumes have not been modelled as they are not required to stop through the bypass lane. Based on the full development of Googong's forecast traffic, as shown in Table 1, the intersection is forecast to perform at Level of Service B with acceptable delays. The overall intersection delays have slightly reduced in the AM peak as the northbound traffic does not need to stop through the bypass lane.

Figure 5: Old Cooma Road/Bunyip Drive – Traffic Signals with Bypass Lane



### 3.6 Geometry

A preliminary intersection layout demonstrating the proposed geometry has been depicted on sketch CX017 provided attached to this memo

#### Advantages (In Addition to Section 3.4.2):

- ▶ Median separation protects and guides through vehicles, remaining clear of stationary right turn traffic
- ▶ Enables turning traffic to decelerate clear of through traffic

#### Disadvantages (In Addition to Section 3.4.2):

- ▶ Promotes high speed environment when northbound traffic bypassing the intersection
- ▶ Requires relocation of Fernleigh Drive and/or Bunyip Drive to achieve required intersection spacing (see Section 6 below)



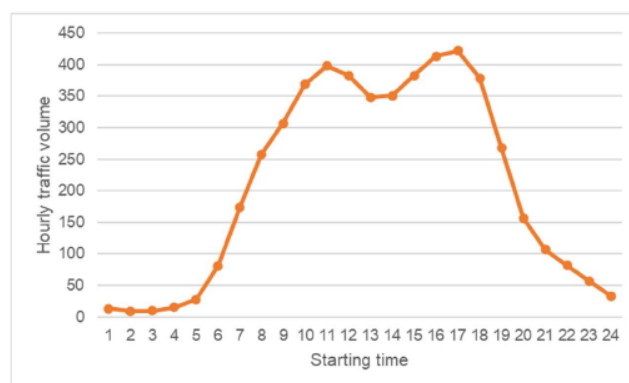
#### 4. TRAFFIC SIGNAL WARRANTS

TfNSW lists general warrants for installation of traffic signals in *Traffic Signal Design – Section 2 Warrants* document (RTA). The document stresses that the list is a guide and that traffic signals may not be the most optimal solution, even if the site satisfies the warrants. Conversely, traffic signals may be installed irrespective of general warrants due to external factors.

It is assumed that the traffic volumes in the horizon year (2031) have considered all approved development within the catchment area that would use the potential new signalised intersection at Old Cooma Road / Bunyip Drive.

It is noted that the warrant criteria must be satisfied for each of four one-hour periods of an average day. Hence, the two one-hour peak traffic forecasts were expanded to an hourly traffic volume of 24 hours based on the typical daily traffic profile of the nearest permanent traffic counter at Monaro Highway (1.94km south of Braidwood Street), as shown in Figure 6, which is not a representative of Googong or Bunyip Dr/Old Cooma Rd. The road network peak occurs between 8am and 11am and 3pm and 6pm. The profile showed that traffic volumes recorded from 9-11am could be between 20 to 30 per cent higher than the typical road network peak at 8-9am. In the afternoon peak, traffic is 10 per cent higher during 3-4 pm when compared to the typical road network peak at 5-6pm.

Figure 6: Daily Traffic Profile of Monaro Highway



Source: Transport for NSW Traffic Volume Viewer Station 6114

The expected approach volumes during the AM and PM peak periods are shown below in. Traffic volumes that are higher than 600 veh/hr in each direction are highlighted in red and minor approaches with traffic volumes of more than 200 are highlighted in green in the table below.



Table 3: Traffic Volumes On Each Approach during 2031 AM and PM Peak Period (six hours)

Peak period	Time	Traffic volumes for all approaches			Total throughput
		N	E	S	
AM	8:00-9:00	59	457	429	945
	9:00-10:00	71	549	516	1,136
	10:00-11:00	76	592	556	1,225
PM	3:00-4:00	600	242	212	1,055
	4:00-5:00	614	247	217	1,078
	5:00-6:00	551	222	195	968

The peak period traffic volumes for all approaches are reviewed against the TfNSW warrant criteria to establish whether signals are required at the intersection of Old Cooma Road / Bunyip Drive. Table 4 presents the findings of the review. Based on the review against the TfNSW warrant criteria, the intersection of Old Cooma Road / Bunyip Drive does not warrant traffic signals based on the 2031 traffic forecasts

Table 4: Warrant Criteria Review Results

Warrant	Criteria	AM	PM	Warrants met?
a) Traffic demand	(i) The major road flow exceeds 600 vehs / h in each direction; and	No	No	No
	(ii) The minor road flow exceeds 200 vehs / h in one direction.	No	Yes	
b) Continuous traffic	(i) The major road flow exceeds 900 vehs / h in each direction; and	No	No	No
	(ii) The minor road flow exceeds 100 vehs / h in one direction; and	No	Yes	
	(iii) The speed of traffic on the major road or limited sight distance from the minor road causes undue delay or hazard to the minor road vehicles; and	TBC	TBC	
	(iv) There is no other nearby traffic signal site easily accessible to the minor road vehicles.	No	No	
c) Pedestrian safety	(i) The pedestrian flow crossing the major road exceeds 150 persons / hr; and	Very unlikely^	Very unlikely^	No
	(ii) The major road flow exceeds 600 vehicles / hr in each direction or, where there is a central median of at least 1.2m wide, 1,000 vehicles / hr in each direction.	No	No	
	(i) The pedestrian flow crossing the major road exceeds 150 persons / hr; and	Very unlikely^	Very unlikely^	No



d) Pedestrian safety – high speed road	(ii) The major road flow exceeds 450 vehicles / hr in each direction or, where there is a central median of at least 1.2m wide, 750 vehicles / hr in each direction; and	No	No	
	(iii) The 85th percentile speed on the major road exceeds 75 km / hr.	TBC	TBC	
e) Crashes	(i) The intersection has been the site of an average of three or more reported towaway or casualty traffic accidents per year over a three year period, where the traffic accidents could have been prevented by traffic signals; and	TBC	TBC	No
	(ii) The traffic flows are at least 80% of the appropriate flow warrants.	No	No	

Source: SCT Consulting, 2020

\*- The warrant criteria must be satisfied for each of four one-hour periods of an average day.

^ There is no development to the west of Old Cooma Road that generates any pedestrians to cross the major road.

TBC – these parameters couldn't be assessed as speed data is not available

## 5. OPINION OF PROBABLE COSTS

A preliminary opinion of probable cost has been prepared and summarised in Table 5 for the roundabout, priority controlled giveaway intersection, seagull intersection and signalised intersection form. The opinion of probable cost assessment has excluded any items that would make a negligible difference to costs for the purposes of comparing the different layouts. The items excluded from the estimate are:

- ▶ Preliminaries, Control of Traffic and Sediment Erosion Control,
- ▶ Signage and linemarking,
- ▶ Stormwater and service relocations,
- ▶ Footpaths and kerb ramps,
- ▶ Earthworks; and,
- ▶ Demolition of existing Old Cooma Road.

The opinion of probable costs provided in Table 5 has adopted the below assumptions:

- ▶ The roundabout will be a rigid pavement,
- ▶ No landscaping or landscape treatments in the centre of the roundabout has been accounted for,
- ▶ The signalised intersection will include deep lift pavement where traffic loops are required,
- ▶ The priority intersection, seagull intersection and signalised intersection includes full depth pavement reconstruction of Old Cooma Road; and,
- ▶ Pavement areas and kerb lengths are determined based on intersection geometry depicted on sketches CX017, CX018, CX019 and CX031.



Table 5: Opinion of Probable Cost Comparison

	Roundabout	Priority Intersection	Seagull Intersection	Signalised Intersection
Kerb	\$20,000	\$21,800	\$23,800	\$21,900
Concrete Median	\$18,900	\$68,000	\$40,700	\$97,600
Pavement	\$333,300	\$248,600	\$331,000	\$314,700
Concrete Jointing	\$123,100	-		
Signals				\$100,000
<b>Total (Ex GST)</b>	<b><u>\$495,300</u></b>	<b><u>\$338,400</u></b>	<b><u>\$395,500</u></b>	<b><u>\$534,200</u></b>

A supplementary opinion of probable cost has been included in Table to identify the additional total costs required to include a bypass lane for both the roundabout intersection option and the signalised intersection option. The below breakdown does not account for any land acquisition costs or augmentation to the Fernleigh Drive intersection required to accommodate the bypass lane arrangements.

Table 6: Opinion of Probable Cost Comparison Bypass Lanes

	Roundabout with Bypass Lane	Signalised Intersection with Bypass Lane
<b>Extra Over Cost (ex GST)</b>	<b><u>\$85,000</u></b>	<b><u>\$90,000</u></b>



## 6. INTERSECTION RELOCATION

The intersection assessment identified the proximity of Bunyip Drive and Fernleigh Drive was a limiting factor to the intersections with bypass lanes. The separation of these two intersections is currently 230m. If an acceleration lane was to be accommodated the separation between the two intersections onto Old Cooma Road would need to increase by approximately 100m to a separation of 330m.

### 6.1 Relocating Fernleigh Drive:

- ▶ The road reserve provision allows for a 100m relocation of the intersection
- ▶ Existing driveway access onto Fernleigh would be relocated to the amended Fernleigh Drive location
- ▶ Formalised road side swale along Old Cooma Road and a new culvert crossing would be introduced
- ▶ Street trees located within the road reserve would require removal
- ▶ The anticipated cost to relocate Fernleigh Drive is approximately \$150,000 (excluding GST)

Figure 7: Fernleigh Drive Realignment Option



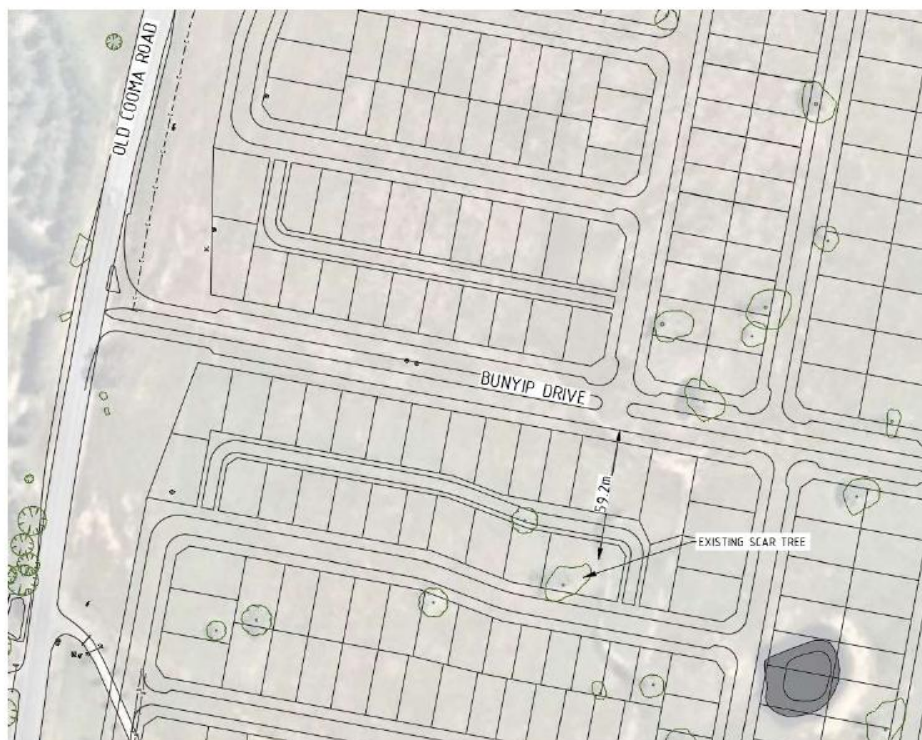
### 6.2 Relocating Bunyip Drive

- ▶ The current Bunyip Drive intersection was chosen to be centrally located in NH3 in accordance with best practice urban design principles of legibility, walkability and utilisation of the current site features, such as topography. The current Bunyip Drive location creates sections of about 220m

long on each side of the road. Moving the road 100m to the south will result in very short sections on the southern side of Bunyip Drive and long sections of about 320m on the northern side. These longer sections would not be compliant with the DCP and a break in the sections would need to be provided. However, given the topography, breaks in these longer sections would not be achievable as the middle of the section is at the highest point. Creation of longer section on the north side of Bunyip Drive would significantly compromise the urban design principles that the NH3-5 Structure Plan and proposed NH3-5 DA layout set out to achieve.

- ▶ The shifting of Bunyip Drive further south will impact on the culturally significant scar tree that has been retained in the current layout, shown in Figure 8 below.
- ▶ An existing farm dam located within the current Old Cooma Road road reserve would need to be removed and upstream catchments managed through road side swales along Old Cooma Road.
- ▶ Additional trees will require removal along the western verge of Old Cooma Road

Figure 8: Scar Tree Proximity to Bunyip Drive's Current Alignment







## 7. OLD COOMA ROAD/ BUNYIP DRIVE SUMMARY

### 7.1 Traffic

A summary of the intersection performance for the four assessed layouts is provided in Table 7. The give-way intersection form performs the best of the options. The give way intersection operates at a Level of Service A with low delays. The introduction of a roundabout or traffic signals increases the typical delay and maximum delay for drivers. At the level of traffic, the give way intersection control is the most efficient as there are frequent gaps in traffic – the roundabout or signals require more traffic to wait for gaps or signals to change.

Table 7: Intersection Performance By Different Intersection Layouts

Intersection layout	Performance Metric	Development Application		Planning Proposal	
		AM peak	PM peak	AM Peak	PM Peak
<b>Priority</b>	DoS	0.40	0.34	0.40	0.37
	Delay	9.0s	9.7s	9.0s	9.8s
	LoS	A	A	A	A
<b>Roundabout</b>	DoS	0.37	0.45	0.37	0.44
	Delay	13.0s	12.0s	13.0s	12.1s
	LoS	A	A	A	A
<b>Roundabout with bypass lane</b>	DoS	0.24	0.45	0.24	0.44
	Delay	12.0s	11.6s	12.0s	11.6s
	Los	A	A	A	A
<b>Signalised intersection</b>	DoS	0.39	0.34	0.39	0.35
	Delay	20.2s	17.4s	20.2s	18.1s
	LoS	B	B	B	B
<b>Signalised intersection with a bypass lane</b>	DoS	0.28	0.34	0.28	0.35
	Delay	12.3s	15.7s	12.3s	16.3s
	LoS	A	B	A	B

Source: SCT Consulting, 2021

Note that the delay is based on worst movement for priority and roundabout and based on the average for signal-controlled intersections; DoS is based on worst movement for all types of intersections



## 8. OLD COOMA ROAD INTERSECTIONS CUMULATIVE ANALYSIS

Old Cooma Road and the four intersecting roads; Googong Road, Wellsvale Drive, Fernleigh Drive and Bunyip Drives have been assessed to identify the impact of travel time along Old Cooma Road following the development of NH345. Two modelling scenarios were proposed for comparison, being:

- ▶ NH1 and NH2 only
- ▶ NH1, NH2 and NH345.

### 8.1 Forecast Traffic Volumes by the intersections

Intersection volumes were extracted from the TRACKS model discussed in *Working Paper 1: TRACKS Model Updates Report*. The traffic volumes under the development application scenario were adopted based on the yield after the subdivision development application for NH345.

A total of four intersections were included in a study area for Old Cooma Road, totalling over 3 km. They include:

- ▶ Old Cooma Road/Googong Road (signal)
- ▶ Old Cooma Road/Wellsvale Drive (signal)
- ▶ Old Cooma Road/Fernleigh Drive (give way)
- ▶ Old Cooma Road/Bunyip Drive (signal without bypass as worst case).

Traffic volumes are provided in the format supplied by TRACKS from Table 8 to Table 11. The volumes are up to 2,700 vehicles per hour per intersection approach. It is noted that there will be only through traffic (calculated from Fernleigh Drive intersection) for the intersection of Old Cooma Road/Bunyip Drive in the NH1 and NH2 only scenario assuming Bunyip Drive does not exist.



Table 8: Ultimate peak hour traffic forecasts at the intersection of Old Cooma Road/Googong Road

Scenario	NH1 & 2	NH1 & NH2 + NH345
AM		
PM		



Table 9: Ultimate peak hour traffic forecasts at the intersection of Old Cooma Road/Wellsville Drive

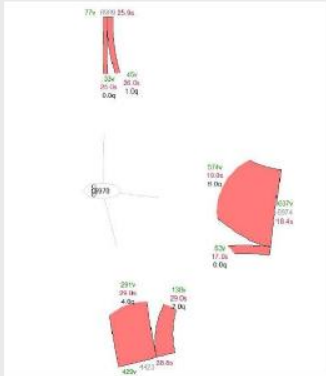
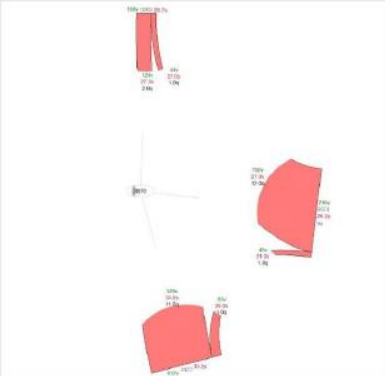
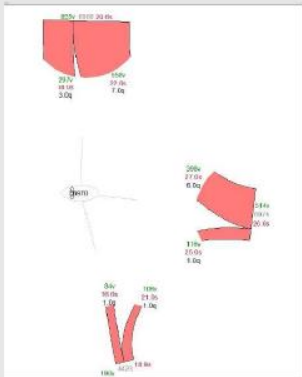
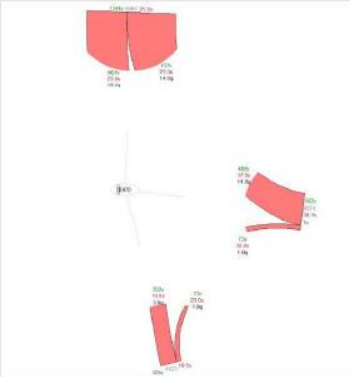
Scenario	NH1 & 2	NH1 & NH2 + NH345
AM		
PM		



Table 10: Ultimate peak hour traffic forecasts at the intersection of Old Cooma Road/Fernleigh Drive

Scenario	NH1 & 2	NH1 & NH2 + NH345
AM		
PM		

Table 11: Ultimate peak hour traffic forecasts at the intersection of Old Cooma Road/Bunyip Drive

Scenario	NH1 & 2	NH1 & NH2 + NH345
AM	N/A	
PM	N/A	

## 8.2 Intersection Performance

Traffic modelling was undertaken using SIDRA 9.0 for the four intersections, which were connected in a network to evaluate the intersection performance and travel time impact. The below assumptions were adopted for the modelling:

- ▶ Based on SCATS signal timing data on 20 September 2020 for the two existing signal intersections, it is acknowledged that the two sites are not coordinated and running 'isolated'. There are no fixed cycle times (ranging from 40 seconds to 70 seconds). This is a typical operating mode for signals that are long distances away from each other and are operating with low delays.
- ▶ Signals and pedestrian crossings have been removed for the left turn slip lane from the north to the east for Old Cooma Road/Googong Road and Old Cooma Road/Wellsville Drive intersections. These pedestrian crossings are almost never called during peak periods due to the low pedestrian demand, so don't have an impact on signal operations.



The intersection layouts are shown in Table 12. A summary of the intersection performance is provided in Table 13.

Table 12: Intersection Layouts

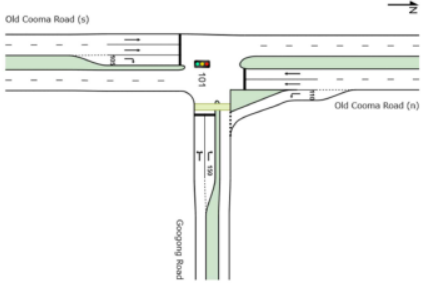
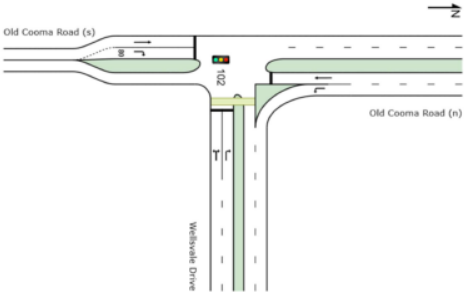
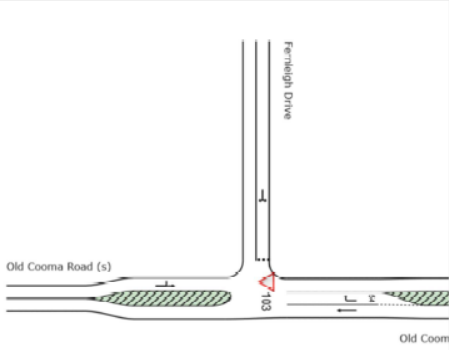
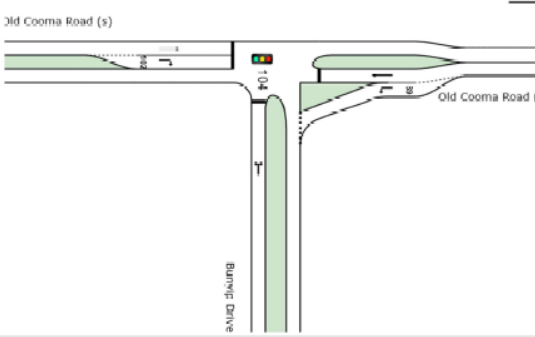
Layouts	
<div> <b>Old Cooma Road/Googong Road</b>  </div>	<div> <b>Old Cooma Road/Wellsvale Drive</b>  </div>
<div> <b>Old Cooma Road/ Fernleigh Drive</b>  </div>	<div> <b>Old Cooma Road/ Bunyip Drive</b>  </div>

Table 13: Intersection Layouts

Intersections	Performance Metric	NH1 and NH2		NH1 and NH2 + NH345	
		AM peak	PM peak	AM peak	PM peak
<b>Old Cooma Road/Googong Road</b>	DoS	0.86	0.82	0.78	0.94
	Delay	16.3s	14.4s	18.1s	15.1s
	LoS	<b>B</b>	<b>A</b>	<b>B</b>	<b>B</b>
<b>Old Cooma Road/Wellsdale Drive</b>	DoS	0.72	0.77	0.85	0.85
	Delay	17.8s	16.3s	19.4s	19.5s
	LoS	<b>B</b>	<b>B</b>	<b>B</b>	<b>B</b>
<b>Old Cooma Road/Fernleigh Drive</b>	DoS	0.18	0.17	0.30	0.33
	Delay	8.2s	8.6s	9.4s	11.3s
	LoS	<b>A</b>	<b>A</b>	<b>A</b>	<b>A</b>
<b>Old Cooma Road/Bunyip Drive</b>	DoS	Intersection doesn't exist in this scenario		0.58	0.50
	Delay			12.8s	11.9s
	LoS			<b>A</b>	<b>A</b>

Source: SCT Consulting, 2021

Note that the delay is based on worst movement for priority and roundabout and based on the average for signal-controlled intersections; DoS is based on worst movement for all types of intersections.

All intersections have good performance with a Level of Service B and above, before and after NH345, as evidenced by the constant LoS across the two scenarios. The only exception is Old Cooma Road/Googong Road intersection where the subdivision of NH345 slightly increases the delay, resulting a LoS A to B. However, it should be noted that the delay has been already 0.1 seconds less than the higher end of the band (14.5 seconds) for LoS A before the subdivision.

The longest queue occurs on the left turn slip lane at the intersection of Googong Road/Old Cooma Road (north to east) for PM peak hour when the NH345 is open. However, the queue length (139 m) is fully accommodated within the turning bay (140 m).

A northbound route and a southbound route were specified along Old Cooma Road (between Bunyip Drive and Googong Road) for AM peak and PM peak hour, respectively. This is to identify the implication of the travel time and control delay for a wider community and the road users on Old Cooma Road before and after the introduction of NH345 (Figure 9 and Figure 10).

Figure 9 Route for AM peak hour





Figure 10 Route for PM peak hour



### 8.2.1 Average travel speed

According to *AGTM03-17 Part 3 Traffic Study and Analysis Methods*, the traffic conditions associated with the various levels of service for urban and suburban arterial roads with interrupted flow conditions are described in HCM 2016 (Table 14):

Table 14 Level of Service for urban and suburban arterial roads, speed metrics in *italics*

Level of Service	Description
A	<b>Primarily free-flow operation.</b> Vehicles are completely unimpeded in their ability to manoeuvre within the traffic stream. Control delay at the boundary intersections is minimal. <i>The travel speed exceeds 80% of the base free-flow speed (BFFS).</i>
B	<b>Reasonably unimpeded operation.</b> The ability to manoeuvre within the traffic stream is only slightly restricted and control delay at the boundary intersections is not significant. <i>The travel speed is between 67% and 85% of the BFFS.</i>
C	<b>Stable operation.</b> The ability to manoeuvre and change lanes at mid-segment locations may be more restricted than at LOS B. Longer queues at the boundary intersections may contribute to lower travel speeds. <i>The travel speed is between 50% and 67% of the BFFS.</i>
D	<b>A less stable condition</b> in which small increases in flow may cause substantial increases in delay and decreases in travel speed. This operation may be due to adverse signal progression, high volume, or inappropriate signal timing at the boundary intersections. <i>The travel speed is between 40% and 50% of the BFFS.</i>
E	<b>Unstable operation and significant delay.</b> Such operations may be due to some combination of adverse progression, high volume, and inappropriate signal timing at the boundary intersections. <i>The travel speed is between 30% and 40% of the BFFS.</i>

Source: AGTM03-17 Part 3 Traffic Study and Analysis Methods, 2020  
BFFS stands for Base Free Flow Speed and is assumed to be the speed limit

The resultant travel speed and speed efficiency of the two routes before and after NH345 are compared in Table 15.



Table 15 Travel speed (2031 peak hours)

Route	Scenario	Travel speed	Speed Efficiency	Difference due to NH345 delivery
AM peak in northbound direction	NH1 and NH2	71.6 km/h	0.90	-11.2%
	NH1 and NH2 + NH345	63.6 km/h	0.80	
PM peak in southbound direction	NH1 and NH2	66.3 km/h	0.83	-7.2%
	NH1 and NH2 + NH345	61.5 km/h	0.77	

The development of NH345 would result in speed reduction on Old Cooma Road, i.e. 11.2 per cent and 7.2 per cent, respectively for northbound in the AM peak and southbound in the PM peak hour. When NH345 is fully developed, the speed efficiency (travel speed to speed limit ratio) are 0.8 and 0.77 for AM peak and PM peak hour, which are located in LoS A and B category. This indicates limited speed reduction for the Old Cooma Road users as a result of the development of NH345.

### 8.2.2 Delays

The average control delay for the route in the AM peak and PM peak would increase by around 1.5 to 5.5 seconds after the development of NH345. This is a marginal increase over a 3 km section of Old Cooma Road during the peak hours (Table 16).

Table 16 Control delay (2031 peak hours)

Route	Scenario	Average control delay	Difference
AM peak in northbound direction	NH1 and NH2	5.5 seconds	+5.4 seconds
	NH1 and NH2 + NH345	10.9 seconds	
PM peak in southbound direction	NH1 and NH2	8.7 seconds	+1.5 seconds
	NH1 and NH2 + NH345	10.2 seconds	



## 9. CONCLUSION

This memo considers the feasibility of various layout options for the intersection of Old Cooma Road / Bunyip Drive, based on forecast ultimate Googong traffic volumes.

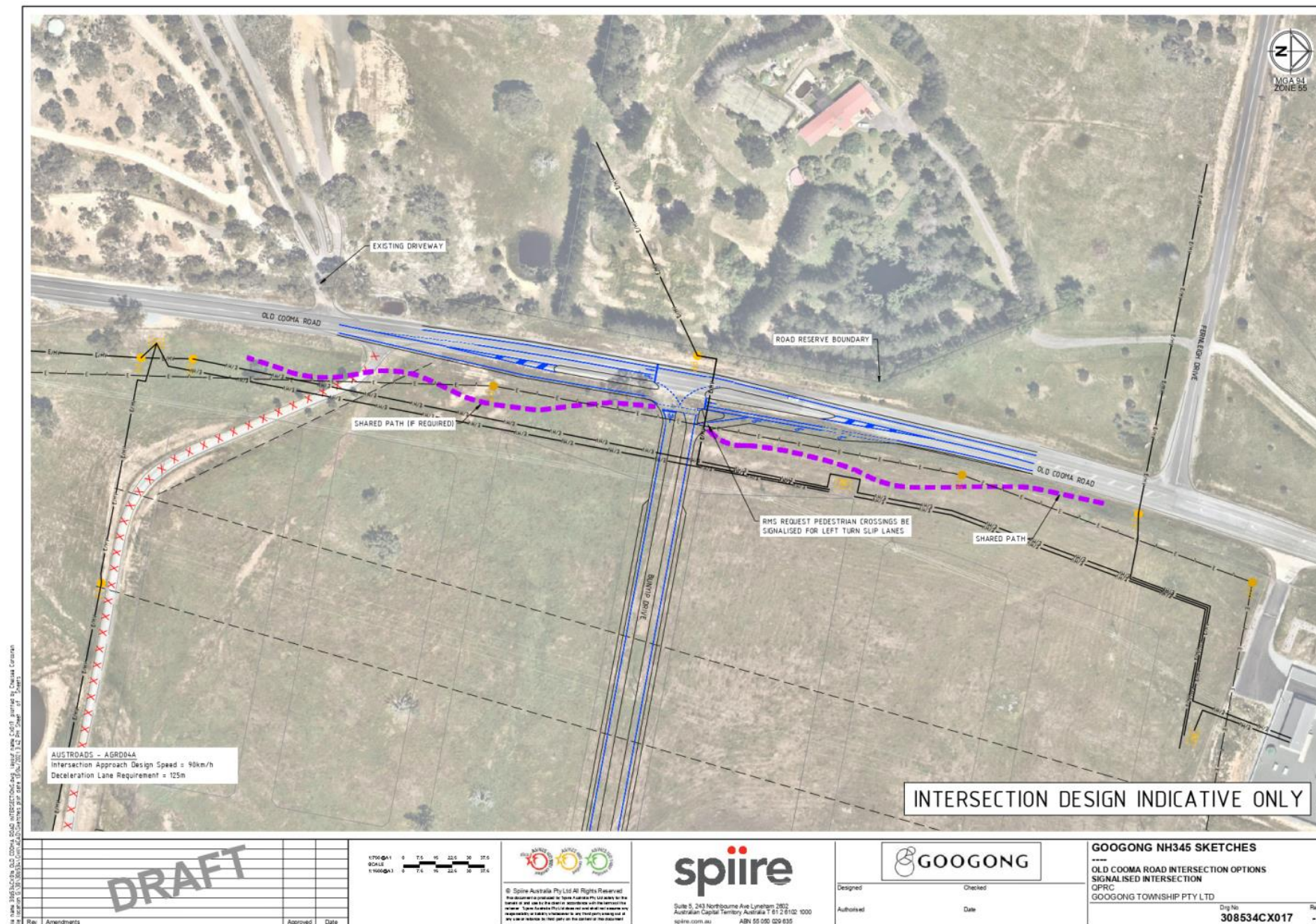
SIDRA modelling forecasts that the intersection would operate satisfactorily as a priority (give-way), roundabout or traffic signals, during peak hours of Googong's full development. However, traffic signals would not be warranted at this location according to *Traffic Signal Design – Section 2 Warrants*.

The priority (give-way) intersection operates with the lowest delays of all the options with no superior justification for the intersection of Old Cooma Road/Bunyip Drive to be signalised.

Therefore, it is recommended a priority give-way intersection is provided at the intersection of Old Cooma Road / Bunyip Drive as it has the lowest levels of delay and promotes flexibility for staging the intersection should traffic signals be warranted in the future. A priority controlled intersection formalises and reinforces road rules as well as assigns priority to Old Cooma Road without significant impact or alterations to the existing road reserve.

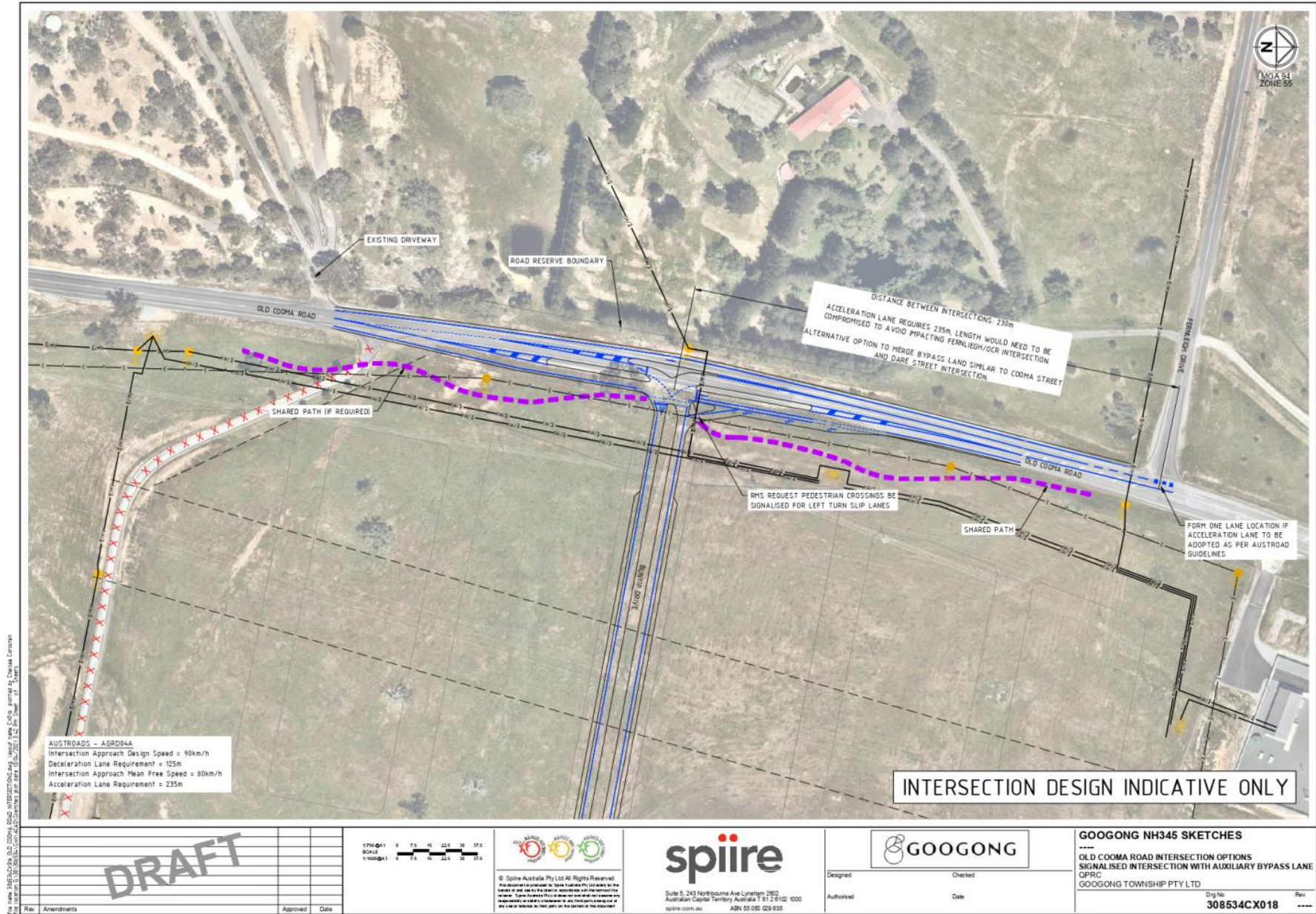
Additionally a comparison of the corridor performance of Old Cooma Road before and after the development of NH345 was reviewed. It is concluded that there is limited reduction of travel speed and increase of control delay along Old Cooma Road as a result of the development NH345 including the new intersection of Bunyip Drive. Therefore it is expected that the impact of the subdivision is at a level to be accepted by the local community and a wider user group of Old Cooma Road.

9.7 Proposed Exhibition of Intersection Layout - Bunyip Drive/Old Cooma Road, Googong  
Attachment 1 - Bunyip Drive/Old Cooma Road Intersection Form Review (Continued)





**9.7 Proposed Exhibition of Intersection Layout - Bunyip Drive/Old Cooma Road, Googong**  
**Attachment 1 - Bunyip Drive/Old Cooma Road Intersection Form Review (Continued)**





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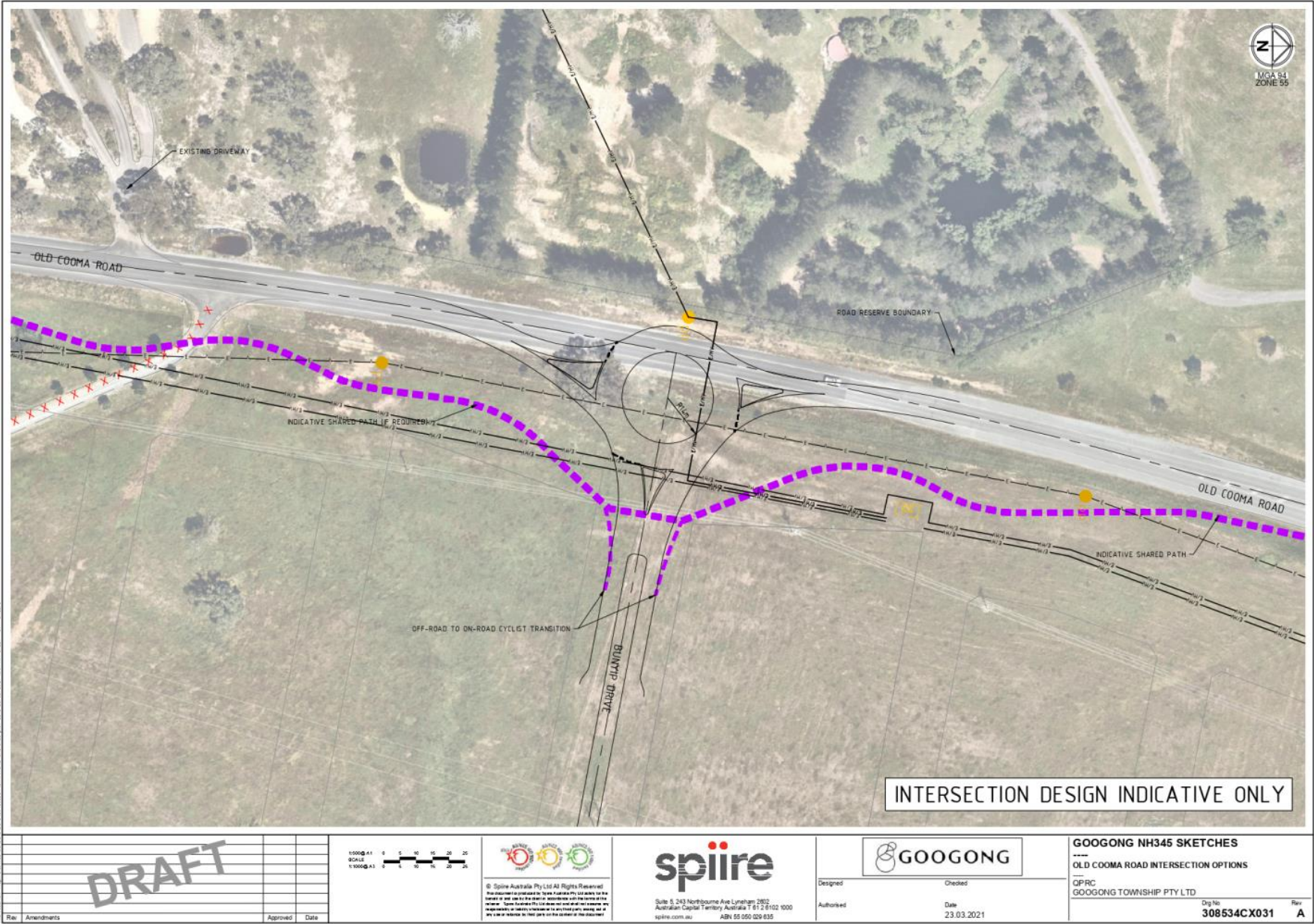
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 Date 23/03/2021

**GOOGONG NH345 SKETCHES**  
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 GIVE WAY T-INTERSECTION  
 QPRC  
 GOOGONG TOWNSHIP PTY LTD

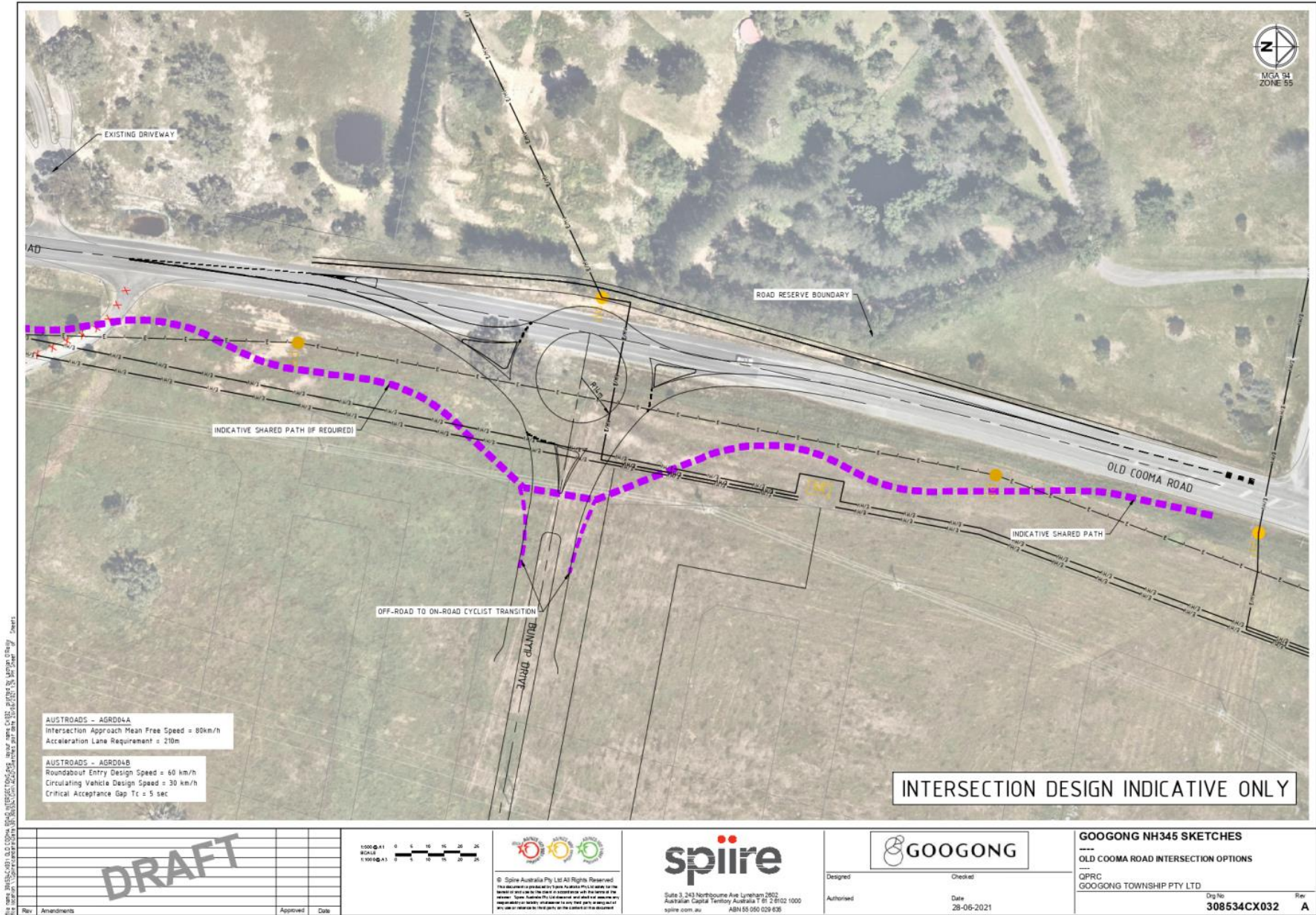
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**9.7 Proposed Exhibition of Intersection Layout - Bunyip Drive/Old Cooma Road, Goongong**  
**Attachment 1 - Bunyip Drive/Old Cooma Road Intersection Form Review (Continued)**





**QUEANBEYAN-PALERANG REGIONAL  
COUNCIL**

# Council Meeting Attachment

22 SEPTEMBER 2021

ITEM 9.8 ROAD NAMING PROPOSED FOXTON PLACE, BRAIDWOOD VILLAGE

ATTACHMENT 1    MAP SHOWING LOCATION OF NEW UNNAMED ROAD

**9.8 Road Naming Proposed Foxton Place, Braidwood Village**  
**Attachment 1 - Map Showing Location of New Unnamed Road (Continued)**



# **QUEANBEYAN-PALERANG REGIONAL COUNCIL**

## **Council Meeting Attachment**

**22 SEPTEMBER 2021**

ITEM 9.9      REVIEW OF ENVIRONMENTAL FACTORS - REGIONAL  
SPORTS COMPLEX - ENVIRONA

ATTACHMENT 1      REVIEW OF ENVIRONMENTAL FACTORS - REGIONAL  
SPORTS COMPLEX, ENVIRONA

# Review of Environmental Factors

Queanbeyan-Palerang Regional  
Sports Complex - Stage 1

80220020

Prepared for  
Queanbeyan-Palerang Regional Council

7 September 2021



 **Cardno**<sup>®</sup>

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V1	15/05/2020	Working Draft	MK, CNB	JO'G
V2	21/10/2020	Final Draft	MK	JO'G
V3	27/10/2020	Final	MK	JO'G
V4	7/09/2021	Final following 2021 project update	MK	CNB, SP

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Our report is based on information made available by the client. The validity and comprehensiveness of supplied information has not been independently verified and, for the purposes of this report, it is assumed that the information provided to Cardno is both complete and accurate. Whilst, to the best of our knowledge, the information contained in this report is accurate at the date of issue, changes may occur to the site conditions, the site context or the applicable planning framework. This report should not be used after any such changes without consulting the provider of the report or a suitably qualified person.

---

## Executive Summary

### The proposal

This Review of Environmental Factors (REF) has been prepared by Cardno NSW/ACT Pty Ltd on behalf of Queanbeyan-Palerang Council (Council) in support of Stage 1 works for the proposed Queanbeyan-Palerang Regional Sporting Complex (QPRSC) located at South Jerrabomberra.

Stage 1 REF works comprise the following:

- Bulk earthworks across the site
- Construction of:
  - four (4) soccer fields
  - two (2) hockey pitches
  - multiple northern playing fields
  - car parking
  - a main access road & internal roads and paths
  - stormwater infrastructure
  - a storage/maintenance shed.
- Installation of:
  - public lighting, including sports field flood lighting
  - utilities
  - fencing
  - irrigation
  - signage.
- Initial landscaping
- Creek remediation.

Note that other works, for example a multipurpose stadium, are being undertaken as part of Stage 1, but are discussed in a separate Statement of Environmental Effects (SEE).

### Proposal objectives

- > Support lifelong health and wellbeing through excellence in sports by 2021, which enables participation for all levels of ability.
- > Provide a home for sports currently not able to play within the Queanbeyan-Palerang region, by 2021.
- > Provide a Centre of Excellence that draws high level sports participants and events to the Queanbeyan-Palerang region, by 2021.
- > Facilitate the hosting of significant sporting fixtures within the 2021 sports season.

### Options consideration

Several other options have been considered for this project, including delaying the project, or locating the QPRSC at a site in Bungendore. The current proposal has been determined as the most feasible and preferable.

### Statutory planning framework

The Stage 1 works described in this REF can be undertaken without consent under Part 5 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). This report constitutes the necessary environmental assessment to support the works under Part 5.

---

#### **Community and stakeholder consultation**

No explicit community and stakeholder consultation has been undertaken for this stage, however consultations have been undertaken for the QPRSC more broadly.

Consultation has taken the form of community engagement for the former Queanbeyan City Council Community Strategic Plan, and subsequent delivery and financial plans.

Once endorsed, this REF will be placed on public exhibition for and submissions will be invited.

#### **Environmental impacts and mitigation**

Due to the ecologically degraded and contaminated state of the site, positive impacts are anticipated as a result of the Stage 1 works.

Potential impacts resulting from the development have been carefully considered in its design, with mitigation measures incorporated. This includes construction of extensive stormwater infrastructure to transmit existing stormwater flows safely across the site to Jerrabomberra Creek.

Flooding risk context and potential impacts arising from the Stage 1 development have also been modelled for the site. The development has been found to only impact minimally on the existing flood regime, primarily within Jerrabomberra Creek. There would be some overlap between future land uses and low-to-medium flood hazard categories under 1-in-100 year ARI flood events. This is limited to a number of the playing fields and sections of the roads and carparks, and will be mitigated through development of a Flood Emergency Evacuation Plan before operation commences.

The works additionally overlap with a Potential Archaeologic Deposit (PAD) associated with Jerrabomberra Creek. Additionally, the site contains a new Aboriginal site consisting of a two-artefact scatter. Potential impacts will be mitigated through a strategy developed with the support of local Aboriginal groups, which would include:

- Undertaking of a surface artefact collection program at the Aboriginal site.
- Subsurface test excavation throughout all areas of the PAD to be impacted prior to works.
- An unanticipated discovery protocol to be implemented for all works.

The investigations associated with this REF have determined that significant impacts are not likely. Consequently an Environmental Impact Statement is not required for the works described.

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#### Glossary of terms and abbreviations

Term	Meaning
ACM	Asbestos containing material
CHA	Cultural Heritage Assessment
DP	Douglas Partners
DPI	Department of Primary Industries
DSI	Detailed Site Investigation
EIA	Ecological Impact Assessment
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
IHMR	Intrusive Hazardous Materials Register
ISEPP	<i>State Environmental Planning Policy (Infrastructure) 2007</i>
KE Ltd	Keane Environmental Pty Ltd
LEP	<i>Queanbeyan Local Environmental Plan 2012</i>
LES	<i>Tralee Local Environmental Study 2005</i>
MNES	Matters of National Environmental Significance
PAD	Potential archaeological deposit
PCB	Polychlorinated biphenyl
POEO Act	<i>Protection of Environment Operations Act 1997</i>
QPRSC	Queanbeyan-Palerang Regional Sporting Complex
REF	Review of Environmental Factors
RFA	Regional Forest Agreement
SEE	Statement of Environmental Effects
SEPP 55	<i>State Environmental Planning Policy No 55 – Remediation of Land</i>

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## 1 Introduction

---

### 1.1 Background

This Review of Environmental Factors (REF) has been prepared by Cardno NSW/ACT Pty Ltd on behalf of Queanbeyan-Palerang Council (Council) in support of various works incorporated in the proposed Queanbeyan-Palerang Regional Sporting Complex (QPRSC) located at South Jerrabomberra.

This REF should be considered in conjunction with the technical documentation and specialist assessment reports, provided as appendices to this document.

### 1.2 Project History

In 2012, Council began planning a regional sporting hub to service communities in the Queanbeyan, Palerang and surrounding areas. This followed a need identified in Council's 2010-2020 Community Strategic Plan.

The current site was selected after several iterations of the concept, with a Master Plan for the site being completed by Oxigen Pty Ltd (Oxigen) in May 2019. The Master Plan incorporates a two stage development, which includes several sporting fields with both natural and synthetic turf, a large indoor aquatic facility, and indoor hardcourt facilities, as well as various service and administration facilities.

A separate REF has been undertaken for a preconstruction stage of the development, involving decontamination works across the site, and removal of waste and debris.

The current REF concerns the selected Stage 1 works, including earthworks, and construction of a number of sporting fields and associated facilities. The remaining Stage 1 works are discussed in the Statement of Environmental Effects (SEE) for that stage.

A future Stage 2 is being planned, including the aquatic centre, and administration buildings, with details yet to be determined.

### 1.3 Site Location

The subject land is located in the area known as North Tralee, NSW (**Figure 1-1**). It is situated immediately to the west of Jerrabomberra, and straddles the border of the ACT. The proposed QPRSC site is primarily located within Lot 6 DP 239080, with some extensions into Lot 1 DP 313299 and Lot 1 DP 213249. The subject site is bound to the north and east by the Jerrabomberra Creek, to the west by the ACT and NSW Border and Bombala Rail Line, and to the south by Environa Drive which is currently under construction as part of DA 393-2015 to serve the planned Environa and South Tralee residential developments to the south.

Land surrounding the site is primarily undeveloped land that has been cleared for agricultural purposes in the past. Access to the site is provided by Environa Drive. Environa Drive is being constructed to serve the residential developments to the south of the site. It is being constructed as a two-lane road (one in either direction), and currently connects to Amott St via Territory Parade (a dirt road) to the west, via a locked access road.

The subject land, which has a history hosting motor sports, comprises of an open field and mounding related to the former Tralee Speedway/Fraser Park Raceway and ½ Mile Speedway. There are various dilapidated structures and remains throughout the site relating to its former use, including spectator facilities, earth mounding, amenities buildings and, notably, a dilapidated stone-faced brick building built as a toilet facility in the late 1920s. Although this toilet facility building does not have a state or local heritage listing, it is considered to have some heritage value within the context of the site, and is subject to a detailed heritage investigation by Brendan O'Keefe in 2018. The site is located approximately 7.5 km south of the Canberra International Airport. It is within the 20-25 Australian Noise Exposure Forecast (ANEF) contour.



Figure 1-1 Site plan  
 80220020 | 7 September 2021 | Commercial in Confidence



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## 2 Description of the proposal

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### 2.1 Queanbeyan-Palerang Regional Sporting Complex overview

Construction of the QPRSC is to be undertaken as a multi-staged development. Specifically, the QPRSC will involve the following stages:

- > Preconstruction Stage – Works within the preconstruction stage were subject to a previous REF. These include:
  - o Removal of asbestos containing materials (ACMs) across the site
  - o Removal of polychlorinated biphenyl (PCB) containing light fittings across the site
  - o Excavation of a small former landfill area and stockpiling for waste classification and removal
  - o Excavation, crushing and stockpiling of non-contaminated bricks and concrete material on site
  - o Removal of general waste and debris from the site.
- > Stage 1 – This stage consists of the following works, described in the current REF, and a separate Statement of Environmental Effects (SEE):
  - o REF works (Part 5 matters):
    - Bulk earthworks across the site
    - Construction of:
      - four (4) soccer fields;
      - two (2) hockey pitches;
      - multiple northern playing fields;
      - car parking;
      - a main access road & internal roads and paths;
      - stormwater infrastructure;
      - a storage/maintenance shed,
    - Installation of:
      - public lighting, including sports field flood lighting;
      - utilities;
      - fencing;
      - irrigation;
      - signage,
    - Initial landscaping,
    - Creek remediation.
  - o SEE works (Part 4 matters):
    - Basketball stadium
    - Major sports pavilion between hockey and soccer fields
    - Minor sports pavilion between hockey and soccer fields
    - Minor sports pavilion between soccer fields
    - Adaptive re-use of existing heritage building (stone-faced brick building)
- > Stage 2 – not yet finalised, but expected to include:
  - o Public realm (partial)

- Aquatic centre
- Administration
- Child care
- Public realm (remaining)

Refer to **Appendix A – Siteworks & Strategies** for staging diagrams of the works.

## 2.2 This proposal

This REF concerns a number of the works for Stage 1 of the QPRSC which can be undertaken under Part 5 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) (see **Section 4.2.1**, below).

Detailed descriptions of the proposed works include the following.

### 2.2.1 Earthworks

The QPRSC will require earthworks to level and grade the site. Particularly, the various playing fields are required to be entirely level.

Most earthworks required for the QPRSC will be undertaken during Stage 1. This includes:

- Final grading of all sports fields
- Final grading of roads, paths and carpark
- Grading building pads for all planned buildings
- Removal of remaining berms from former speedway
- Excavation of swales across the eastern and western sides of the site
- Excavation of a central stormwater channel.

While the earthworks include the building footprint, further excavation will be required for the aquatic centre during its construction in Stage 2.

For detailed earthworks plans, and detailed plans of the swales and stormwater culvert refer to the Site Works Plan and Strategy, by Oxigen (**Appendix A**), and the Civil Drawings Set (**Appendix F**).

### 2.2.2 Soccer Fields

Stage 1 is to include construction of four (4) soccer fields. These are to be approximately 105m by 68m in size, although exact dimensions are to be confirmed.

Of these, two fields will be constructed using premium synthetic wet turf, and two will be comprised of premier natural turf. The natural turf fields will be irrigated.

The two southern soccer fields will be surrounded by hardstand viewing areas, including a terraced section along the inner boundary.

The two more northern soccer fields (not including the adaptable northern playing fields, described below), will primarily be surrounded with softscape viewing areas consisting of maintained lawn, with only a thin area of hardscaped space immediately surrounding the fields.

For detailed plans for the soccer fields, see the Site Works Plan and Strategy (**Appendix A**), and the Civil Drawings Set (**Appendix F**).

The sports fields are accompanied by amenities pavilions, including changerooms, toilet facilities, medical facilities and storage spaces, as well as a function room with kitchen and bar. These are discussed in detail in the SEE for Stage 1.

### 2.2.3 Hockey pitches

Stage 1 includes two (2) synthetic professional hockey pitches. The dimensions of these will be 101.4m by 64m, including runoff ends and sides.

These are situated alongside the southern two soccer fields, and are similarly surrounded by hardstand viewing area with some terraced sections.

The sports fields are accompanied by amenities pavilions, including changerooms, toilet facilities, medical facilities and storage spaces, as well as a function room with kitchen and bar. These are discussed in detail in the SEE to Stage 1.

For detailed plans for the hockey pitches, see the Site Works Plan and Strategy (**Appendix A**), and the Civil Drawings Set (**Appendix F**).

#### 2.2.4 Northern playing fields

The Stage 1 development will also include a large area of natural turf playing fields, adaptable to multiple sports. These are located in the north-west of the site.

Primarily, these will be configured to accommodate up to six touch/rugby fields, two soccer fields, or a combination of these.

For detailed plans for the northern playing fields, see the Site Works Plan and Strategy (**Appendix A**), and the Civil Drawings Set (**Appendix F**).

#### 2.2.5 Parking

While earthworks will be undertaken for all parking spaces for the site, only spaces necessary for Stage 1 will be completed during this stage of works.

Parking is to be located in the centre of the sporting complex, with a number of spaces positioned to allow for views of playing fields. The parking will be divided into two main sections, one between the northern soccer fields and future aquatic centre, and one above the southern soccer and hockey fields.

There are 448 car parking spaces provided in total, including 19 disability access spaces. There will be parking/drop off spaces for up to three coaches on site, as well as drop off points for personal vehicles.

The site will also include overflow parking on undeveloped grass above the hardsurface carpark, allowing for up to 100 additional cars, and 9 coaches during major events.

For detailed plans for parking, see the Site Works Plan and Strategy (**Appendix A**), and the Civil Drawings Set (**Appendix F**). For discussion of traffic impacts at the site, see **Section 6.3**, below, and the Traffic and Parking Assessment by Taylor Thomson Whiting (TTW) (**Appendix D**).

#### 2.2.6 Storage/maintenance shed

A shed for storage of maintenance tools and materials will be constructed on site. The shed will be located at the west side of the development, away from public parking, and will be eventually be obscured from view following the construction of the aquatic centre at a later stage.

The shed will be approximately 200m<sup>2</sup> in area, and will be constructed from steel sheeting. It will consist of six bays, each 3.18m in width, and with its own front-loading roller door.

For greater detail on the design of the storage/maintenance shed, see the Siteworks & Strategy (**Appendix A**).

#### 2.2.7 Access road and internal paths

Stage 1 will include all internal roads and paths for the development. Vehicle access will be from Enviro Drive, at the south of the site, and will connect to the central carpark with a two-way road. The access road will include a bicycle lane.

Internal cycle access will be provided for almost all sporting facilities, except for the northern playing fields. Bicycle racks will be provided at the dedicated playing fields, and the indoor basketball stadium (discussed in the SEE to Stage 1).

Pedestrian access is provided from the carpark to all sporting facilities across the site. Road crossings are provided across internal roads. Pedestrian access primarily consists of pathways of fortified concrete, up to the south-eastern corner of the northern playing fields. The grades of pedestrian paths are limited to less than 5% longitudinal grade and 2.5% crossfall in accordance with AS1428, to aid accessibility.

Additionally, off-road accessibility to multiple points across the site, including all playing fields will be kept for maintenance and emergency vehicles.

For detailed description of internal roads and paths, see the Site Works Plan and Strategy (**Appendix A**), and the Civil Drawings Set (**Appendix F**). For assessment of traffic impacts, refer to **Section 6.3** and the Traffic and Parking Assessment (**Appendix D**).

### 2.2.8 Stormwater infrastructure

All significant stormwater infrastructure for the QPRSC will be constructed during Stage 1.

Stormwater on site will be captured from hard surfaces, and roofs, and directed toward retention basins, with final locations to be confirmed at the detailed design stage. Runoff from roads and the carpark will first be directed to rain gardens, and naturally filtered.

Water captured in the retention basins will be further mechanically filtered, and treated, before being reused for irrigation of sports fields and elsewhere across the site.

The proposed South Tralee Development site to the south will result in an additional load of stormwater being received by the QPRSC site. This water will be directed through the site by three large channels.

These channels consist of two grassed swales along the eastern and western boundaries of the site, and a larger channel through the centre. All channels will flow northwards towards Jerrabomberra Creek, where they ultimately will discharge.

The large central channel will be partially open, but will continue as a culvert through the centre of the site, particularly under the carpark. The open sections will be vegetated on the sites, with gabion retaining structures to prevent erosion.

For further detail on stormwater infrastructure proposed for the QPRSC, see the Site Works Plan and Strategy (**Appendix A**), the Civil Drawings Set (**Appendix F**), and the Civil and Stormwater Assessment by TTW (**Appendix E**). For further discussion of stormwater and flooding impacts relating to the Stage 1 development, see **Section 6.9**, below.

### 2.2.9 Landscaping

Initial landscaping works will take place for Stage 1 of the QPRSC. The site will be planted with a variety of trees, shrubs and groundcovers, both native and exotic. Some of this will be functional, such as the rain gardens along the centres of the roads and carpark. Species for these areas will be drawn from Water Sensitive Urban Design best practice, and will include species such as *Liriodendron tulipifera* (Tulip Tree) and *Sophora japonica* (Japanese Pagoda).

The access road will be lined with two species of oak, *Quercus phellos* (Willow Oak) and *Quercus palustris* (Pin Oak). Central areas of the site, such as beside major facilities and along main pedestrian pathways, will be planted with stands of flowering and ornamental plants.

Undeveloped areas of the site, besides those reserved for overflow parking or off-road access, will be planted with a mix of native and exotic trees, in many areas emulating species compositions from local native grassland ecosystems.

Final details of planting schemes will be established at the detailed design stage.

While the development will not enter into the 40m riparian zone except for the points where stormwater enters the creek and at these points, remediation may be required. Where required, the riparian zone will be vegetated using local native riverine species such as *Casuarina cunninghamiana* (River Oak) and *Eucalyptus polyanthemus* (Red Box). This will follow a Remediation Action Plan (RAP), which is yet to be finalised.

Detailed landscaping plans can be found in the Site Works Plan and Strategy (**Appendix A**), and the Landscape Plan, by Oxigen (**Appendix B**).

### 2.2.10 Lighting

A variety of category P lighting will be installed in Stage 1, for roads paths, the carpark and plazas.

Lighting outputs will be strictly controllable and will have no upward spill due to constraints around Canberra airport flight paths.

For detailed lighting plans, see the Site Works Plan and Strategy (**Appendix A**) and the Services Infrastructure Report by Lucid Consulting (**Appendix H**).

### 2.2.11 Utilities

All required utility connections will be installed for Stage 1 of the QPRSC. Specifically, this will consist of the following:

- Electricity



- A pad-mounted transformer will be installed on site by Council and Essential Energy, who the electrical supply authority for the region.
- Potable water
  - A new 100mm drinkable cold water main will be connected to the site. The main is to largely be reticulated in-ground, providing water connections to all main points of the site
  - Water supply for the aquatic centre will be considered separately with the corresponding stage for that development.
- Fire water
  - A dedicated 150mm fire services main will supply the site. This will supply external double-headed fire hydrants located adjacent to the basketball stadium and sports pavilions.
- Wastewater
  - The site will include a gravity sewer travelling from the east to the west of the site, and connecting to an onsite sewer pump station. From there it will be pumped to the authority sewer system.

Final layouts of utilities infrastructure will be determined at the detailed design stage.

For further detail on utilities infrastructure for the QPRSC, see the Civil Drawings (**Appendix F**), and the Services Infrastructure Report (**Appendix H**).

#### 2.2.12 Fencing and security

Security and safety fencing will be installed for Stage 1. This will include:

- 6.0m high netting behind dedicated sports field goals
- 2.1m high cyclone mesh sports fencing surrounding southern soccer fields, hockey pitches and viewing areas, including gates
- 1.0m high cyclone mesh sports fencing immediately surrounding all dedicated sports fields
- 1.0m post and rail fencing along eastern and western boundaries of site between Environs Drive, and Jerrabomberra Creek, and along northern and eastern boundaries of proposed aquatic centre site
- A main gate, style and position to be confirmed.

Additionally, outdoor CCTV cameras will be installed strategically throughout the site.

For detail on fencing and CCTV positions and types, see Site Works Plan and Strategy (**Appendix A**).

#### 2.2.13 Signage

Signage will be installed at the entry of the site, as well as throughout the QPRSC, to aid internal navigation. Final positions of signage will be determined closer to construction.

#### 2.2.14 Revegetation works

Stage 1 is to include ecological remediation of Jerrabomberra Creek, in the area at the north of the site, except at the points at which stormwater discharges.

Revegetation is to be based on local riverine ecosystems, and include tree species such as *Casuarina cunninghamiana* (River Oak), *Eucalyptus polyanthemos* (Red Box), *Eucalyptus bridgesiana* (Apple Box), and *Eucalyptus mannifera* (Brittle Gum).

Revegetation works are to follow the forthcoming RAP.

#### 2.2.15 Operation

Once completed, Council will operate the QPRSC in accordance with their procedural framework for sports facilities. The site is expected to be used regularly on weekdays, including into the evening (from 6am-10pm) and for weekend sport (from 8am – 6pm). Additional use, primarily during daylight hours and potentially in the evenings, would be likely for sports carnivals and/or regional events.

Operation may continue beyond 10pm for irregular events, such as presentation nights.

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Routine maintenance will include inspections of the entire sports grounds. All routine maintenance works will be undertaken during standard working hours, with the exception of after-hours works in relation to emergency situations such as power outages or flood events.

### 3 Consultation

Part 2 of the *State Environmental Planning Policy (Infrastructure) 2007* (ISEPP) contains provisions for public authorities to consult with local councils and other public authorities in certain circumstances prior to the commencement of development. This is detailed below in **Table 3-1**:

Table 3-1 Infrastructure SEPP Consultation Requirements

Is consultation with Council required under clauses 13-16 of the Infrastructure SEPP?	
Are the works likely to have a substantial impact on the stormwater management services which are provided by council?	No
Are the works likely to generate traffic to an extent that will strain the existing road system in a Local Government Area?	No, locality does not currently have public road infrastructure, however Environa Drive, connecting the site, is being designed with the sports complex use in consideration.
Will the works involve connection to a council owned sewerage system? If so, will this connection have a substantial impact on the capacity of the system?	Yes, however existing sewer infrastructure is considered sufficient. Refer to the Services Infrastructure Report ( <b>Appendix H</b> ) for details.
Will the works involve connection to a council owned water supply system? If so, will this require the use of a substantial volume of water?	Yes, however potable water usage will be modest for the size of the development. Irrigation of fields will be undertaken with captured and filtered stormwater runoff on site. For details, refer to <b>Section 6.9</b> .
Will the works involve the installation of a temporary structure on, or the enclosing of, a public place which is under local council management or control? If so, will this cause more than a minor or inconsequential disruption to pedestrian or vehicular flow?	No
Will the works involve more than a minor or inconsequential excavation of a road or adjacent footpath for which council is the roads authority and responsible for maintenance?	No
Are the works located on flood liable land? If so, will the works change flooding patterns to more than a minor extent?	Yes, works are located on flood liable land. Flood patterns are only anticipated to be impacted to a minor extent For more detail on flooding impacts, see <b>Section 6.9</b> , and the Flood Impact Assessment ( <b>Appendix G</b> ).
Is there a local heritage item (that is not also a state heritage item) or a heritage conservation area in the study area for the works? If yes, does a heritage assessment indicate that the potential impacts to the item/area are more than minor or inconsequential?	No
Is consultation with other agencies required under clause 16 of the Infrastructure SEPP?	
Are the works adjacent to a national park, nature reserve or other area reserved under the <i>National Parks and Wildlife Act 1974</i> ?	No
Are the works adjacent to a declared aquatic reserve under the <i>Fisheries Management Act 1994</i> ?	No
Are the works in the Sydney Harbour Foreshore Area as defined by the <i>Sydney Harbour Foreshore Authority Act 1998</i> ?	No
Do the works involve the installation of a fixed or floating structure in or over navigable waters?	No

Are the works for the purpose of residential development, an educational establishment, a health services facility, a correctional facility or group home in bush fire prone land?	No
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Additionally, the State Emergency Services (SES) will be consulted before works commence, as they are proposed to take place on flood liable land (Clause 15AA).

### 3.2 Community consultation

Extensive community consultation has taken place in the development of the QPRSC Concept Master Plan, through detailed design planning and Development Application preparation, which informs the current work.

Consultation has taken the form of community engagement for the former Queanbeyan City Council Community Strategic Plan, and subsequent delivery and financial plans. Broad community engagement also took place through Council's "Your Voice" platform, to receive feedback on the concept designs, to which strong support was received. Adjoining developers have included the proposed Regional Sports Complex into their marketing strategies and have designed nearby development to complement the sports complex when complete.

The design of the QPRSC has followed ongoing consultation with the Queanbeyan-Palerang Regional Council Sports Council and input from various local sporting groups over 2018-2021. Additionally, three separate workshops have been held during 2019-2020 with representatives from the sporting codes who will be using the completed QPRSC.

During early business case preparation for Stage two, Multi Sports building, the wider sporting community was consulted with many organisations giving letters of support, endorsing the Regional Sports Complex and its value to the Queanbeyan Palerang Region and southern ACT. Extensive engagement has also taken place over the past 12 months, with the local aboriginal community, due to the proximity of the site to Jerrabomberra Creek. All through this process, the various aboriginal organisations and individuals have been positive and supportive.

### 3.3 Future consultation

Systematic community consultation will take place in relation to the following construction stages of the QPRSC, which demand more detailed input from the public to inform its design than does remediation works. Engagement will be undertaken with the Development Application process and at each stage of construction and development of future stages. Staging of the QPRSC, with proposed works is described in **Section 2.1**, above.

During the construction of the initial stages, further consultation will be carried out with the community on proposed naming and recognition of athletes and prominent citizens with a connection to sports in the region or the local history.

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## 4 Statutory and planning context

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### 4.1 Introduction

This section has been prepared in accordance with the requirements of the *Environmental Planning and Assessment Act, 1979* (EP&A Act) which provides the legislative planning framework for NSW. This section provides a discussion of the relevant Acts, environmental planning instruments and approvals applicable to the proposed activity.

### 4.2 Approvals framework

#### 4.2.1 Environmental Planning & Assessment Act 1979

The EP&A Act and the *Environmental Planning and Assessment Regulation 2000* (EP&A Reg) provide the statutory planning context for environmental assessment and approval for the proposed works.

In accordance with Section 5.7 of Part 5 of the EP&A Act, further consideration of whether the proposed activity is or is not likely to significantly affect the environment is required following the choice of the final design. If a likely significant impact is determined as a result of this REF, an EIS may be required.

*(1) A determining authority shall not carry out an activity, or grant an approval in relation to an activity, being an activity that is a prescribed activity, an activity of a prescribed kind or **an activity that is likely to significantly affect the environment**, unless:*

*(a) the determining authority has obtained or been furnished with and has examined and considered **an environmental impact statement** in respect of the activity.*

This REF will be assessed under Division 5.1 of Part 5 of the EP&A Act, with Council as the determining authority. As the determining authority, under Division 5.1 of Part 5 of the EP&A Act, Council is required to "take into account to the fullest extent possible all matters affecting or likely to affect the environment".

Discussion of the proposal in relation to Clause 228 of the EP&A Reg, which specifically deals with environmental sustainability is in **Section 7.1**.

### 4.3 State Environmental Planning Policies

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

The aim of *State Environmental Planning Policy (Infrastructure) 2007* (ISEPP) is to facilitate the effective delivery of infrastructure across the State through increased regulatory certainty and improved efficiency and flexibility in the location of infrastructure and service facilities while providing adequate stakeholder consultation.

The Stage 1 works described in **Section 2.2** above are permissible without consent under Part 3 of the ISEPP, under *Division 12 – Parks and other public reserves*. Specifically, Clause 65(3) of that division states the following:

- (3) Any of the following development may be carried out by or on behalf of a council without consent on a public reserve under the control of or vested in the council—*
- (a) development for any of the following purposes—*
  - (i) roads, pedestrian pathways, cycleways, single storey car parks, ticketing facilities, viewing platforms and pedestrian bridges,*
  - (ii) recreation areas and recreation facilities (outdoor), but not including grandstands,*
  - (iii) visitor information centres, information boards and other information facilities,*
  - (iv) lighting, if light spill and artificial sky glow is minimised in accordance with the Lighting for Roads and Public Spaces Standard,*
  - (v) landscaping, including landscape structures or features (such as art work) and irrigation systems,*
  - (vi) amenities for people using the reserve, including toilets and change rooms,*
  - (vii) food preparation and related facilities for people using the reserve,*
  - (viii) maintenance depots,*



- (ix) portable lifeguard towers,
- (b) environmental management works,
- (c) demolition of buildings (other than any building that is, or is part of, a State or local heritage item or is within a heritage conservation area).

The works described in this REF are consistent with the above categories of works. Works for Stage 1 which are not consistent with the above require consent, and are therefore subject to Part 4 of the EP&A Act. Those works have instead been discussed and assessed in the SEE for Stage 1.

This REF will be assessed under Division 5.1 of Part 5 of the EP&A Act, with Council as the determining authority.

#### 4.3.2 State Environmental Planning Policy (Koala Habitat Protection) 2019

The Queanbeyan-Palerang LGA does not fall within the Koala Habitat SEPP region.

### 4.4 Other NSW Legislation

#### 4.4.1 Biodiversity Conservation Act 2016

The *Biodiversity Conservation Act 2016* (BC Act) outlines protection of threatened species, populations or ecological communities, or their habitats, and delivers a strategic approach to biodiversity conservation in NSW whilst supporting improved farm productivity and sustainable development.

Due to the highly disturbed ecological state of the site, no negative impacts upon threatened species, populations or ecological communities are anticipated as part of Stage 1 works. A positive impact is instead anticipated as part of remediation work for Jerrabomberra Creek.

Detail on existing biodiversity values of the site, and potential impacts are provided in the Ecological Impact Assessment (EIA) undertaken by Cardno (**Appendix I1**; at the end of this report), and discussed further in **Section 6.2**, below. The specific works involved in the remediation works will be described in detail in a forthcoming RAP.

#### 4.4.2 Fisheries Management Act 1994

The *Fisheries Management Act 1994* (FM Act) provides for the conservation of the state's aquatic resources. The FM Act requires that the potential impacts on threatened species and aquatic habitat during the environmental planning and assessment process are assessed.

Under Part 7 of the FM Act, and Department of Primary Industries' (DPI) *Policy and guidelines for fish habitat conservation and management* (DPI, 2013), a permit is required for works with the potential to impact on Key Fish Habitat. Jerrabomberra Creek at the north of the site, however is not listed as Key Fish Habitat by DPI. A permit is therefore not required.

Jerrabomberra Creek is not likely to be otherwise impacted by the construction or operation of Stage 1 of the QPRSC. Sediment and erosion controls will be implemented during construction to ensure no interaction with the creek during this stage.

A positive impact is, however, anticipated as part of ongoing remediation works for the creek at the site. The specific works involved in the remediation works will be described in detail in a forthcoming RAP. A further positive impact will be achieved by capturing and treating the stormwater on site and reusing it for site irrigation.

Potential impacts to the watercourse and their mitigation are discussed further in **Section 6.9** below.

#### 4.4.3 Crown Land Management Act 2016

The purpose of the *Crown Land Management Act 2016* is to provide for the management of Crown lands for environmental protection, natural resource conservation, and public use and enjoyment. The site does not contain, nor is it near to any Crown Land, and so this Act does not apply.

#### 4.4.4 Aboriginal Land Rights Act 1983

The Aboriginal Land Rights Act only applies to land containing Crown lands. As the site does not contain Crown lands, this Act does not apply.

#### 4.4.5 National Parks and Wildlife Act 1974 (NPW Act)

The Department of Planning, Industry and Environment (DPIE) administers the NPW Act that manages:

- Conservation of nature
- Conservation of objects, places and features of cultural value
- Public appreciation, understanding and enjoyment of nature and cultural heritage
- Land reserved under this Act.

When determining applications under this Act, DPIE must consider the objectives listed above, the public interest and appropriate management of the subject land. The NPW Act stringently controls activities carried out in designated Parks, Reserves and Aboriginal areas. The NPW Act also requires consideration of impacts to all native birds, reptiles, amphibians and mammals protected under the Act.

No negative impacts to native species or environmental values, including heritage are anticipated as a result of the Stage 1 development described in this REF. A positive impact is however anticipated as part of ongoing remediation works for the Jerrabomberra Creek at the site. The specific works involved in the remediation works will be described in detail in a forthcoming RAP.

Detail on existing biodiversity values of the site and potential impacts are provided in the EIA (**Appendix I1**; at the end of this report), and discussed further in **Section 6.2**, below.

Impacts to cultural and built heritage are also not considered likely as a result of the works, given mitigation measures are followed. Heritage values for the site have been examined in detail in a Aboriginal Cultural Heritage Assessment (ACHA) from 2020 by Navin Officer (**Appendix J**), and the following Aboriginal Test Excavation Report (ATER) from 2021 by Apex Archaeology.

#### 4.4.6 Heritage Act 1997

The *Heritage Act 1997* (Heritage Act) is concerned with all aspects of the conservation of heritage places and items. Heritage items of state significance are listed on the State Heritage Register.

A search of the State Heritage Register was completed for the proposed development, and no items of state or local heritage are located within 50m of the site.

Nonetheless, the site does contain several non-listed (state or local) items of potential heritage significance, described in the *Tralee Local Environmental Study 2005*. These are described in detail in **Section 6.6**, below.

It is not considered that the Stage 1 works described in this REF will impact heritage values in any way.

#### 4.4.7 Water Management Act 2000

The *Water Management Act 2000* (WM Act) provides that certain types of development and activities carried out within 40 m of a river, lake or estuary are controlled activities. A controlled activity includes "The erection of a building or the carrying out of a work", and the proposed works will be located within 40m of a drainage channel. These activities require approval subject to Section 344(1) of the WM Act.

The NSW Aquifer Interference Policy outlines the requirement for an aquifer interference licence under the WM Act.

Section 344(1)(a) requires that "a person must not carry out a controlled activity in, or under waterfront land otherwise than in accordance with a controlled activity approval". However, as a public authority Council is exempt from the need to obtain controlled activity approval under the WM Act.

Jerrabomberra Creek is not likely to be negatively impacted by the construction or operation of Stage 1 of the QPRSC. Sediment and erosion controls will be implemented during construction to ensure no interaction with the creek during this stage.

A positive impact is however anticipated as part of ongoing remediation works for the creek at the site. The specific works involved in the remediation works will be described in detail in a forthcoming RAP.

Potential impacts to the watercourse and their mitigation is discussed further in **Section 6.9**, below.

#### 4.4.8 Protection of Environmental Operations Act 1997

The *Protection of Environment Operations Act 1997* (PEO Act) is a key component of the NSW Government's legislation to protect the environment. This Act regulates and controls pollution of land, air, water and noise and provides for environment protection licences, notices and offences.

None of the works proposed as part of the Stage 1 REF are Scheduled activities for the purposes of the POEO Act and therefore do not require environment protection licences.

#### 4.4.9 Roads Act 1993

The *Roads Act 1993* (Roads Act) provides for the classification of roads and establishes the jurisdiction of roads. Under Section 138, Part 9, Division 3 of the Roads Act, a person must not impact or carry out work on or over a public road otherwise than with the consent of the appropriate road's authority.

The Stage 1 works will impact upon Environa Drive, which is under construction. This will include both through increased load during construction hours, and through general use during QPRSC operation. The appropriate roads authority for Environa Drive however is Council.

Traffic and transport impacts relating to the development are discussed further in **Section 6.3**, below.

#### 4.4.10 Rural Fires Act 1997

The *Rural Fires Act 1997* is created for the prevention, mitigation and suppression of bush and other fires in Local Government Areas. It ultimately is to protect persons from injury or death and infrastructure, environmental, economic and cultural impacts. The site and works for Stage 1 are not located within Bushfire Prone Land, and consequently no authorisation under this act is required.

### 4.5 Local planning context

#### 4.5.1 Queanbeyan Local Environmental Plan (West Jerrabomberra) 2013

As the works are undertaken under Part 5 of the EP&A Act, the *Queanbeyan Local Environmental Plan (West Jerrabomberra) 2013* (LEP) does not apply. The LEP is still however represented here to show consistency with local strategic planning.

Table 4-1 Relevant LEP controls

LEP Control	Assessment	Compliance
<b>2.1 - Land Use Table – Zoning</b>	The subject land is zoned as RU2 Rural Landscape and IN2 Light Industrial.  The proposed QPRSC are classified as the land use <b>Recreation facilities (major)</b> . This use is permitted with consent in both zones RU2 and IN2. In the E2 zone along the riparian corridor, restoration works will take place, consistent with the purpose of the zone.	<b>Yes</b>
<b>5.10 – Heritage</b>	While there are no listings for the site, a heritage study has been undertaken for the stone-faced structure on site.  While this structure will be subject to restoration and / or interpretation under Stage 1, these works are discussed in detail in the SEE for this stage.	<b>Yes</b>
<b>7.1 – Flood Planning</b>	A Flooding Impact Assessment has been undertaken and is included as <b>Appendix F</b> .  Flood risk for the site is discussed in greater detail in <b>Section 6.9</b> , below.	<b>Yes</b>

### 4.6 Commonwealth Legislation

#### 4.6.1 Environmental Protection & Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) is the relevant Commonwealth environment and heritage legislation. The EPBC Act identifies Matters of National Environmental Significance (MNES) that trigger a referral to the Commonwealth Government. The EPBC Act requires approval from the Department of the Environment and Energy (DEE) for any action that has, will have or is likely to have a significant impact on the listed matters of MNES, which are:

- World Heritage properties
- National Heritage places



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- Wetlands of international importance (listed under the Ramsar Convention)
  - Great Barrier Reef Marine Park
  - Commonwealth Marine Park
  - Listed threatened species and ecological communities
  - Migratory species protected under international agreements
  - Nuclear actions (including uranium mining)
  - A water resource, in relation to coal seam gas development and large coal mining development.

A search conducted using the *EPBC Act Protected Matters Search Tool* triggered the Regional Forest Agreements (RFAs) plan. Regional Forest Agreements are twenty-year plans enforcing sustainable management and conservation in Australia's native forests. Presently, NSW contains three RFA's in Eden, Southern New South Wales and North East New South Wales.

The site falls within the Southern NSW RFA. The proposed works however do not involve the disturbance of any forest ecosystems, and do not otherwise have any impact upon the ecological functioning or environmental values which the RFA seeks to preserve. For further discussion of biodiversity values for the site and potential impacts from the works, refer to the EIA (**Appendix I1**; at the end of this report) and **Section 6.2**, below.

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## 5 Need and justification for the proposal

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### 5.1 Proposal need

The proposal for preconstruction works is a necessary step in the larger plan to construct the QPRSC. The need for a high quality sporting complex to service the needs of local communities was identified in the Queanbeyan City Council Community Strategic Plan 2010-2020, and has since undergone considerable development from the concept stage, through to recent production of a Master Plan.

The current site was selected for suitability following a detailed vetting process taking into account multiple social, environmental and economic factors.

### 5.2 Objectives of the proposal

The objective of this proposal is to undertake a substantial amount of the works required for the QPRSC development. Completion of Stage 1 will result in multiple fully functioning sporting facilities suitable for use by number of local and regional sporting clubs, local schools, and the public more broadly.

### 5.3 Options and alternatives

For the QPRSC project in general, the current option has been the result of a long scoping process, which involved multiple sites and options for the complex.

The alternative options which were considered are described here:

#### *Option 1 – Delay the project*

Delaying the project would do nothing to help the Queanbeyan-Palerang community. The Regional Sports Complex has been in investigation phase for over 10 years and in that time several sports are losing membership due to lack of facilities, particularly compared to neighbouring regions. Additionally, over the investigation period, land availability has become constrained and investment costs have escalated. Further delays may result in the loss of the current proposed site and higher construction costs. It will continue to see fall-out for athletes and clubs and will continue to demonstrate a lack capacity to host events.

#### *Option 2 – Locate regional sports at the Bungendore development site*

Council is currently working on a new green-field sports facility at village of Bungendore, which is centrally located within the LGA. The option of increasing capacity and status of this facility to regional was investigated. While initial investment in infrastructure will be the same as the Queanbeyan site, the income and opportunities were dramatically decreased. The Bungendore site is 35km from large urban populations of Queanbeyan, Jerrabomberra and Karabar and a further 10km for Googong residents. Bungendore also lacks the support services needed to host major events and pre-elite development. To ensure the Regional Sports Complex is viable, maximum hours of use need to be achieved on a regular cycle.

#### *Option 3 – Alternate staging proposal*

The option of alternate staging was also investigated and had some merit, dependent on initial club demand. By supplying half the playing fields in year one and bringing forward stage two, indoor facilities gives basketball usage immediate facilities and increases the venue's capacity for netball, indoor hockey and futsal. Installing the second group of fields in years 5-7 will also spread asset renewal on pitch covers over longer periods and ongoing cycles. In effect, asset renewal cycles will be 50% every 5-7 years, rather than 100% every 10-14 years. Additionally, while 50% of fields are being renewed, the remaining 50% are still in use. The negative impact is limiting capacity of the venue to host events for the initial years to those requiring 5 fields or less, however, it would reduce the maintenance burden in the initial years, while allowing the clubs time to rebuild their numbers. Another point to consider is the additional cost of the indoor facilities against those outdoor facilities removed as part of this option.

#### *Option 4 – Construction of a regional sports complex at Environa site (current proposal)*

The fourth option is to proceed with the Regional Sports Complex. The overall value to the community for very quick results in increasing participation and hosting events for and ability to deliver pre-elite training, is believed to be superior to other options considered.

For the above reasons, the current option was determined as the most appropriate.

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#### 5.4 Summary need and justification

The proposed QPRSC is a development which responds to a clear community need and is the result of several years of conceptual development.

The current site has been determined as the most suitable for the development, for a range of social, economic and environmental reasons.

If completed, Stage 1, including the works described in this REF, would create rapid availability of sporting facilities for current residents of the region.

Considering the current lack of productive use at the site, and its suitability for the QPRSC, the works are highly justified.

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## 6 Environmental assessment

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### 6.1 Soils and contamination

#### 6.1.1 Existing environment

The site history includes several uses which have contributed, or have had the potential to contribute to contamination on site. In particular, this regards the use of the site for motor sports from the approximate period of 1970 to 1997. The operation of the related race tracks and pits have resulted in potential hydrocarbon contamination from spills and leaks in the area.

Further, the motor sports use included many ancillary structures and activities. Many of these structures have included hazardous materials, such as ACMs and PCBs, and are in various states of dilapidation. Additionally, an area of the site near to the creek has historically been used as a landfill, containing potential ACMs.

Extensive remediation of all instances of contamination across the site are being undertaken as part of the Preconstruction Stage of the QPRSC. For the purposes of Stage 1, it is considered that no outstanding contamination risks exist at the site upon the commencement of stage 1.

#### 6.1.2 Potential impacts

The DSI has considered that, following specific works undertaken as part of the Preconstruction Stage, the site will be suitable for use as the QPRSC.

#### 6.1.3 Mitigation measures

Construction of Stage 1 of the QPRSC will be undertaken in accordance with a Construction Environmental Management Plan (CEMP), to ensure no further contamination of the site takes place during construction. Details of the CEMP will be developed prior to the commencement of works.

The CEMP will include an unexpected finds protocol for all works at the site.

### 6.2 Biodiversity

#### 6.2.1 Existing environment

Cardno undertook an EIA (**Appendix I1**; at the end of this report) for the site in February 2020. The EIA involved both database searches, and extensive field surveys of the site to determine its biodiversity value.

The EIA found the site to be highly disturbed with native vegetation and suitable flora and fauna habitat to be mostly absent due to historical clearing. A total of 33 plant species were recorded across the site, including 29 exotic species (88%) and 4 native species (12%). No threatened species, vegetation communities or their habitats were recorded at the project site during surveys.

#### 6.2.2 Potential impacts

The EIA has found that, due to the lack of existing biodiversity values on site, no significant impacts are predicted as a result of the use of the site as a sporting complex. Consequently, limited negative impacts to biodiversity are anticipated as a result of the Stage 1 works described in this REF.

A positive impact is however anticipated as part of ongoing remediation works for the creek at the site. The specific works involved in the remediation works will be described in detail in a forthcoming RAP.

#### 6.2.3 Mitigation measures

As limited impacts to biodiversity are foreseen for this stage, minimal mitigation measures are required. These will include daily inspection of work sites to ensure no presence of fauna, and sediment and erosion control to prevent excavated materials and areas interacting with Jerrabomberra Creek during earthworks.

A sediment and erosion control plan has been included as part of the Civil Drawings Set (**Appendix F**).

## 6.3 Traffic and transport

### 6.3.1 Existing environment

The site is situated adjacent to Envirova Drive, a major road servicing the proposed residential developments to the south, which is in an early stage of construction.

Current access to site is via Arnott Street and through a locked gate to Territory Parade, which is kept locked to reduce the incidence of illegal dumping.

The Arnott Street access road is shared with the Envirova construction traffic and a private landowner. Access along Territory Parade is currently restricted by a locked gate. These are connected to major roads through an industrial area over the border in the ACT.

### 6.3.2 Potential impacts

Construction activities associated with this REF will involve trafficking of large amounts of materials under heavy load. This has the potential to cause impacts to traffic flow around the site.

Consideration of traffic impacts as a result of the operation of the proposed works has been undertaken by TTW in a Traffic & Parking Assessment (**Appendix D**).

Currently, there is no public use of the road, and once complete, Envirova Drive will be able to accommodate traffic from both the residential developments and the QPRSC. The intersection between Envirova Drive and the internal access road proposed in this development is considered suitable from a safety perspective.

Using assessment of parking requirements for similar facilities in the QPRSC LGA and the ACT found that an average daily maximum of 368 parking spaces would be required for the development. The proposal, which includes 430 spaces, is well in excess of this requirement. Further, extraordinary events are managed through the addition of 100 overflow parking spaces.

### 6.3.3 Mitigation measures

Construction will consider peak local traffic, as well as road construction activities and work to ensure bulk traffic movements occur outside these times.

No further mitigation measures are necessary for Stage 1 of the QPRSC, as impacts are reasonably considered in the current design.

## 6.4 Visual

### 6.4.1 Existing environment

The site is currently strewn with structural debris of various origin, particularly surrounding the sites of the former raceways. Combined with the denuded, ex-pastoral ecological state of the property, the site has very poor visual quality. This is expected to be improved somewhat by the undertaking of preconstruction works, which include removal of waste from the site.

The site, which slopes towards Jerrabomberra Creek at the north, has no surrounding neighbours who would constitute sensitive receivers. Although residential development is anticipated to the south, the slope of the site is not conducive to views from this area.

### 6.4.2 Potential impacts

Compared to the current condition of the site, which has very low aesthetic value, the use of the land for the QPRSC is anticipated to have a highly positive impact on visual quality. This is due to the high standard of maintenance required for the various sporting fields, which will require irrigation, and consistent lawn maintenance, landscaping across the site (see Landscape Plan, **Appendix B**), and the high quality of the built environment.

Additionally, restoration works at Jerrabomberra Creek are expected to have a positive visual effect upon the currently ecologically degraded site.

Further, there are no sensitive receivers surrounding the site to be considered.

### 6.4.3 Mitigation measures

Landscaping has been designed to greatly improve the visual quality of the site, including from the road. Among other features, the plan contains an oak-lined access road to provide a strong gateway effect for the



site. The entirety of the site, where not consisting of purely functional elements contains either ornamental plantings, or native vegetation.

No further mitigation measures are required for this stage as direct impacts are positive.

## 6.5 Aboriginal heritage

### 6.5.1 Existing environment

Heritage values for the site have been examined in detail in an ACHA from 2020 by Navin Officer, (**Appendix J**). The ACHA has identified a large portion of the riparian zone surrounding Jerrabomberra Creek as a Potential Archaeological Deposit (PAD) area. This means that the study area has a high potential to contain sub-surface archaeological material, possibly including *in situ* cultural deposits. Additionally, a new Aboriginal site was identified during field investigations, consisting of a scatter of two artefacts, in the northern corner of the site. The site has been noted to therefore have potential cultural value to local Aboriginal communities and all relevant parties were consulted for comment.

A follow up Aboriginal Test Excavation Report (ATER) was undertaken in 2021 by Apex Archaeology to provide detailed archaeological analysis of the PAD site. This involved establishing test pits throughout, and just outside of the PAD area established in the ACHA. Due to the historic disturbance of the site, no archaeological material was identified within the test area, and the ATER revised the PAD to only the area outside of the site boundary (**Figure 6-1**).



Figure 6-1 Location of PAD and site boundary, from ATER by Apex Archaeology (2021, **Appendix J**).

### 6.5.2 Potential impacts

Following the findings of the ATER, the proposed works do not overlap with a PAD, and impacts to Aboriginal archaeological or cultural heritage are therefore considered unlikely to result from the works.

### 6.5.3 Mitigation measures

Despite the low perceived risk of impact, Apex Archaeology have given a range of recommendations to mitigate any potential impacts to Aboriginal cultural heritage arising from the Stage 1 works:

1. Stop work provision

*In the unlikely event that suspected human remains are identified during construction works, all activity in the vicinity of the find must cease immediately and the find protected from harm or damage. The NSW Police and the Coroner's Office must be notified immediately. If the finds are confirmed to be human and of Aboriginal origin, further assessment by an archaeologist experienced in the assessment of human remains and consultation with both Heritage NSW and the RAPs for the project would be required. This recommendation should be included in any Construction Environmental Management Plan developed for the site.*

2. Site boundaries

*If there is any change to the boundaries of the proposed development to include areas not assessed as part of this archaeological investigation, further investigation of those areas should be completed to assist in appropriately managing Aboriginal objects and places which may be present.*

3. Monitoring of storm water installation

*For the avoidance of doubt, it is recommended for an archaeologist to monitor the excavation works undertaken within the Jerrabomberra Creek area for the installation of storm water works, where these excavations will be undertaken at depth. While it is considered unlikely that cultural material will be present in these areas, monitoring will ensure any cultural material is identified and not further impacted in the event it is present. If cultural material is identified in this area, works must cease and an AHIP application will be necessary.*

4. Reporting

*One digital copy of this report should be forwarded to the AHIMS registrar for inclusion on the AHIMS database. One copy of this report should be forwarded to each of the registered Aboriginal stakeholders for the project.*

The proposed works will comply with the above recommendations. For further information, refer to the ATER (**Appendix J**).

## 6.6 Non-Aboriginal heritage

### 6.6.1 Existing environment

The site does not contain any state or local listed heritage items or areas.

Non-Aboriginal heritage for the site is, however extensively covered in the cultural heritage report from Navin Officer (**Appendix J**).

While the stone-faced building does not carry a heritage listing, the report from Navin Officer identifies it as part of a suite of similar small structures in the area commissioned by Henry Halloran as part of his intended Environs residential development in the late 1920s. Its intended use was as a toilet facility/kiosk for associated sports fields, which possibly continued with the site's subsequent use for motor sports.

The building is in a dilapidated state, with many components, such as the roofing tiles detached from the structure and is in a poor state. The brick structure, with rustic stone cladding, however is still partially intact, as is part of the timber roof framing. There is significant structural damage throughout.

### 6.6.2 Potential impacts

The works discussed in this REF do not specifically impact the building. Stage 1 however involves the restoration and treatment of the building as a heritage feature for the site. Treatment of the building will require relocation or repositioning elsewhere on site, to create sympathy with the QPRSC design. Although this will likely result in some impacts to its heritage value, the degraded condition of the building, and the opportunity for its restoration will greatly compensate for this. The heritage conservation scheme for the building is discussed in detail in the Stage 1 SEE.

### 6.6.3 Mitigation measures

No specific mitigation measures are required for works described in this REF. Treatment of the stone-faced brick building, with mitigation of impacts is discussed in the Stage 1 SEE.

## 6.7 Social, economic and land use

### 6.7.1 Existing environment

Queanbeyan Palerang Region has a combined population of approximately 56,368, with the major population centre being Queanbeyan with 40,657 residents. There is steady growth continuing in and around Googong with further growth anticipated at Bungendore and South Jerrabomberra as new subdivisions are released.

Population analysis indicates QPRC has a relatively young population, consistently above the regional average population for age groups under 60 years, with an equal balance of male and females. The sports participation rate for regional NSW is 43.7% (*Australian Sports Commission*) with the greatest participation being within the age groups under 25 years, or approximately 4516 participates. There is a sharp drop off in participation after 25 years, possibly due to work commitments, and then stability until 45 years when a further significant decrease occurs, picking up again after 55 years of age.

During 2015, both the former Queanbeyan and Palerang Council's surveyed their local sporting clubs and conducted a needs analysis for sports in the former LGAs taking into consideration projected population growth.

Collectively, the QPRC area has a higher than NSW regional average for population under 25 years, which are high participation age groups for sports.

The subject land is currently without use, being in an environmentally degraded state, and with several instances of contamination, primarily in the form of asbestos containing materials. The site is however anticipated to be removed of contamination following preconstruction works for the QPRSC. Surrounding land is mostly similarly without use, although much of the land to the south has been earmarked for substantial residential development sometime in the near future.

Aside from an extensive industrial area over the ACT border, there are no commercial or business areas close to the site.

### 6.7.2 Potential impacts

The QPRSC, including works contained in Stage 1, are expected to have a highly positive social impact upon the region. Aside from meeting a well-documented need from the community for high-quality sporting facilities, the development will also provide a number of local jobs in both the construction and operation phases.

During operation phases, proximity to proposed residential development south of the site will provide additional nearby employment opportunities to residents. No existing residential areas are near to the site.

### 6.7.3 Mitigation measures

No mitigation measures are required with regards to social, economic and land use impacts, as these impacts are anticipated to be only positive.

## 6.8 Utilities

### 6.8.1 Existing environment

The site is currently without utilities infrastructure.

While there are water services nearby, this falls within the ACT, making connection impractical.

### 6.8.2 Potential impacts

The proposal will involve the connection of water, electrical and sewerage utilities to the site, as well as NBN services at a future stage. Final layouts of utilities are yet to be determined, but will be coordinated with the requirements of the residential developments to the south where possible.

### 6.8.3 Mitigation measures

Where possible, utilities connections will be coordinated with the needs of the residential development to the south to minimise redundancy.

A Dial Before You Dig search will be carried out before any works begin.



## 6.9 Water quality, flooding and drainage

### 6.9.1 Existing environment

The floodplain surrounding the Jerrabomberra Creek riparian corridor has been studied by Lyall & Associates in their September 2020 Flooding and Drainage Investigation (**Appendix G**).

Much of the subject land is flood affected (**Figure 6-2**), including many of the sporting field locations, and would be below the flood level during a 100 year ARI flood event.

### 6.9.2 During storm events, the site receives stormwaters from the Environs site to the south, which drains towards Jerrabomberra Creek. Potential impacts

The proposed Stage 1 works fall substantially within the 100-year ARI flood planning level, and would be subject to varying degrees of flood hazard (**Figure 6-3**). This would primarily cause impact to the outdoor playing fields along the northern margin of the site, as well as sections of the roads and carparks. In particular, large sections of the northern playing fields would be unsafe for children and the elderly under floods of a 20-year ARI magnitude or greater, with sections of both carparks becoming unsafe for small vehicles during those events.

The project would only result in minor increases to flood depths, and this would be primarily limited to within Jerrabomberra Creek. Increases to flow velocities will additionally be relatively minor for most flood events. Floodwater extents, including that likely to be caused by future development of the site to the south, will be limited by the construction of the central and eastern drainage channels under Stage 1 of the project.

Stormwater flows will cause scouring to the central and eastern drainage channels, as well as to the intersection between the central channel and Jerrabomberra Creek. This could risk structural damage to the stormwater infrastructure and creek bank.

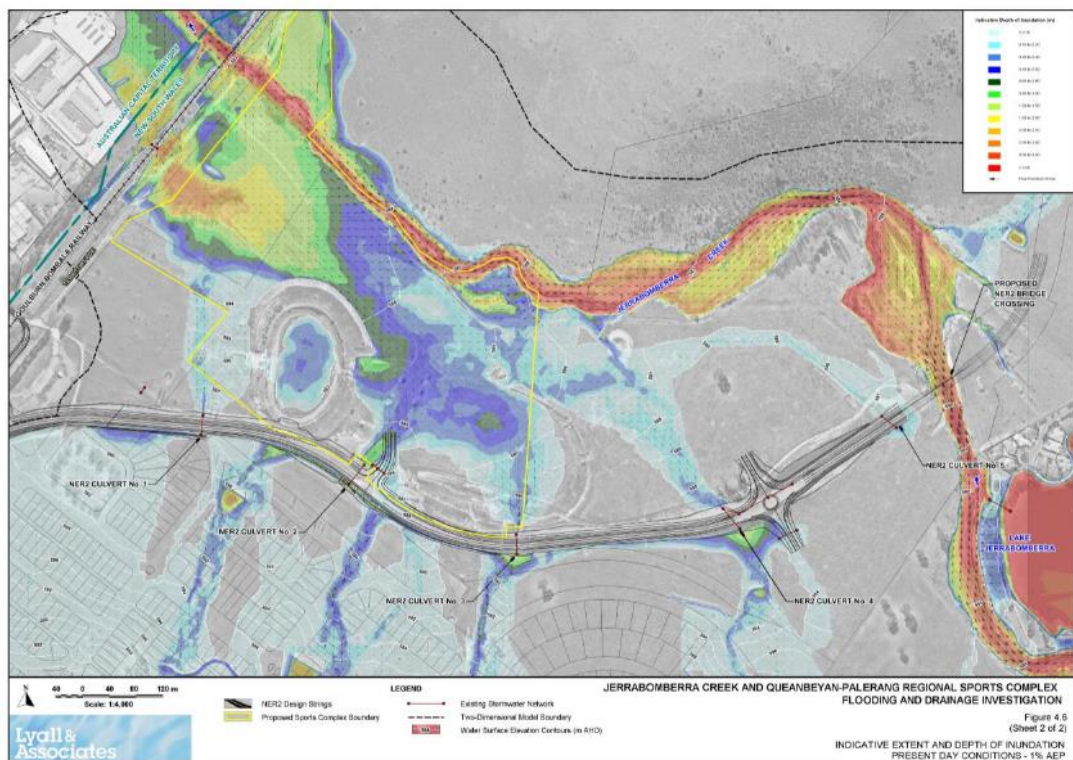


Figure 6-2 100-year ARI map from 2020 flood study by Lyall & Associates (**Appendix G**)..

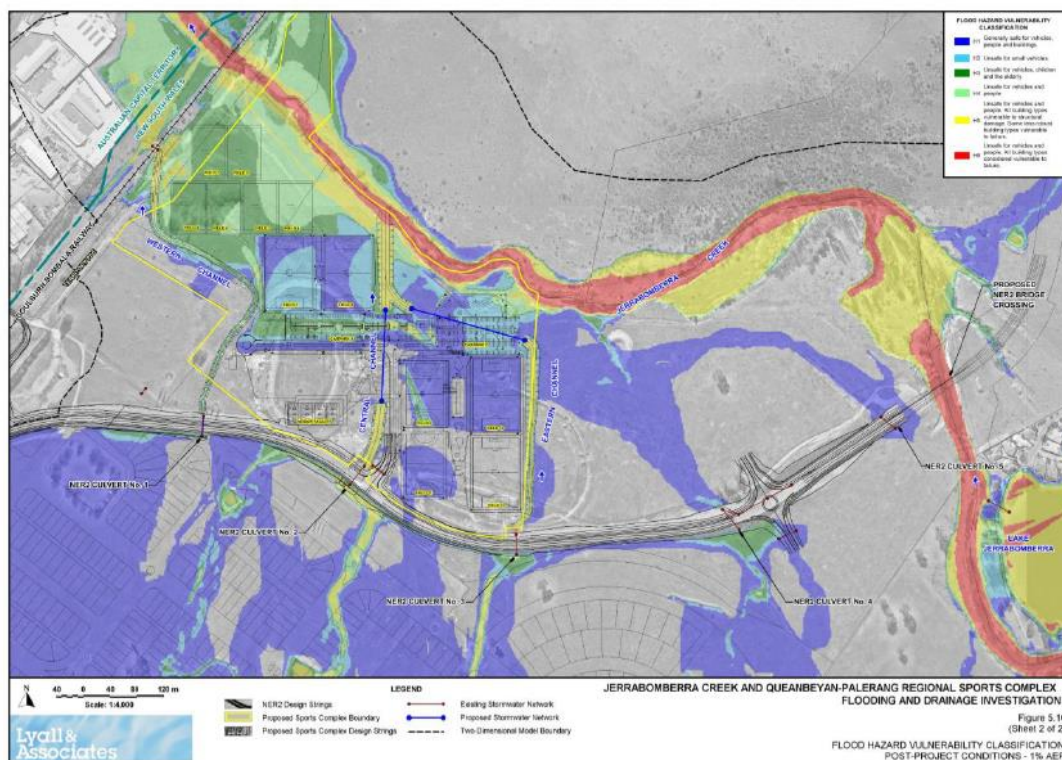


Figure 6-3 Flood hazard categories for the Stage 1 QPRSC under a 100-year ARI flood event, from the 2020 flood study by Lyall & Associates (**Appendix G**).



### 6.9.3 Mitigation measures

Obstruction of stormwater travelling from south of the site to Jerrabomberra Creek will be avoided through the construction of the three stormwater channels travelling through the site. These will capture stormwater and flood flows and direct them to Jerrabomberra Creek without interfering with the QPRSC site.

Additional runoff from increased impervious surfaces and roofs across the site will be captured by rain gardens and retention tanks, and then processed and reused on the site. It is likely that extensive tree plantings throughout the site in this proposal will further increase capture of stormwaters before they reach Jerrabomberra Creek.

A Flood Emergency Evacuation Plan (FEEP) will be developed to minimise risk to persons and property at the site under various flood events. This will be developed prior to operation of the site, and will be aimed at mitigating increased flood hazard categories across much of the site. After construction, and during all possible flood scenarios, much of the site stays above flood levels, including the proposed indoor facility. This will allow ample space for safe evacuation under the upcoming FEEP.

Appropriate scour counter measures will be implemented to reduce possible structural damage to the channels and channel/creek intersection. These will be determined at the detailed design stage.

## 6.10 Waste management

### 6.10.1 Existing environment

The site currently contains a large amount of waste and debris associated with its historic uses. This however is anticipated to be remediated during the Preconstruction Stage. Consequently, for the purposes of Stage 1, the site will be completely cleared of waste.

### 6.10.2 Potential impacts

Construction activities associated with the Stage 1 REF will generate construction waste.

### 6.10.3 Mitigation measures

Construction will be carried out in accordance with a CEMP. This will involve reduction of waste where possible, and sorting of any generated waste before transportation to appropriate landfill sites.

## 6.1 Noise and vibration

### 6.1.1 Existing environment

The site is surrounded by undeveloped land, and currently is not near to any sensitive receivers with the nearest receiver over 800m away.

A moderate noise environment is present at the site due to the nearby presence of Canberra Airport, with the site falling within the 20 ANEF Contour.

### 6.1.2 Potential impacts

Limited noise and vibration impacts resulting from construction are anticipated due to the absence of sensitive receivers surrounding the site.

During operation, the QPRSC is expected to experience high visitation rates associated with sporting events. These will have some noise impacts to surrounding areas, specifically to the proposed residential developments to the south of the site. The anticipated residential developments to the south have been proposed with knowledge of the long term plans for establishment of a sporting facility at the site, and as such the design of the development should consider any required mitigation for the future residents.

The 20 ANEF Contour is considered acceptable for sporting use.

### 6.1.3 Mitigation measures

Construction noise and vibrations impacts will be mitigated through restriction of works to standard hours of operation. Impacts are otherwise limited due to lack of sensitive receivers near to the site.

Use of the site for sporting events will generally be limited to the times of 3-7pm on weekdays and 8am-6pm on weekends. Irregular events outside those times will take place between 7am and 10pm to curb night-time noise impacts.

Buildings constructed under the SEE to Stage 1, and later stages will be designed to meet the requirements of 'AS 20212000 Acoustics—Aircraft noise intrusion—Building siting and construction', to further minimise impact from aircraft noise.

## 6.2 Cumulative impacts

### 6.2.1 Existing environment

The site and its surrounds are currently undeveloped. Additionally, they are all environmentally degraded due to historic use as pasture.

### 6.2.2 Potential impacts

While currently undeveloped, a large amount of land surrounding the site has been earmarked for eventual residential development.

Due to the low environmental quality of the locality, further cumulative degradation of the area is unlikely.

The QPRSC development will serve as a positive use of the land which incorporates extensive ecological restoration. In contrast to the anticipated residential development surrounding the site, the QPRSC will constitute a highly varied land use, with a range of employment opportunities.

The cumulative impact of the QPRSC, including Stage 1 is therefore anticipated to be minimal or positive.

### 6.2.3 Mitigation measures

No specific mitigation measures are required for cumulative impacts due to the unique land use associated with the QPRSC.

## 7 Conclusion

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### 7.1 Summary of environmental assessment (Clause 228 checklist)

For the purpose of Part 5 of the EP&A Act, the factors to be taken into account when considering the likely impact of an activity on the environment include those matters listed in Clause 228 of the *Environmental Planning and Assessment Regulation 2000*. The following is an assessment of the proposed development in accordance with Clause 228 of the Regulation.

a) *any environmental impact on a community*

The Stage 1 works comprise a significant portion of the QPRSC. This will improve the social and cultural environment of Queanbeyan-Palerang and surrounding communities, by meeting an identified need for high-quality sporting and recreational facilities.

b) *any transformation of a locality*

The Stage 1 works will transform the locality in a positive manner, by making use of a highly degraded site.

c) *any environmental impact on the ecosystems of the locality*

The site is highly degraded with little ecological value. The QPRSC is not likely to further impact upon local ecosystems, however it will include a riparian rehabilitation component which will have a substantial positive effect.

d) *any reduction of the aesthetic, recreational, scientific or other environmental quality or value of a locality*

The Stage 1 works will not result in the reduction of any of the environmental qualities described, and will in fact improve the site's environmental value through rehabilitation works.

e) *any effect on a locality, place or building having aesthetic, anthropological, archaeological, architectural, cultural, historical, scientific or social significance or other special value for present or future generations*

The Stage 1 REF works will not have any direct effect on the described values for the locality. Beyond the scope of this REF, Stage 1 includes restoration of the dilapidated stone-faced structure on site, which will preserve and enhance its heritage value, and make it accessible to the public.

- f) *any impact on the habitat of protected fauna (within the meaning of the National Parks and Wildlife Act 1974)*

The Stage 1 works will not have an impact on the habitat of protected fauna.

- g) *any endangering of any species of animal, plant or other form of life, whether living on land, in water or in the air*

The Stage 1 works will not result in the endangering of any species.

- h) *any long-term effects on the environment*

The Stage 1 works will have a positive long-term effect on the environment through restoring the riparian habitat at the north of the site.

- i) *any degradation of the quality of the environment*

The Stage 1 works will have a positive impact on the quality of the environment through restoring the riparian habitat at the north of the site.

- j) *any risk to the safety of the environment*

The Stage 1 works will not present any risk to the safety of the environment.

- k) *any reduction in the range of beneficial uses of the environment*

The Stage 1 works, and the development of the QPRSC in general constitutes an appropriate and diverse use of a site which currently would require substantial intervention before other beneficial uses can be achieved.

- l) *any pollution of the environment*

The Stage 1 works will be undertaken in accordance with a CEMP to minimise risk of pollution of the environment.

Existing contamination on site will be removed during Preconstruction works.

- m) *any environmental problems associated with the disposal of waste*

Stage 1 works will be undertaken in accordance with a CEMP, which will include proper disposal of waste.

- n) *any increased demands on resources (natural or otherwise) that are, or are likely to become, in short supply*

The proposed works will not result in increased demands on resources which are, or are likely to become, in short supply.

- o) *any cumulative environmental effect with other existing or likely future activities.*

The QPRSC will bring many environmental benefits to the community, and impacts to the site will be mitigated as much as possible. This will include environmental rehabilitation components along the riparian corridor.

- p) *any impact on coastal processes and coastal hazards, including those under projected climate change conditions*

The site is not situated near the coast.

## 7.2 Ecology sustainable development

The proposal must be considered in accordance with the four principles of Ecologically Sustainable Development (ESD) as outlined in section 6(2) of the *Protection of the Environment Administration Act 1991*. ESD consideration is detailed below.

<p><b>The precautionary principle</b> - <i>if there are threats of serious or irreversible damage to the environment, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.</i></p>	<p>The proposed Stage 1 works, assuming that the CEMP is followed, do not pose a threat of serious or irreversible damage to the environment.</p>
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<b>Inter-generational and intragenerational equity</b> - <i>the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations.</i>	The QPRSC, including Stage 1 components will enhance the environmental aspects of the site, which is currently contaminated and highly environmentally degraded. This will allow a far more healthy and productive local environment for future generations.
<b>Conservation of biological diversity and ecological integrity</b> - <i>that conservation of biological diversity and ecological integrity should be a fundamental consideration.</i>	The Stage 1 works will not negatively impact local biodiversity values, which are currently effectively non-existent on site. They will in fact improve them through restoration of the riparian area of the site.
<b>Improved valuation, pricing and incentive mechanisms</b> - <i>that users pay for their products or services including their full life-cycle impacts and cost-effective market mechanisms should be implemented to attribute externalities.</i>	The QPRSC including Stage 1 works are to be funded through the local and state government, and by extension by the public who are to benefit from the development.

### 7.3 Justification of the proposal

The QPRSC has been identified as a solution to a lack of high-quality sports facilities in the region, and has undergone a significant concept development phase and site vetting process to reach the current proposal.

Need and justification for the proposal, including detail on alternative options considered, have been further discussed in **Section 5**, above.

### 7.4 Objectives of the EP&A Act

Assessments against the objectives of the EP&A Act have been summarised in **Table 7-1**, below.

Table 7-1 EP&A Act objectives assessment.

Objects	Assessment
(a) to promote the social and economic welfare of the community and a better environment by the proper management, development and conservation of the State's natural and other resources,	<p>The Stage 1 REF works are an integral part of the development of the QPRSC, and include construction of several major sporting facilities, including multiple playing fields and amenities.</p> <p>As discussed in <b>Section 3.2</b> above, the QPRSC has been identified as the best solution to meet the social and cultural needs for regional communities.</p> <p>As the site is currently without use and highly degraded, while otherwise well positioned with regards to surrounding residential districts, the location of the QPRSC at the site constitutes an optimal use of the land.</p> <p>Additionally, the QPRSC will contribute positively to the economic health of the region, throughout both its construction and operation phases.</p>
(b) to facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment,	<p>The construction of the QPRSC at the site will be a vast improvement upon the economic, environmental and social qualities of the site, as well as the region more broadly.</p> <p>The site is currently highly degraded, without environmental, social, or economic value, and will instead be transformed into a positive development for the region.</p>
(c) to promote the orderly and economic use and development of land,	The QPRSC, including Stage 1 works constitute and appropriate, orderly and economic use of otherwise highly degraded land.
(d) to promote the delivery and maintenance of affordable housing,	The works neither promote nor prevent the delivery or maintenance of affordable housing.



(e) to protect the environment, including the conservation of threatened and other species of native animals and plants, ecological communities and their habitats,	Due to the current degraded state of the site, no negative impacts to ecological values are likely. The restoration of the riparian zone will constitute a major positive impact upon local native species and ecological communities.
(f) to promote the sustainable management of built and cultural heritage (including Aboriginal cultural heritage),	Stage 1 REF works will not impact the one item of built heritage value on site, however restoration of this feature is discussed in the Stage 1 SEE. No impacts to Aboriginal cultural heritage are likely. Restoration of the riparian area will minimise potential impacts to the PAD through inclusion of an unexpected finds protocol, however works will otherwise involve minimal surface disturbance. See <b>Section 6.5</b> for further detail. <i>*To be updated pending receipt of CHA from Navin Officer</i>
(g) to promote good design and amenity of the built environment,	The design quality of the Stage 1 QPRSC works will be high with substantial consideration given to amenity.
(h) to promote the proper construction and maintenance of buildings, including the protection of the health and safety of their occupants,	The Stage 1 REF works will be carried out to meet Australian Standards, as well as the forthcoming CEMP.
(i) to promote the sharing of the responsibility for environmental planning and assessment between the different levels of government in the State,	There are limited avenues for the sharing of responsibility between levels of government for the preconstruction works, which are limited in scope and impact.
(j) to provide increased opportunity for community participation in environmental planning and assessment.	The QPRSC project has been the result of substantial and ongoing community outreach which determined its initial need. Community consultation has been discussed further in <b>Section 3.2</b> , above.

## 7.5 Conclusion

This REF has been produced to adequately describe a number of the proposed Stage 1 works, and discuss potential environmental impacts and mitigation contingent with the requirements of Part 5 of the EP&A Act.

The Stage 1 works described in this REF include several critical elements of the QPRSC, which itself has developed over a long period of direct consultation with the community.

The site contains minimal ecological values, and has not been meaningfully used since approximately 1997, when its use for motorsports was discontinued. Consequently, it currently has minimal environmental, social or economic value.

Following completion of Stage 1, the community will have a fully functional set of professional soccer and hockey pitches, as well as assorted playing fields, and will be accessible to professional sports clubs and the public, with all road and parking infrastructure in place. Stage 1 also includes all stormwater infrastructure required for the site, and the earthworks necessary to facilitate these and other works.

The various potential environmental impacts associated with Stage 1 will be mitigated through appropriate design of infrastructure, as described throughout the REF, and through construction impact mitigation measures, including erosion and sediment control.

As no likely significant impacts have been identified in the course of this REF, no Environmental Impact Statement (EIS) is required under the EP&A Act.



APPENDIX

11

ECOLOGICAL IMPACT ASSESSMENT



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Community members requiring a copy of this appendix, please contact Tim Geyer:  
[tim.geyer@qprc.nsw.gov.au](mailto:tim.geyer@qprc.nsw.gov.au)



# **QUEANBEYAN-PALERANG REGIONAL COUNCIL**

## **Council Meeting Attachment**

**22 SEPTEMBER 2021**

ITEM 9.10      REVIEW OF ENVIRONMENTAL FACTORS - SOUTH  
JERRABOMBERRA 'TOWN PARK' - TRALEE

ATTACHMENT 1      REVIEW OF ENVIRONMENTAL FACTORS - SOUTH  
JERRABOMBERRA TOWN PARK



## Review of Environmental Factors

South Jerrabomberra Town Park

**Client:** Village Building Company

**Date:** 08 September 2021



**Contact:**

Liz Densley lizdensley@8mileplanning.com.au  
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ABN 83 610 542 725

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**Document Status**

Date Issued	Revision	Author	Status
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8/9/2021	V1.1 Final	Liz Densley	For Submission

EIGHT MILE PLANNING

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Site Plans and Drawings		

# 1. Introduction


This Review of Environmental Factors (REF) has been prepared to support the delivery of the South Jerrabomberra Town Park.

The REF has been prepared in accordance with the requirements of the *Environmental Planning and Assessment Act 1979* (EP&A Act), the *Environmental Planning and Assessment Regulation 2000* (EP&A Reg). This REF provides a detailed description of the proposal and the statutory planning context. The potential impacts of the proposal have been considered against the matters listed in Clause 228 EP&A Reg. This REF details the measures that will need to be implemented to avoid any potential environmental impacts of the development.

## REF details

<b>Proposed development</b>	Landscaping Installation of Infrastructure BBQ and Toilets
<b>Development without consent</b>	<p>The works are characterised as <b>development without consent</b> under Division 12 Parks and other public reserves Clause 65(3) of <b>State Environmental Planning Policy (Infrastructure) 2007</b> (SEPP Infrastructure) which includes:</p> <ul style="list-style-type: none"> <li>(i) roads, pedestrian pathways, cycleways, single storey car parks, ticketing facilities, viewing platforms and pedestrian bridges,</li> <li>(iv) lighting, if light spill and artificial sky glow is minimised in accordance with the Lighting for Roads and Public Spaces Standard,</li> <li>(v) landscaping, including landscape structures or features (such as art work) and irrigation systems,</li> <li>(vi) amenities for people using the reserve, including toilets and change rooms,</li> <li>(vii) food preparation and related facilities for people using the reserve.</li> </ul> <p>Individual elements also satisfy the provision of <b>State Environmental Planning Policy (Exempt and Complying Development Codes) 2006</b> (Codes SEPP). These include:</p> <ul style="list-style-type: none"> <li>Playground equipment</li> <li>Landscaping structures</li> <li>Pathways and paving</li> <li>BBQs</li> </ul>
<b>Site Address</b>	460 Environa Drive Environa
<b>Property description</b>	Lot 189 DP1272220 (proposed Neighbourhood Park Lot D2021.057 Subdivision)
<b>Site Area</b>	Proposed area approximately 2.24 ha subject to final survey

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<b>Site Plan</b>	
<b>Cost of works</b>	District Park - \$2,057,671 embellishment, Land Dedication \$214,725 (2018 values, refer Local Contributions Plan for detail)
<b>Owner</b>	Village Building Company to be vested in Queanbeyan - Palerang Regional Council for public recreation under the South Jerrabomberra Local Infrastructure Contributions Plan 2018
<b>Applicant</b>	Village Building Company (on behalf of Council)

## 1.1 Planning approval pathway

The proposed works are an activity for the purpose of section 5.1 of the EP & A Act. The works are being undertaken by Village Building Company on behalf of Council to satisfy the terms of the South Jerrabomberra Local Infrastructure Contributions Plan 2018. QPRC is the determining authority. Part 5 of the EP&A Act requires that the determining authority examine and take into account all matters affecting or likely to affect the environment by reason of the proposed activity.

Under Part 5 a determining authority is defined as: "...a Minister or public authority and, in relation to any activity, the Minister or public authority by or on whose behalf the activity is or is to be carried out or any Minister or public authority whose approval is required in order to enable the activity to be carried out..."

Section 5.5 of the EP&A Act requires the determining authority to 'examine and take into account to the fullest extent possible all matters affecting or likely to affect the environment by reason of that activity'.

This REF has therefore been prepared to assess the environmental impacts of the proposal and to determine if it is likely to have a significant impact on the environment. Factors that need to be taken into account when considering the likely impact of an activity on the environment are outlined in Clause 228 of the EP&A Act Reg and summarised in **Section 4.7**.

If the determining authority (in this case Council) decides the proposal would likely significantly affect the environment an environmental impact statement (EIS) must be prepared.

## 1.2 Consultation

The approval for the works in the Town Park was initially included in DA2021.1057 (subdivision). However, following initial review of the proposal by Council planning, engineers and parks staff, the application was amended to separate the land subdivision from the works proposed to be delivered in the Town Park itself. This approach was confirmed in correspondence to Council (Luke Perkins) dated 16 June 2021.

Village Building Company (Village) has worked closely with Council in the design for the Town Park and will continue to engage with Councils Open Space and Recreation team to deliver the asset to Council in a manner that is acceptable for the benefit of both new residents in the estate and the wider community.



## 2. Description of the proposal

A description of the proposal, design principles and approach has been prepared by Spiire and is outlined below.

The REF deals with the construction of a Town Park that will deliver public open space, a playground, Learn To Ride facility, fitness and well-being spaces and BBQ/picnic spaces.

### Accompanying documentation:

The following plans have been prepared by Spiire to support the proposal (Appendix).

- » Town Park Concept Plan
- » Town Park General Arrangements Detail Plan
- » Community Centre DA Plan (Landscape)
- » BBQ Shelter and toilet facility (Landscape and Structural)

Bulk earthworks and civil works including site management will be provided to Council for consideration prior to commencement of works.

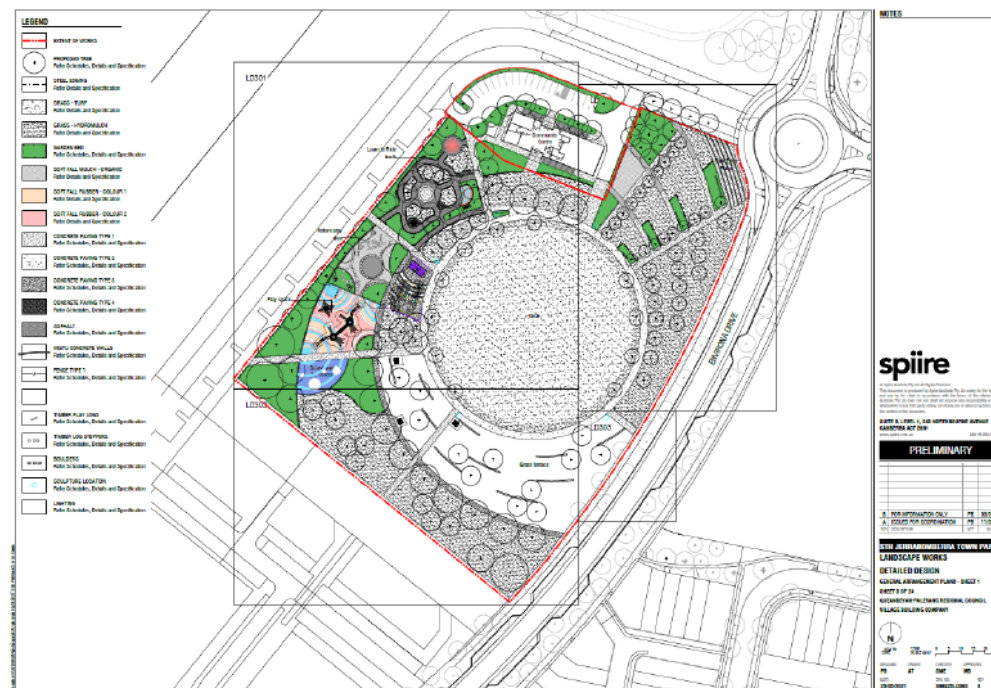
**Figure 1 Town Park Concept Plan**



Source: Spiire, 2021

## EIGHT MILE PLANNING

Figure 2 General Arrangement



Source: Spiire, 2021 (Refer Appendices)

## General Open Space and Landscaping

The landscape concept for the Development is based on creating a shaded green heart for South Jerrabomberra that is arranges a sequence of community activities in a formal geometric style around a 'village green' including play spaces, a learn to ride facility, a water splash pad, fitness equipment, grass seating terraces and complementary gardens and seating areas.

The park will provide open space amenity to the new estate residents and visitors alike and enhance connections along the buffer zone and the Community Centre.

The design intent is to provide a range of activities and community opportunities, throughout the year, to as wide a range of users as possible and capture the local identity of the area through materials and unique design language.

## Construction activities

Site preparation will commence from September 2021 and due for completion Mid 2022. The following sequence of construction is anticipated.

Approvals Sept-Oct 2021 – includes finalisation of design and approvals from Council's Parks and Recreation team.

Construction – to commence late 2021 and be completed through 2022. The construction and installation of the elements of the park will be staged in a sequence negotiated with Council and will include the construction and landscaping associated with the Community Centre (separate DA).

### Construction impacts

The installation and construction activities have the potential to generate the following impacts:

## EIGHT MILE PLANNING

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- » Noise
- » Dust
- » Traffic
- » Drainage and run-off

These operational impacts and proposed mitigation measures have been considered in **Section 4** of this REF.

### Operational impacts

The impact of the end use on the environment is minimal.

The Town Park will be dedicated to Council under the terms of the Local Infrastructure Development Contributions Plan. The park will be managed in a manner similar to that of any other public space or public domain, consistent with Council's obligations under the *Local Government Act, 1993* as it relates to Community Land.

The delivery of the Town Park is a key element of the South Jerrabomberra neighbourhood and will provide a positive public benefit, increasing the area of accessible public open space and providing a focal and meeting point for the future residents.

## 2.2 Site Description

The Town Park is approximately 22,413 m<sup>2</sup> in area, excluding the Community Centre DA boundary, at the corner of Environa Drive and Oxalis Crescent, South Jerrabomberra Estate.

The site has excellent access to public transport and pedestrian pathway networks and is located within a buffer zone that includes the Community Centre, an amenities block and commercial and medium density residential land uses. The site also has excellent vehicle connectivity located on Environa Drive, which is the primary sub-arterial road through South Jerrabomberra.

The area currently does not have any parks or open space and offers a unique opportunity to service the area with new open space provision and improving the community's health and well-being.

## 2.3 Landscape Approach

The landscape intent is to create an attractive and high quality landscape for the amenity of local residents and visitors alike. The landscape design aims to create a contemporary, functional and aesthetically pleasing landscape that seamlessly blends in with the South Jerrabomberra Estate and references its former rural landuse. More broadly the landscape design focuses on mitigating climate change through the provision of grand shade trees and creating a geometric design that references the circular forms of Canberra's city planning and the wheels of sprint cars from the nearby former Tralee/Fraser Park Speedway.

The following general principles for the landscape approach to the site:

- » Use of high quality landscape design to integrate the proposed development with its broader urban and rural context and the proposed estate streetscapes;
- » Design spaces that will become highly activated and vital to the community;
- » Ensure that communal open spaces have access to sunlight whilst also providing adequate shelter and wind protection;
- » Maximise opportunities for social interaction, as well as surveillance, through arrangement of seating, terraces and views;

#### EIGHT MILE PLANNING

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- » Contribute to local biodiversity by increasing the biomass and diversity of plant species included in the landscape;
- » Enhance local cultural and heritage values by incorporating the Cooks House stone chimney elements into the BBQ shelter and amenity block area;
- » Provide sufficient soil depths to enable trees and large shrubs to be grown to their maximum height and spread;
- » Create visual harmony with the surrounding area;
- » Create a robust landscape made from simple materials, proven planting and bold forms that can be managed and maintained by Council;
- » Provide a range of play opportunities including nature play, intergenerational play and challenge play;
- » Provide art and sculptures to give the site personality and reference local flora and fauna;
- » Integrate the architectural design of the community centre and Cooks House BBQ amenity block node by using complimentary materials and finishes;
- » Provide clear and integrated access, as well as security/perimeter fencing to Oxalis Crescent;
- » Make boundaries and interfaces green, verdant and alive; and
- » Consider the landscape as a composition to be viewed down upon from future residential apartments and adjoining road networks.

## 2.4 Planting Design

The planting scheme for South Jerrabomberra Town Park uses a palette of predominantly exotic trees and a mix of exotic and native shrubs and groundcovers chosen for their sculptural characteristics with deciduous exotic feature trees chosen to provide shade in summer and solar access in winter.

Planting is intended to:

- » Establish the various park spaces, internal park pathways and external streetscape as a series of diverse 'soft' and 'hard' landscape spaces;
- » Incorporate soil volume and mulched gardens within the constraints of the site;
- » Use landscape elegantly to create identity and maximise amenity as a 'premier' town park for Queanbeyan Palerang Regional Council; and
- » Be robust, suited to the available aspect, work with ambient wind levels and minimise water use.

## 2.5 Maintenance

The maintenance needs of any landscape are absolutely tied to the resolution of the design at planning level. This proposal attempts to negotiate the desire for a verdant planted areas with the need to ensure that these plantings have longevity within a low-maintenance environment.

The proposal includes:

- » A strong palette of proven performing plants which provide maximum shade and form, are tolerant of low-water conditions and create micro climates; and,
- » Highly resilient plants proposed around the play space and learn to ride facility;
- » A planting palette that utilises several species for each application ensuring seasonal change as well a consistent level of amenity should one of the species under perform.

## 2.6 Proposed Landscape Features

### Community Centre

The Community Centre is being considered under a separate DA. The site has been integrated via proximity to the Town Park. The landscape will propose a simple composition of street trees to the carparking, shrub planting to help guide pedestrians and soften the carparking and building interface and climbing plants to pergolas at the front and rear of the centre. A small grass courtyard in front of the community centre will allow a high degree of visibility to the community centre as well as framing vistas back to the park. The Community Centre will integrate seamlessly with the Learn To Ride facility and small fitness outdoor gym to its sides.

### Learn to Ride Facility

The Learn To Ride facility will be a focal community asset that flows directly from the Community Centre through to the Play Space. The learn to ride facility will be adaptive in its use so it will be part of the park open space system but also able to be used by private groups such as School's for education and learn to ride initiatives. The Learn To Ride facility will be framed and punctuated by shade trees but provide grass or low groundcovers to the ground plane to maximise surveillance and supervision. The Facility will include key facilities and activities including the primary bike track loop, a small gathering area for education, bike rack and stationary bikes, complementary picnic shelter and seating, a bike repair station and a toddler's area for younger children or children with disabilities to participate.

### Play Space

The play space will be segmented into 2 halves that relate to younger and older age groups and between nature play opportunities and challenge play focussed around larger exciting equipment. The play space is designed to maximise the play opportunities for the Town Park and broader community throughout the year and during both day and night time use. The nature play will seek to engage kids with nature encouraging them to learn to balance on logs and steppers, play with sand and natural materials such as branches and integrated planter beds. Placement of key play features is designed to avoid conflict between users or activities and will be orientated to reduce heat from direct sunlight and maximise surveillance. The play space will be designed using robust elements and high quality durable equipment with consideration that wearing or moving parts can be readily available and easily replaceable and conforms to local and Australian Standards compliance.

### Cooks House BBQ picnic area and amenity block

The BBQ area will integrate with the architectural design to provide a centralised area for community gathering as well as added supervision of the adjoining play space. Materials and finishes will complement the architecture and Cooks House stone materials and pergolas with climbing vines will further soften the scale and bulk of the development.



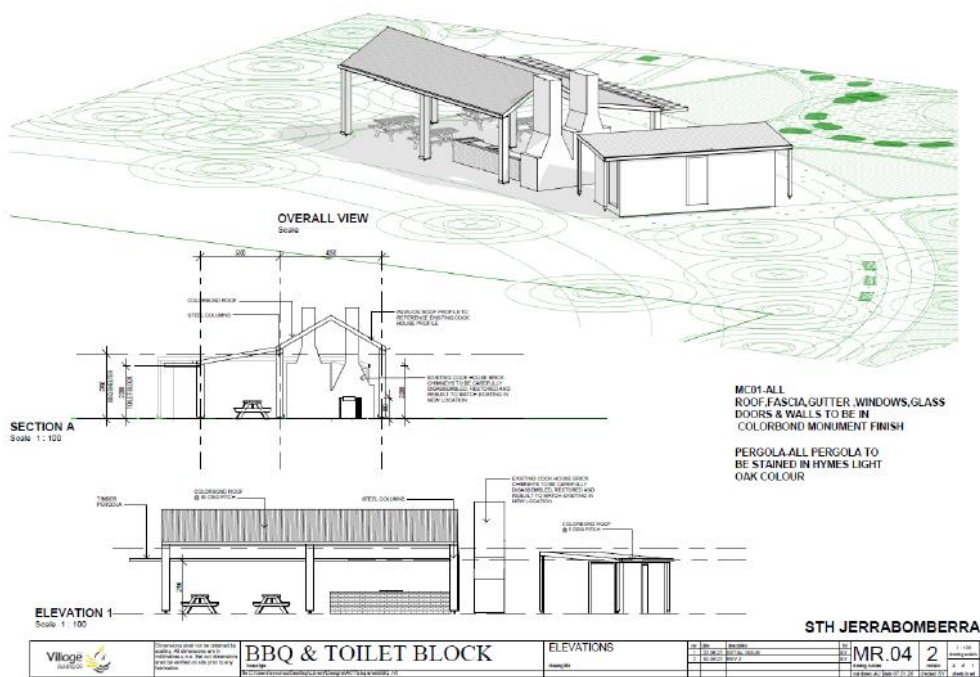
## EIGHT MILE PLANNING

Figure 3 Playground, Toilet and BBQ Shelter



Source: Spiire, 2021.

Figure 4 Toilet and BBQ Shelter



#### EIGHT MILE PLANNING

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### **Park Entry, grass terraces and open space**

The open space of the park complements the primary play space and learn to ride facilities by providing a more passive landscape of grass, entry gardens and large shade trees. The grass terraces provide a multi-use element that can be used for larger event gathering or intimate seating areas overlooking the central kick about 'village green' area. The design of the terraces continues the geometric design language of the park, which circles around from the community centre back to the park entry. The entry statement will consist of a park entry sign integrated with planter beds and feature trees and a framed vista leading into the park and 'village green' from the surrounding streetscapes.

## 3. Statutory planning context

The development has been considered development without consent being an activity undertaken on behalf of a public authority (Council) under the *State Environmental Planning Policy (Infrastructure) 2007* (ISEPP). As individual elements, most of the work proposed, including landscaping, pathways and playground equipment would ordinarily be exempt development *under State Environmental Planning Policy (Exempt and Complying Development Code) 2008* (Codes SEPP).

### 3.1 State Environmental Planning Policy

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

The aim of the ISEPP is to facilitate the timely and efficient delivery of infrastructure by public authorities throughout NSW. It does this by making certain infrastructure permissible with or without development consent.

Division 12 of the Infrastructure SEPP provides that recreation areas, when delivered by or on behalf of Council and on land controlled by Council, development without consent.

(3) *Any of the following development may be carried out by or on behalf of a council without consent on a public reserve under the control of or vested in the council—*

(a) *development for any of the following purposes—*

(i) *roads, pedestrian pathways, cycleways, single storey car parks, ticketing facilities, viewing platforms and pedestrian bridges,*

(ii) **recreation areas** and recreation facilities (outdoor), but not including grandstands,

(iii) *visitor information centres, information boards and other information facilities,*

(iv) *lighting, if light spill and artificial sky glow is minimised in accordance with the Lighting for Roads and Public Spaces Standard,*

(v) **landscaping, including landscape structures or features (such as art work) and irrigation systems,**

(vi) **amenities for people using the reserve, including toilets and change rooms,**

(vii) *food preparation and related facilities for people using the reserve,*

(viii) *maintenance depots,*

(ix) *portable lifeguard towers,*

(b) *environmental management works,*

(c) *demolition of buildings (other than any building that is, or is part of, a State or local heritage item or is within a heritage conservation area).*

This provision relates to the construction of the toilet facility. The landscaping, pathways and equipment fall under exempt development in the Codes SEPP (see below).

#### State Environmental Planning Policy (Exempt and Complying Development Codes) 2008

The Codes SEPP makes provisions for a range of land uses as Exempt Development. These include the following:

**Subdivision 15 Earthworks, retaining walls and structural support**

**Subdivision 24 Landscaping structures**

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### Subdivision 28 Pathways and paving

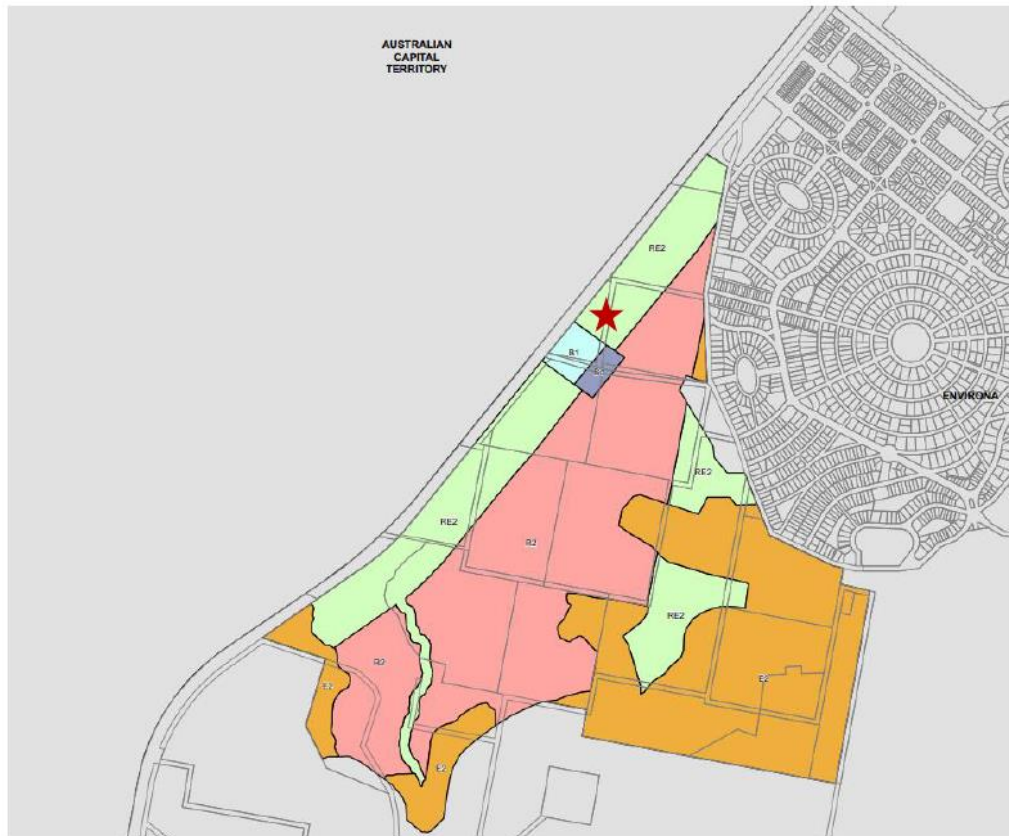
### Subdivision 29 Playground equipment

Despite the exemption, all of these elements have been considered holistically in the REF package.

## 3.2 Local Environmental Plan

The land is within the Queanbeyan Local Environmental Plan (South Jerrabomberra) 2012 (SJLEP) and is zoned RE2 Private Recreation.

Figure 5 Site Zoning



Source: Planning Portal

### Permissibility

A recreation area is defined in the LEP as follows:

**recreation area** means a place used for outdoor recreation that is normally open to the public, and includes—

- (a) a children's playground, or
- (b) an area used for community sporting activities, or
- (c) a public park, reserve or garden or the like,



## EIGHT MILE PLANNING

and any ancillary buildings, but does not include a recreation facility (indoor), recreation facility (major) or recreation facility (outdoor).

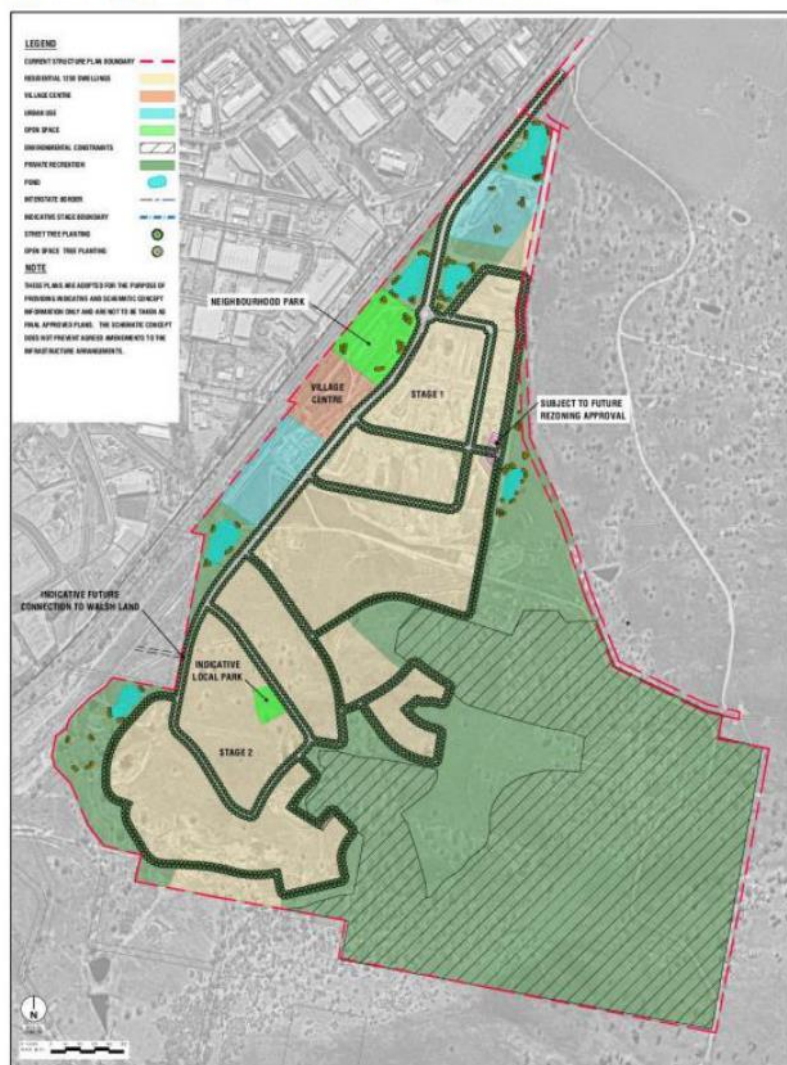
As outlined above, the Infrastructure SEPP, Codes SEPP and SJLEP operate in unison to authorise the proposed land use as development without consent.

### 3.3 Neighbourhood Structure Plan

The Town Park is a feature of the Neighbourhood Structure Plan approved under the South Jerrabomberra Development Control Plan (refer **Figure 6**).

**Figure 6 Neighbourhood Structure Plan**

**Map 1C: South Tralee and Forrest Morrison Landscape Plan**



Source: SJDCP Appendix 3.



### 3.4 Development Contributions Plan

The South Jerrabomberra Local Infrastructure Contribution Plan was adopted by Council in 2018. The plan includes the Town Park embellishment and land dedication in the schedule of works as follows:

District Park 1 – 2ha (district park) – Land to be dedicated upon completion of embellishment works. Value of Land Dedication \$214,725 (CPI adjusted 2018 \$).

Embellishment - \$2,057,671 (2018).

Village proposes to undertake the work as an offset against the development contribution under section 2.5 of the Contribution Plan:

#### **2.5 Alternatives to monetary contributions**

Applicants can offer to provide an alternative to a monetary contribution under this plan. Specifically, applicants can offer to dedicate land free of cost, provide works in kind or provide another material public benefit, or any combination of these, to be used for or applied towards a public purpose in full or partial satisfaction of a monetary contribution under this plan.

Council may choose to accept any such offer but is not obliged to do so. Applicants considering alternatives to monetary contributions should discuss this with Council as early as possible, and before lodging a development application.

As part of this process, Village will be preparing an offer to the Council to carry out works in full satisfaction of a local infrastructure contribution and offset against future contributions across other contributions categories.

## 4. Impacts and mitigation

### 4.1 General

The potential for impact is greatest during the construction phase of the project and include:

- » Noise and vibration
- » Waste
- » Traffic
- » Water quality and drainage
- » Rehabilitation of disturbed areas, including areas used for stockpiling and material storage during construction.

These matters will generally be considered in a Construction Environmental Management Plan. The CEMP should incorporate the mitigation measures and requirements of this REF as outlined in this section and meet the requirements of Council.

#### Construction Site Management Plan

Following endorsement of the proposal by Council it is recommended that prior to construction commencing, a Construction Site Management Plan will be prepared to ensure that appropriate environmental protocols are adhered to during the construction period.

The plan will include specific details pertaining to the following matters to the extent they are relevant to the proposal:

- » location and materials for protective fencing and hoardings to the perimeter on the site
- » provisions for public safety
- » pedestrian and vehicular site access points and construction activity zones
- » details of construction traffic management, including proposed truck movements to and from the site and estimated frequency of those movements, and measures to preserve pedestrian safety in the vicinity of the site
- » details of any bulk earthworks to be carried out
- » location of site storage areas
- » equipment used to carry out all works
- » a garbage container with a tight-fitting lid
- » dust, noise and vibration control measures
- » location of temporary toilets.

#### Mitigation

The proponent will prepare a Construction Site Management Plan prior to the commencement of any activities on the site. The plan should include, but not be limited to the matters identified above and include the relevant control measures proposed. The plan will be the primary mitigation tool used by Council in ensuring that any potential impacts are identified and addressed.

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### 4.2 Noise and Vibration

There will be temporary construction noise and vibration from heavy equipment and general construction activity during this phase. Noise can be managed through the implementation of reasonable hours of operation limited noise generating activities from 7am to 7pm. It is acknowledged that, from time to time it may be necessary to outside of the core hours, for example to limit disruption to traffic in peak periods.

#### Mitigation

Construction Site Management Plan

### 4.3 Traffic

The proposal is likely to generate additional light and heavy vehicle traffic for the duration of construction.

#### Mitigation

Traffic impacts should be addressed in the Construction Site Management Plan and include the number and type of vehicles and plant proposed.

### 4.4 Water quality and drainage

It is anticipated that temporary arrangements will need to be in place to manage drainage on the site for the duration of the construction phase and prior to the final drainage plan implementation. The details of management of water on site pre and post construction will need to be included in the final plans.

#### Mitigation

The Construction Site Management Plan will include water and drainage for the construction phase and proposal.

### 4.5 Site disturbance

Plans include the area of the site subject to disturbance, stockpiling of materials and temporary work areas will be contained to this area. The disturbed area will need to be reinstated as part of the landscaped area on completion.

Interim measures, including erosion and sedimentation control will be undertaken to manage site disturbance.

#### Mitigation

Preparation of erosion and sediment control plan. Disturbed area to be included on bulk earthworks plan.

## 4.6 Safety and Security

The proposal has been designed consistent with the Crime Prevention Through Environmental Design (CPTED) principles to improve the safety and security of the Town Park, Community Centre and immediately surrounding area.

The NSW Crime Prevention and Assessment of Development Applications (2001) guideline identifies four principle that need to be used in the assessment of a proposal or activity to minimise the opportunity form crime:

- » Surveillance
- » Access control
- » Territorial reinforcement
- » Space management

### Mitigation

The proposed park will offer an increased level of safety for users and the wider community by considering the functional relationship between the open space and its planned use of areas by:

- » Offer clear sightlines with no visual obstructions from landscape features such as low limbed trees, shrubs and hedges, walls or level changes;
- » Encourage parents and carers to participate in the play space and learn to ride facility, especially near play equipment catering for younger ages (toddlers and junior children);
- » Encourage interaction between and parents and carers;
- » Avoid planting medium to large shrubs and focus on trees and grass where appropriate;
- » Create nearby accessible pathways and connected to other areas, free from hazardous trip points and be easily maintained;
- » Consider the CPTED recommendations of crime risk assessment;
- » Encourage walking and cycling which overlooks the recreational facilities of the park;
- » Clear and visible signage and appropriate lighting for safety and way-finding; and,
- » Adequate clearances and setbacks of landscape elements from adjoining infrastructure.

## 4.7 Summary of Impact

Clause 228 of the EP&A Regulation lists the factors that an authority must take into account when assessing the impact of the proposed activity on the environment. These factors and summarises the findings of the REF are identified in the table below.

EP&A Reg	Comment
(a) any environmental impact on a community,	Minor impacts during the construction phase of the proposal with potential noise, dust, access and traffic issues to be managed through the CSMP. Construction to occur ahead of residents moving into the area. The design of the park incorporates CPTED principles to discourage criminal activity and improve safety and security
(b) any transformation of a locality,	Positive improvement in general aesthetic and activation of the public domain

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EP&A Reg	Comment
	Result in delivery of outcomes identified in the Neighbourhood Structure Plan.
(c) any environmental impact on the ecosystems of the locality,	Existing disturbed built environment, no impact
(d) any reduction of the aesthetic, recreational, scientific or other environmental quality or value of a locality,	Objective of the proposal is to improve the recreational outcomes of the community. Includes the delivery of the Town Park and will result in an improvement in the aesthetic presentation of the immediate area
(e) any effect on a locality, place or building having aesthetic, anthropological, archaeological, architectural, cultural, historical, scientific or social significance or other special value for present or future generations,	No. Not applicable.
(f) any impact on the habitat of protected animals (within the meaning of the Biodiversity Conservation Act 2016),	No. Not applicable
(g) any endangering of any species of animal, plant or other form of life, whether living on land, in water or in the air,	No. No applicable
(h) any long-term effects on the environment,	The proposal is unlikely to have any long-term impact on the environment
(i) any degradation of the quality of the environment,	The proposal is unlikely to lead to the degradation of the environment
(j) any risk to the safety of the environment,	Low risk, managed through CSMP
(k) any reduction in the range of beneficial uses of the environment,	No/Not applicable.
(l) any pollution of the environment,	Risk of pollution during construction managed through the CSMP. Short term and manageable
(m) any environmental problems associated with the disposal of waste,	Construction waste can be managed through the construction and operational phase of the activity
(n) any increased demands on resources (natural or otherwise) that are, or are likely to become, in short supply,	Not applicable
(o) any cumulative environmental effect with other existing or likely future activities,	The proposal is unlikely to have any cumulative effects
(p) any impact on coastal processes and coastal hazards, including those under projected climate change conditions	Not applicable



## 5. Conclusion

This REF has sought to identify the potential environmental impacts of the proposed Town Park.

The works are to be undertaken on behalf of Council consistent with the requirements to deliver open space facilitates under the South Jerrabomberra Local Infrastructure Contributions Plan. The Infrastructure SEPP allows the work to be undertaken on behalf of Council without the need to obtain development consent. However, the project is required to be assessed under Part 5 of the EP&A Act which requires Council to examine all matters likely to affect the environment as a result of the activity.

This REF concludes there will be relatively minor and temporary impacts associated with the construction phase of the delivery of the Town Park and that this would have no impact on residents as the area is yet to be developed. Proceeding with the construction of the Town Park ahead of the population will significantly minimise disruption that would otherwise be inevitable once people have started to move into the area.

The construction impacts will, therefore, be minimal but include noise, waste management, site disturbance and traffic during construction. It is a recommendation of this REF that a Construction Site Management Plan be prepared prior to construction commencing and incorporate the mitigation measures and requirements to manage these impacts.

The REF has considered the short- and long-term environmental impacts of the activity and identified mitigation measures to minimise potential impacts. The REF provides a summary of the matters that are required to be considered in clause 228 of the EPA Reg. Based on the supporting information and provided the mitigation measures identified in the REF are satisfactorily implemented, the proposed scheme is unlikely to have a significant environmental impact.

Accordingly, the preparation of an EIS is not considered necessary in this instance.

# Appendices

## A. Plans and Drawings

## EIGHT MILE PLANNING

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# A. Plans and Drawings



# **QUEANBEYAN-PALERANG REGIONAL COUNCIL**

## **Council Meeting Attachment**

**22 SEPTEMBER 2021**

ITEM 9.10      REVIEW OF ENVIRONMENTAL FACTORS - SOUTH  
JERRABOMBERRA 'TOWN PARK' - TRALEE

ATTACHMENT 2    LANDSCAPE PLANS - SOUTH JERRABOMBERRA TOWN  
PARK

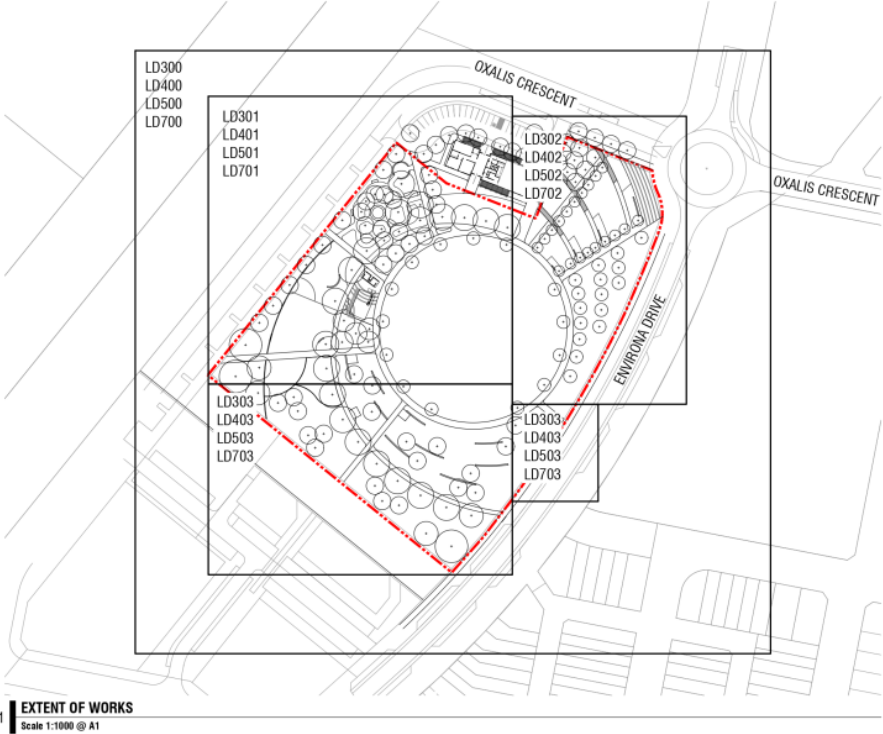


# STH JERRABOMBERRA TOWN PARK

## LANDSCAPE WORKS

PROJECT NUMBER: 308925  
LANDSCAPE ARCHITECTURE DRAWINGS  
FOR VILLAGE BUILDING COMPANY

DRAWING SCHEDULE				
DRAWING NO.	DESCRIPTION	SHEET NO.	REVISION	
LD100	COVER - SHEET 1	1	B	
LD200	SCHEDULES - SHEET 1	2	B	
LD300	GENERAL ARRANGEMENT PLANS - SHEET 1	3	C	
LD301	GENERAL ARRANGEMENT PLANS - SHEET 2	4	C	
LD302	GENERAL ARRANGEMENT PLANS - SHEET 3	5	C	
LD303	GENERAL ARRANGEMENT PLANS - SHEET 4	6	C	
LD304	GENERAL ARRANGEMENT PLANS - SHEET 5	7	C	
LD305	GENERAL ARRANGEMENT PLANS - SHEET 6	8	C	
LD306	GENERAL ARRANGEMENT PLANS - SHEET 7	9	C	
LD400	GRADING AND DRAINAGE PLANS - SHEET 1	10	B	
LD401	GRADING AND DRAINAGE PLANS - SHEET 2	11	B	
LD402	GRADING AND DRAINAGE PLANS - SHEET 3	12	B	
LD403	GRADING AND DRAINAGE PLANS - SHEET 4	13	B	
LD500	SURFACE FINISHES PLANS - SHEET 1	14	A	
LD501	SURFACE FINISHES PLANS - SHEET 2	15	A	
LD502	SURFACE FINISHES PLANS - SHEET 3	16	A	
LD503	SURFACE FINISHES PLANS - SHEET 4	17	A	
LD600	DETOUT PLANS - SHEET 1	18	B	
LD700	PLANTING PLANS - SHEET 1	19	B	
LD701	PLANTING PLANS - SHEET 2	20	B	
LD702	PLANTING PLANS - SHEET 3	21	B	
LD703	PLANTING PLANS - SHEET 4	22	B	
LD800	ELEVATIONS AND SECTIONS - SHEET 1	23	B	
LD801	ELEVATIONS AND SECTIONS - SHEET 2	24	A	
LD900	DETAILS - SHEET 1	25	B	
LD901	DETAILS - SHEET 2	26	A	
LD902	DETAILS - SHEET 3	27	A	
LD903	DETAILS - SHEET 4	28	A	
LD904	DETAILS - SHEET 5	29	A	
LD905	DETAILS - SHEET 6	30	A	



- GENERAL NOTES**
- Unless otherwise specified on the drawings all measurements, lengths, heights and distances to be determined from dimensions and NOT scaled off the drawings.
  - Before commencement of any works it is the responsibility of the Landscape Contractor to contact Dial Before You Dig 1300 852 073 for information on services in the area shown on the plan ([www.dialbeforeyoudig.com.au](http://www.dialbeforeyoudig.com.au)).
  - The locations of underground services are approximate only and their exact position should be proven on site. No guarantee is given that all existing services are shown. The Contractor shall verify the location and depth of all services prior to commencing on site.
  - The Contractor must have a copy of Melbourne One Call/Services Information and plans on site at all times.
  - The Contractor shall be liable for any damage to services during landscape works.
  - All trees shall be planted in locations shown on this plan, with subject to be approved on site by the Superintendent prior to planting.
  - Tree canopy is shown at 75% of mature diameter.
  - Any change in plant species must have the approval of the Superintendent.
  - Trees shall not be planted less than the following distances from existing elements, unless otherwise stated in the documentation:
    - Pedestrian pathways - 1.2m
    - Pedestrian pathways in reserve - 2.0m
    - Driveways and footpaths - 3.0m
    - Stormwater and sewerage pits - 2.0m
    - Intersections - 15.0m
    - Service crossings - 2.0m
    - Back of Kerb - 1.0m min.
    - Street lights and power poles - 4.0m
    - Service assets, incl. junction boxes, etc. - 2.0m
    - Fire plugs - 5.0m
  - The Superintendent is to inspect trees supplied by the Contractor prior to planting.
  - The Principal will ensure that all property boundaries are to be pegged out by licensed surveyors prior to set out of landscape works.
  - All drawings for construction to be printed in colour.
  - ALL TREE STOCK TO CONFORM TO AS 2303.2018, APPENDIX D.**

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**PRELIMINARY**

REV	DESCRIPTION	APP	DATE
C	ISSUED TO COUNCIL	PB	13/08/21
B	ISSUED TO CLIENT	PB	06/08/21
A	ISSUED FOR COORDINATION	PB	11/06/21

**STH JERRABOMBERRA TOWN PARK  
LANDSCAPE WORKS**

**DETAILED DESIGN**

**COVER - SHEET 1**

**SHEET 1 OF 31**

**QUEANBEYAN-PALERANG REGIONAL COUNCIL  
VILLAGE BUILDING COMPANY**

**N**

MGA 54 ZONE

1:1000 SCALE @ A1

0 10 20 30 40 50

DESIGNED	DRAWN	CHECKED	APPROVED
PB	AT	SME	MB

DATE  
13/08/2021

SHEET NUMBER  
308925LD100

REV  
C

GARDEN BED PLANTING MIX				
Arrangement: Plant in drifts of 3-15 of each species. Generally, larger growing species to be located at the back and middle of the garden bed, grasses in the middle of the garden bed and groundcovers beside paths.				
% = Distribution of species per garden bed				
Install size: Tubestock or 140mm pots (pending availability)				Garden Bed Number Area m2
CODE	BOTANICAL NAME	COMMON NAME	Mature Size (HxW) m	Species Density m2
NATIVE SHRUBS				
CJ	Callistemon Little John	Little John Callistemon	1 x 1	1
Acj	Acacia cognata 'Green Mist'	Green mist acacia	1.5 x 2	2
BNsp	Banksia spinulosa	Hairpin Banksia	3 x 2	1
WEI	Westringia longifolia	Long-leaved Westringia	2 x 1.5	2
CFw	Crocos exaltata	Warflower	0.7 x 0.7	4
CFa	Correa alba	White Correa	1.5 x 1.5	3
NATIVE TUFTED PLANTS AND GROUND COVERS				
POAI	Poa labillardierei	Tussock Grass	1.5 x 1	4
Dr	Dianella revoluta	Black anther flax-lily	0.3 x 0.5	
EXOTIC SHRUBS				
HBb	Hebe 'Blue Gem'	Hebe Blue Gem	1 x 1	1
LVa	Lavandula angustifolia	English Lavender	0.3 x 0.3	
EXOTIC TUFTED PLANTS AND GROUND COVERS				
JNc	Juncus conferta	Shore juniper	0.2 x 2	1
CMn	Convolvulus maurandicus	Circular morning glory	0.5 x 1	1
Lim	Lirioden muscari	Lilyturf	0.43 x 0.3	4
TR	Trachelospermum jasminoides	Chinese star jasmine	spreading	2
Total				

TREE PLANTING					
TREES					
Install size: Min 1.8m tall, 50L Container					
CODE	BOTANICAL NAME	COMMON NAME	Mature Size (HxW) m	ATV Class	Quantity
ACH	Acacia longimanum	Tidest maple	10 x 8	2 ≥ 30m <sup>3</sup>	24
BRp	Brachyctonus papuensis	Karranjing tree	10 - 12 x 8 - 10	3 ≥ 45m <sup>3</sup>	9
CDd	Cedrus deodora	Deodar cedar	20 x 15 - 20	5 ≥ 100m <sup>3</sup>	3
GLb	Ginkgo biloba	Maidenhair Tree	15 x 8 - 12	3 ≥ 45m <sup>3</sup>	5
LAK	Lagerstroemia laurata 'Kisawa'	Crepe myrtle cultivar	8 x 8	2 ≥ 30m <sup>3</sup>	16
MAL	Malus floribunda	Japanese flowering crab apple	5 x 5	1 ≥ 15m <sup>3</sup>	19
PRd	Pyrus calleryana 'Charsticken' ssp. 'Cleveland Select'	Cleveland select callery pear	11 x 5 - 6	1 ≥ 15m <sup>3</sup>	14
Qce	Quercus cerris	Turkey Oak	15 - 20 x 12 - 15	4 ≥ 70m <sup>3</sup>	20
Qco	Quercus coccinea	Scarlet Oak	15 - 20 x 12 - 15	4 ≥ 70m <sup>3</sup>	19
Qro	Quercus robur	English Oak	20 x 20 - 25	5 ≥ 100m <sup>3</sup>	4
Uag	Ulmus 'Sapporo Autumn Gold'	Sapporo Autumn Gold Elm	12 x 8	2 ≥ 30m <sup>3</sup>	16
Total (trees)					149

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STH JERRABOMBERRA TOWN PARK  
LANDSCAPE WORKS

DETAILED DESIGN

SCHEDULES - SHEET 1

SHEET 2 OF 31

QUEANBEYAN-PALERANG REGIONAL COUNCIL

VILLAGE BUILDING COMPANY

DESIGNED DRAWN CHECKED APPROVED

PB AT SME MB

DATE 13/08/2021

1000025LD290

REV C

**9.10 Review of Environmental Factors - South Jerrabomberra 'Town Park' - Tralee**  
**Attachment 2 - Landscape Plans - South Jerrabomberra Town Park (Continued)**

MATERIALS AND FINISHES SCHEDULE						
<b>CONCRETE</b>						
<b>PAVING TYPE 1 - ENTRY</b> Dark grey concrete / exposed aggregate pedestrian paving	In situ concrete To Council Standards	Dark grey / aggregate Broom finish	Custom Shelter No. 1 Main Park Proprietary Shelter No. 1 Main Park	TBC Urban Shelter Table Setting	Termin Group / The Italian Lab	
<b>PAVING TYPE 2 - FEATURE</b> Uncoloured grey concrete pedestrian paving with feature pooley sets / banding	In situ concrete To Council Standards	Uncoloured grey Broom finish	Proprietary Shelter No. 2 Learn to Ride Track Bench seat Main Park and Learn to Ride Track Picnic setting	TBC  Monaco Seat Timber ?  Urban picnic setting medium	Termin Group / The Italian Lab	
<b>PAVING TYPE 3 - SPIRAL WALK</b> Tan / beige concrete pedestrian paving with shot blast patterns or Cowes Gold Pebbleset® with handrails	In situ concrete	Tan / Beige Covers Gold Cobblestones	BBO Double burner BBO DA Chaises	TBC  Wheelchair accessible	Termin Group / The Italian Lab	
<b>PAVING TYPE 4 - LEARN TO RIDE</b> Coloured concrete pedestrian paving (shelter / seating area)	To Council Standards	Broom finish	Rubbish Bin Recycling Bin	TBC TBC		
<b>PAVING TYPE 5 - FOOTPATHS</b> Plan concrete pedestrian paving	In situ concrete To Council Standards	Uncoloured grey Steel trowel finish	Drinking Fountain Main Park and Learn to Ride Track	Mount Jansomborn view?	MoorPat	
<b>Concrete Edge</b>	In situ concrete To Council Standards	Uncoloured grey Steel trowel finish	Bike hoop Main Park and Learn to Ride Track Bicycle Repair Station Learn to Ride Track	Uncoloured grey Steel trowel finish		
<b>ASPHALT</b>						
Asphalt paving to Learn to Ride Track	Siluminous asphalt	Black asphalt with feature colour surface finish	Signage for Main Park Signage for Learn to Ride Track			
<b>CORRO</b>						
Steel Edging	100mm Form Boxes or approved equivalent	Carbon steel	Sculpture / Artwork Main Park	Bounce	Gallie and Marc	
<b>LINE MARKINGS</b>					4332 596 895	
Unmarking Learn to Ride Track	Permanent line marking	White			Josake@galileand inter.com	
<b>WALLS</b>						
In situ concrete walls to Terraces and Park Entry	In situ concrete	Class 1 smooth finish	Bike themed Sculpture Learn to Ride Track			
In situ concrete walls to Learn to Ride Track	In situ concrete	Class 1 smooth finish				
<b>FURNITURE AND STRUCTURES</b>						
<b>PLAY AREA SURFACING</b>						
Impact attenuation Rubber Soft Fall to meet Australian Standards	Rubber Acctic #52212	Rubber Trough				
Non Impact attenuation Rubber Soft Fall	Orange / Red	Rubber Trough				
Organic Mulch	Completely free of sharp materials, No chips					
<b>NATURE PLAY LOGS</b>						
Salvaged timber logs for play logs	Salvaged hardwood	Treated hardwood				
Salvaged timber logs for log steps	Salvaged hardwood	Treated hardwood				
<b>ROCK Boulders</b>						
Rock boulders	Locally sourced rock approx. 500mm – 800mm	Natural finish				
<b>PLAY EQUIPMENT</b>						
Springers	PAC106 KPL103	Kampan				
Play Unit	4691577, 27-4m x 12.3m I.e. soft fall requirements	TBC				
Percussion Play Rainbow Samba	Rainbow Samba sizes vary	Varies				
Need Swing	Powder coated galvanised steel Main uprights and cross bar	Powder coated galvanised steel Main uprights Colour TBC				
<b>FENCING AND BOLLARDS</b>						
Fence Type 1 Post fence	1800mm high					
Bollard Type 1 Fixed Steel Bollard Bollard Type 2 Removable Steel Bollard						
<b>LIGHTING</b>						
Pods top lights with LED lamp						
<b>HEDGING AND MOUND</b>						
Garden beds Site Topsoil	Ensure that the imported site topsoil meets the requirements of this specification	Site stockpile				
Grossing Imported Site Topsoil	Ensure that the imported site topsoil meets the requirements of this specification					
Garden bed Mulch	Pine bark mulch Particles must not exceed 50mm in any dimension Must be free of deleterious matter such as soil, weeds and sticks					
<b>GRASSING</b>						
Hydromuch	70% Kikuyu and 30% Sterile Rye grass	Application rate: 4kg/100m²	Alliance Seeds (03) 5751 0906			
<b>NETWORK</b>						
<b>FITNESS EQUIPMENT</b>						
Suspension Trainer	FAZ101	Orange, coated steel				
Magnetic Belts	FAZ 102	Orange, coated steel				
Disable Chest Press	KPX131	Grey, galvanneal steel				
Cross Trainer	FAZ52100	Orange, coated				

## NOTES

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**STH JERRABOMBERRA TOWN PARK**

## LANDSCAPE WORKS

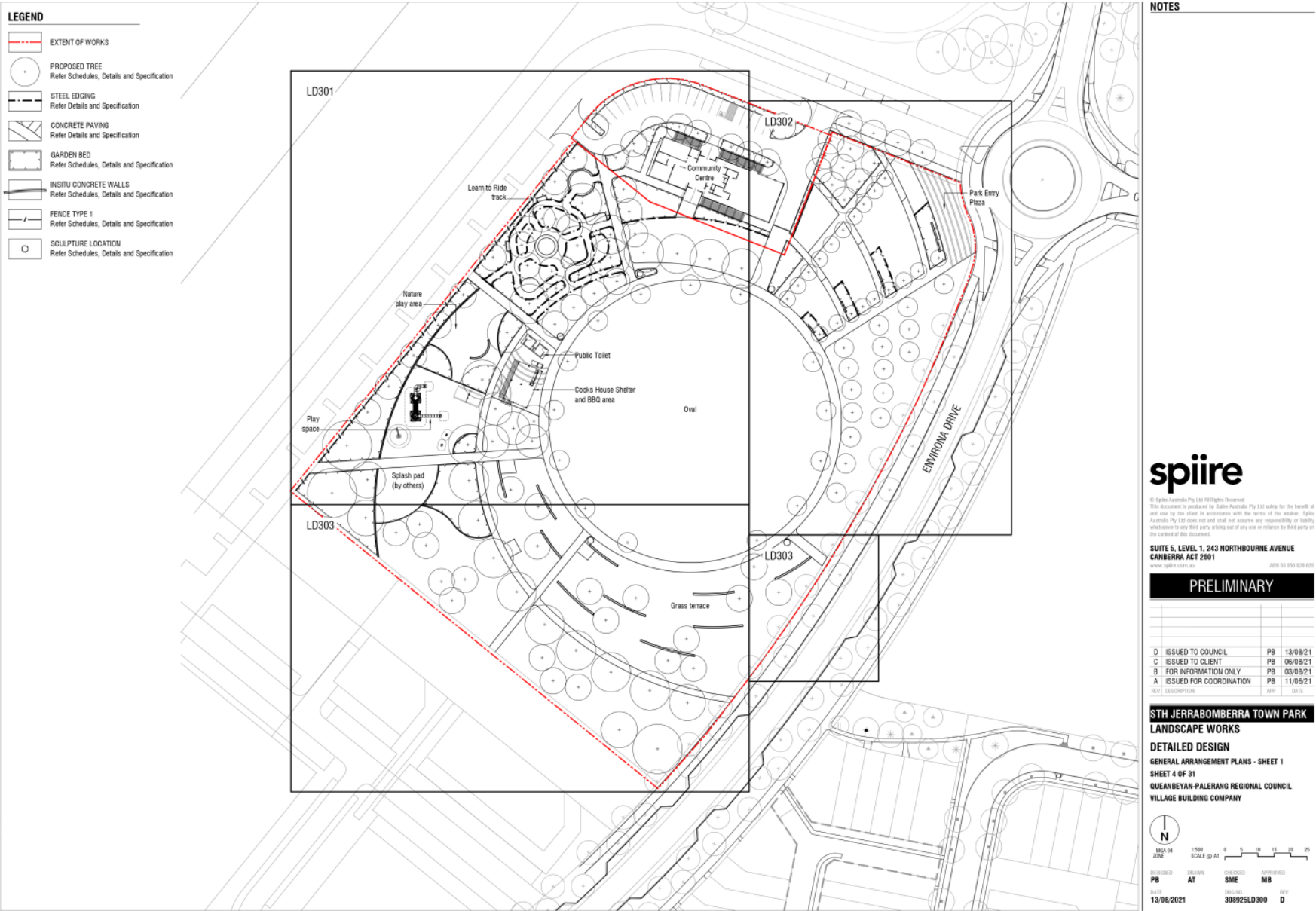
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**SCHEDULES - SHEET 2**

## SHEET 3 OF 31

QUEANBEYAN-PALERANG REGIONAL COUNCIL  
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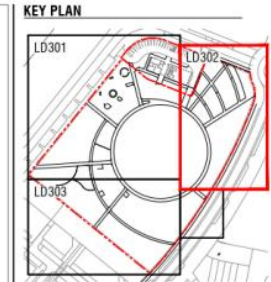








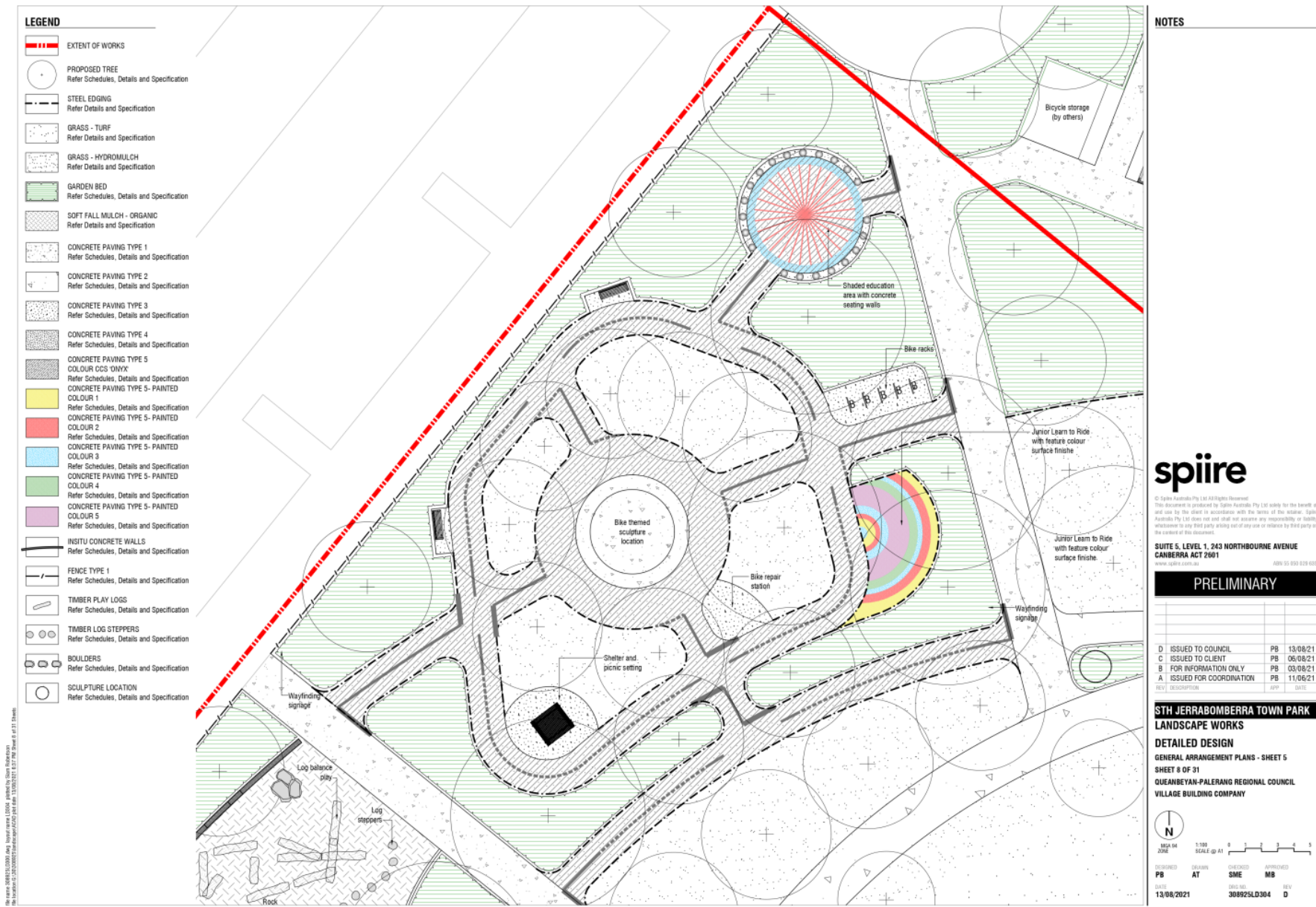




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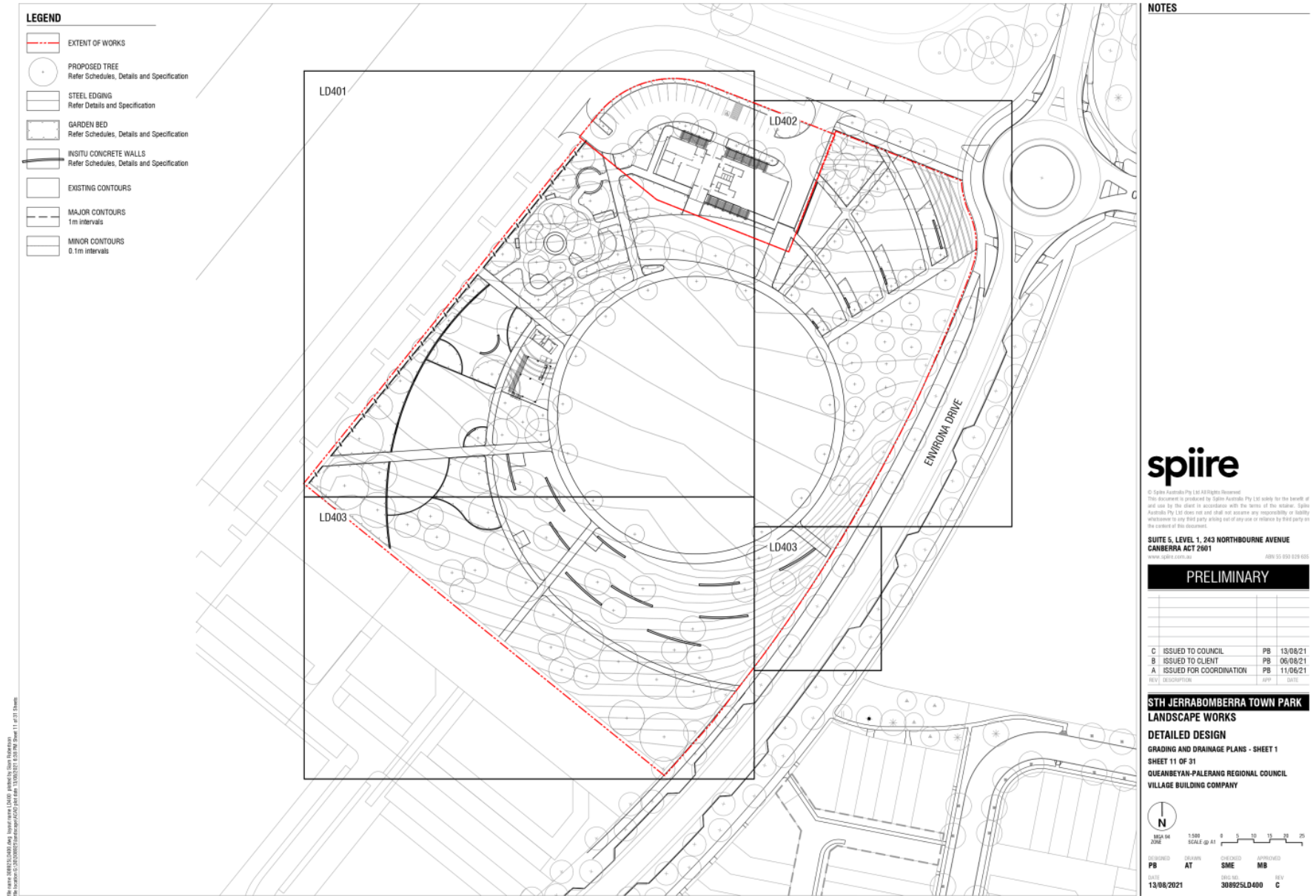


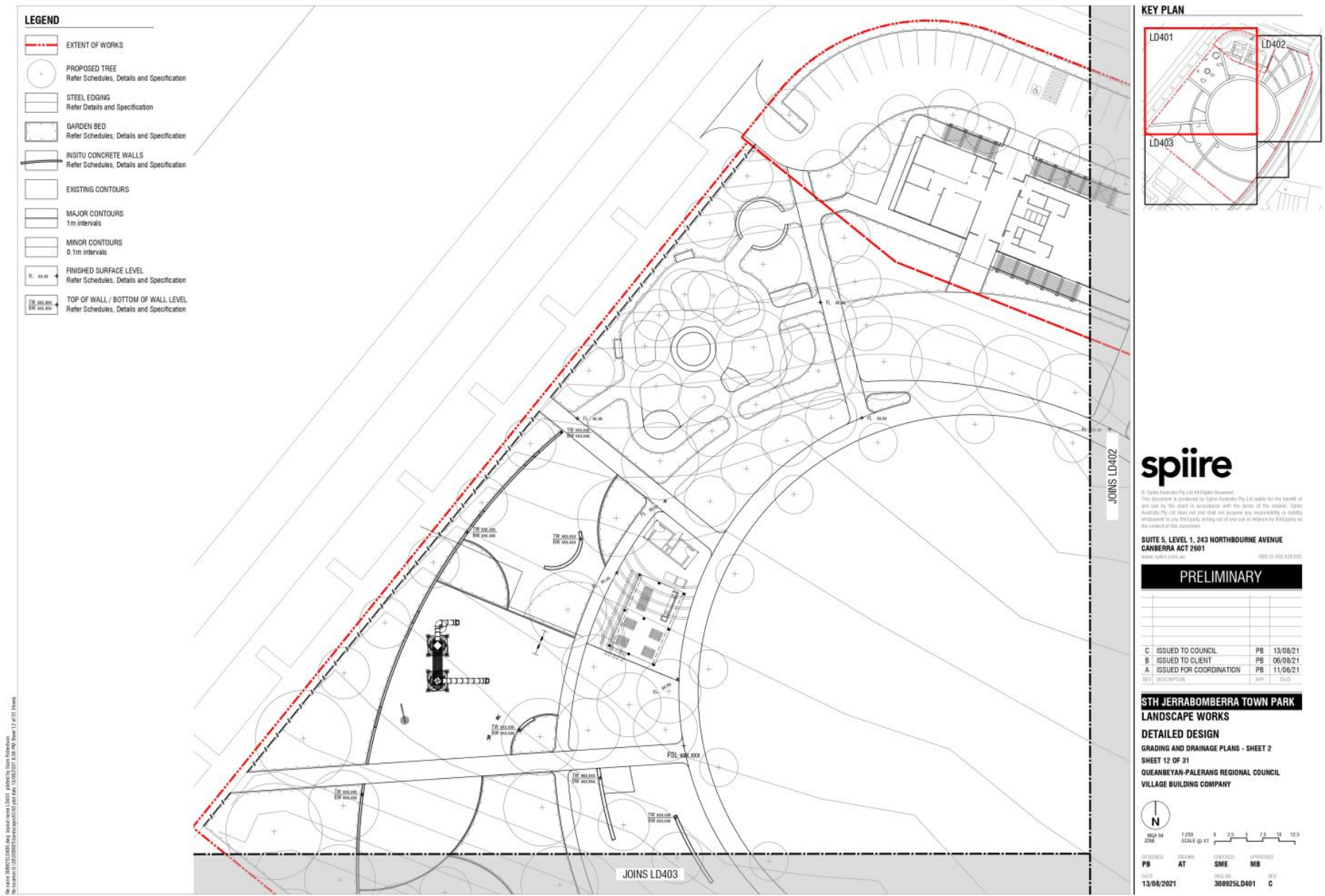


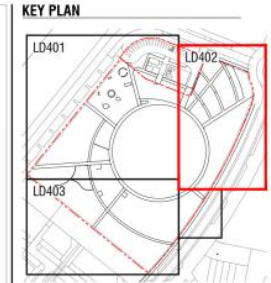












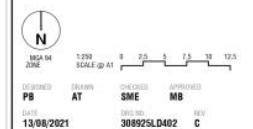
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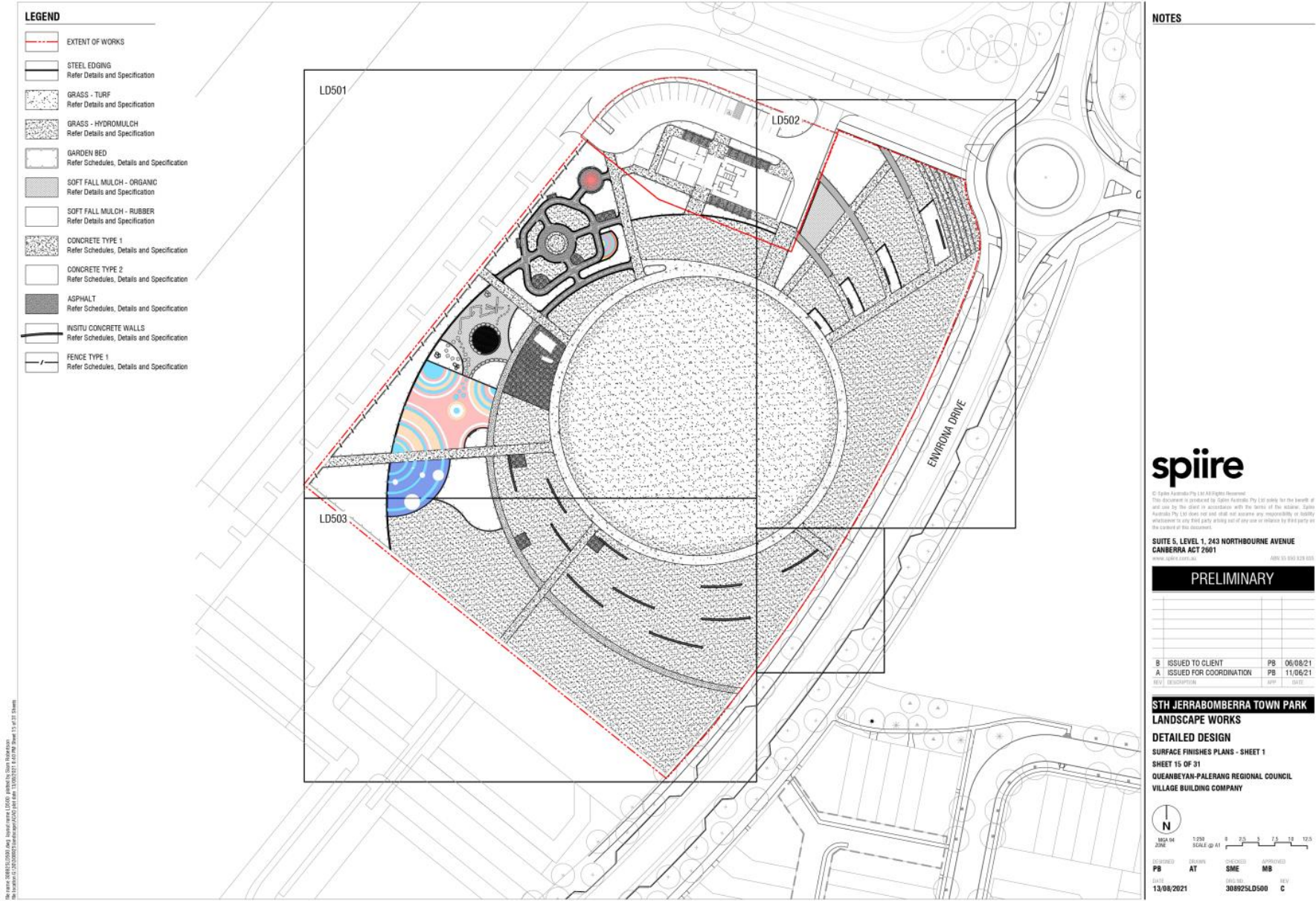
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GRADING AND DRAINAGE PLANS - SHEET 3  
SHEET 13 OF 31  
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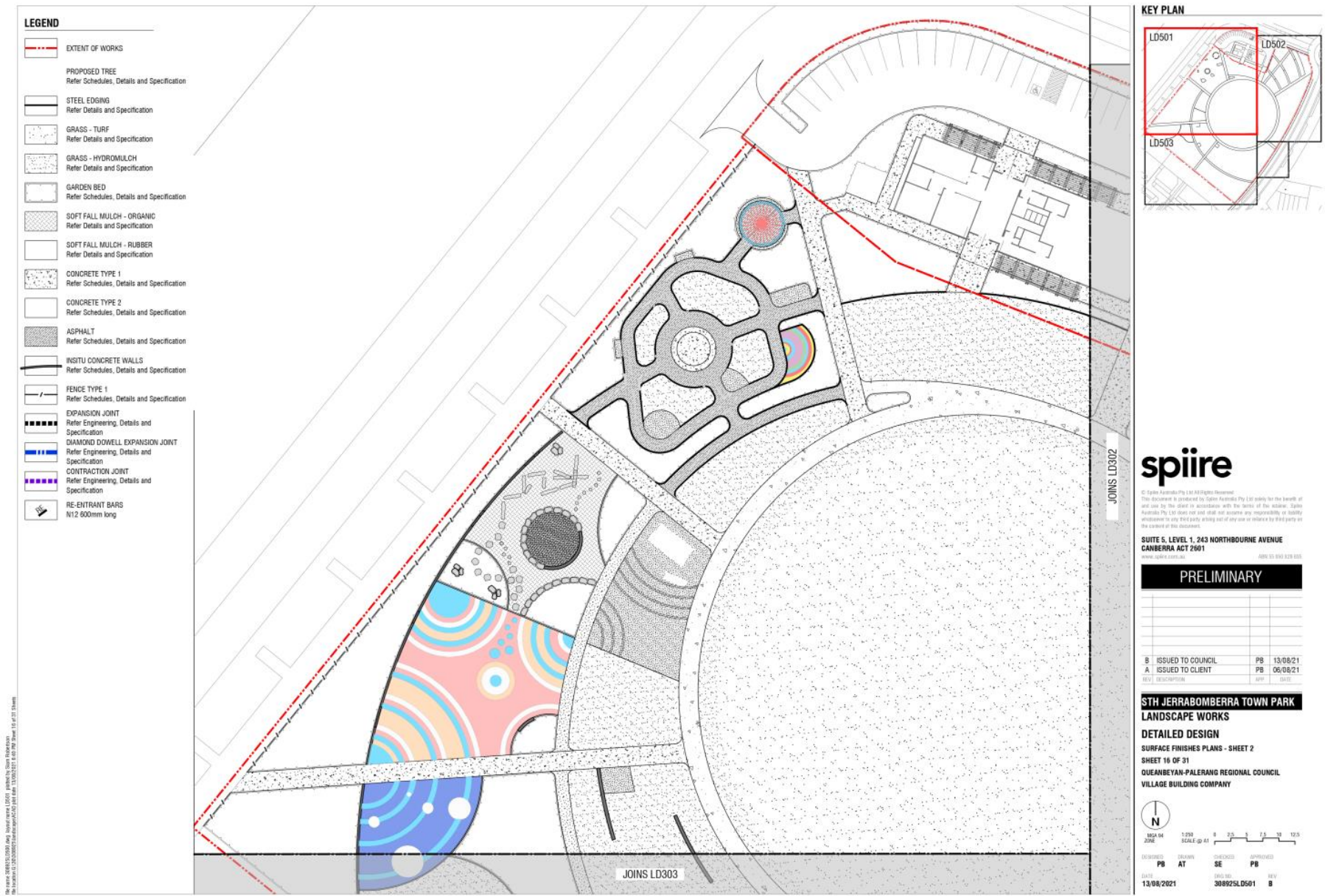


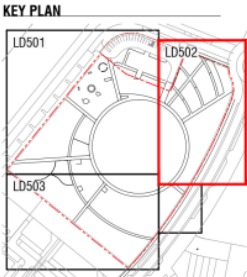
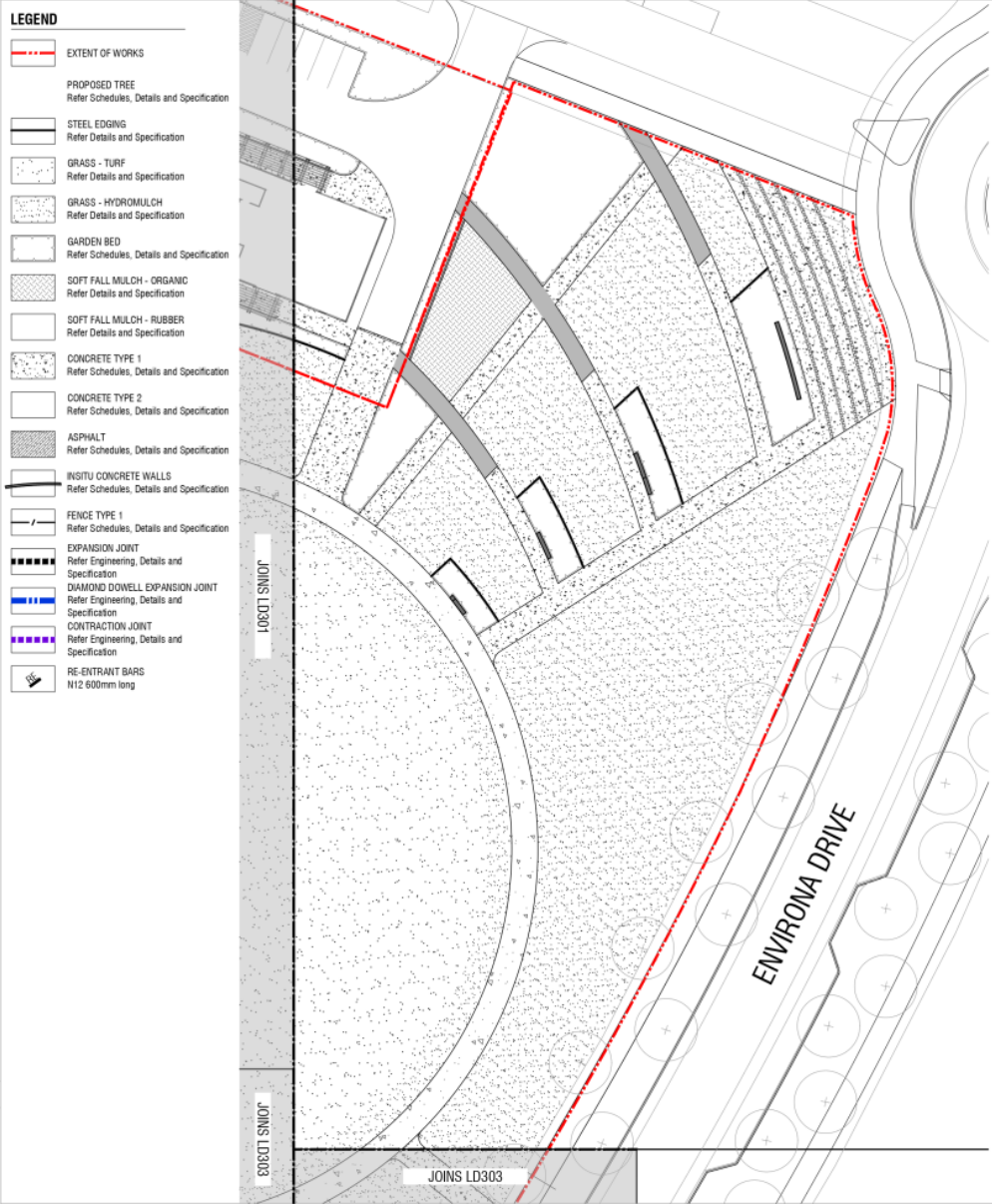












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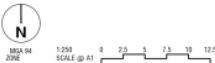
**STH JERRABOMBERRA TOWN PARK  
LANDSCAPE WORKS**

**DETAILED DESIGN**

**SURFACE FINISHES PLANS - SHEET 3**

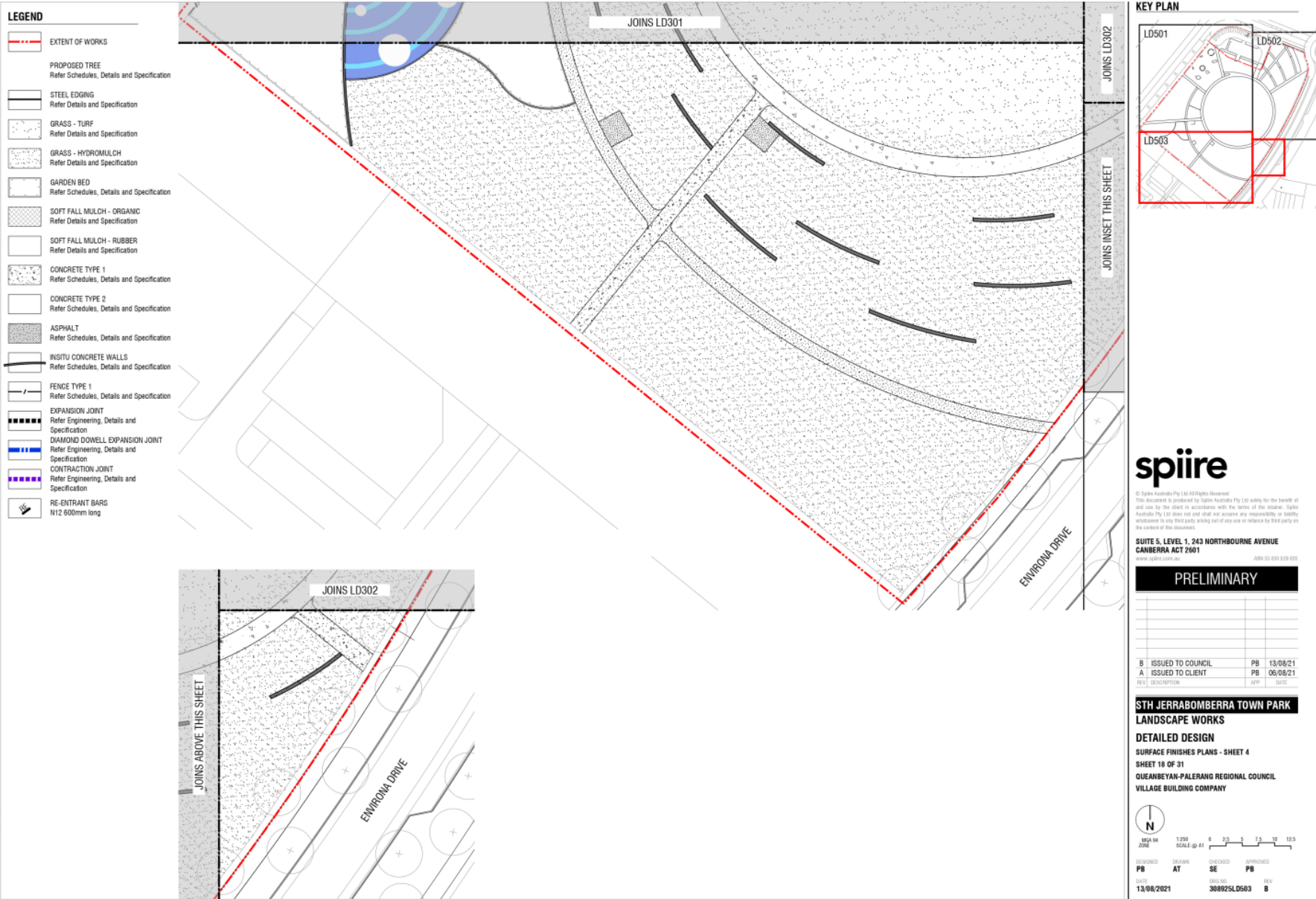
**SHEET 17 OF 31**

**QUEANBEYAN-PALERANG REGIONAL COUNCIL  
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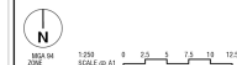


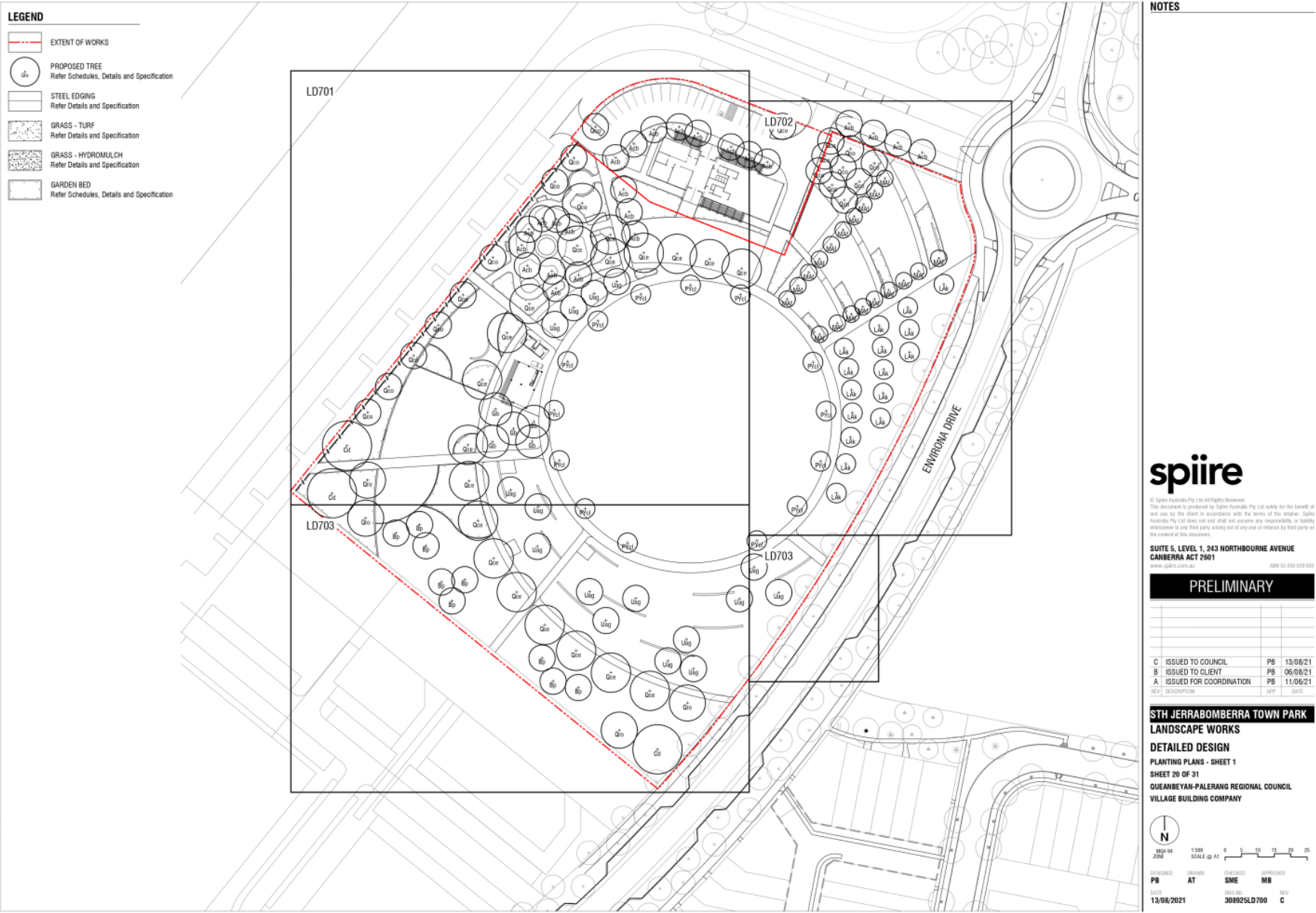
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**STH JERRABOMBERRA TOWN PARK  
LANDSCAPE WORKS  
DETAILED DESIGN  
SETOUT PLANS - SHEET 1  
SHEET 19 OF 31  
QUEANBEYAN-PALERANG REGIONAL COUNCIL  
VILLAGE BUILDING COMPANY**

118

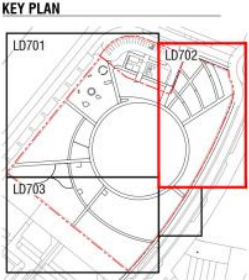
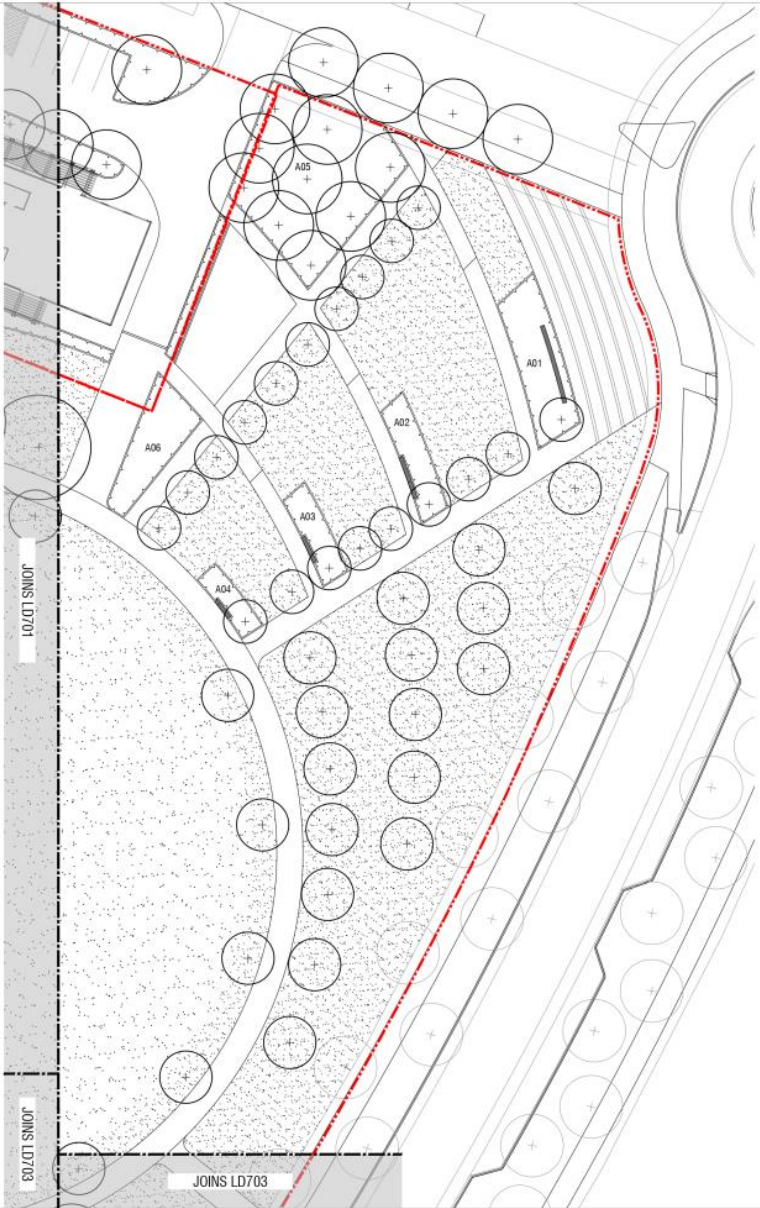


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- LEGEND**
- EXTENT OF WORKS
  - PROPOSED TREE  
Refer Schedules, Details and Specification
  - STEEL EDGING  
Refer Details and Specification
  - GRASS - TURF  
Refer Details and Specification
  - GRASS - HYDROMULCH  
Refer Details and Specification
  - GARDEN BED  
Refer Schedules, Details and Specification
  - GARDEN BED ID CODE  
Refer Schedules, Details and Specification



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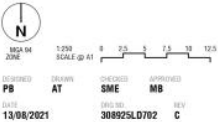
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**STH JERRABOMBERRA TOWN PARK  
LANDSCAPE WORKS**  
**DETAILED DESIGN**  
**PLANTING PLANS - SHEET 3**  
**SHEET 22 OF 31**  
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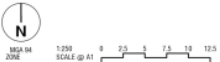
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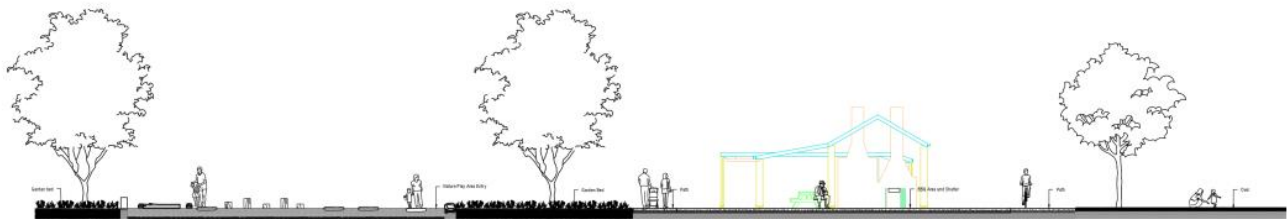
STH JERRABOMBERRA TOWN PARK  
LANDSCAPE WORKS  
DETAILED DESIGN  
ELEVATIONS AND SECTIONS - SHEET 1  
SHEET 24 OF 31  
QUEANBEYAN-PALERANG REGIONAL COUNCIL  
VILLAGE BUILDING COMPANY



DESIGNED	DRAWN	CHECKED	APPROVED
PB	AT	SME	MB
DATE		SHEET NO.	REV
13/08/2021		308925LD800	C



1 PARK ENTRANCE SHOWING SIGNAGE SECTION B  
Scale 1:100 @ A1



2 NATURE PLAY ENTRANCE FEATURING BBQ AREA SECTION C  
Scale 1:100 @ A1

The name 'SOUTH JERRABOMBERRA' and 'TOWN PARK' are used for identification purposes only. The name 'SOUTH JERRABOMBERRA' is used for identification purposes only. The name 'SOUTH JERRABOMBERRA' is used for identification purposes only.

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**STH JERRABOMBERRA TOWN PARK**  
**LANDSCAPE WORKS**  
**DETAILED DESIGN**  
**ELEVATIONS AND SECTIONS - SHEET 2**  
**SHEET 25 OF 31**  
**QUEANBEYAN-PALERANG REGIONAL COUNCIL**  
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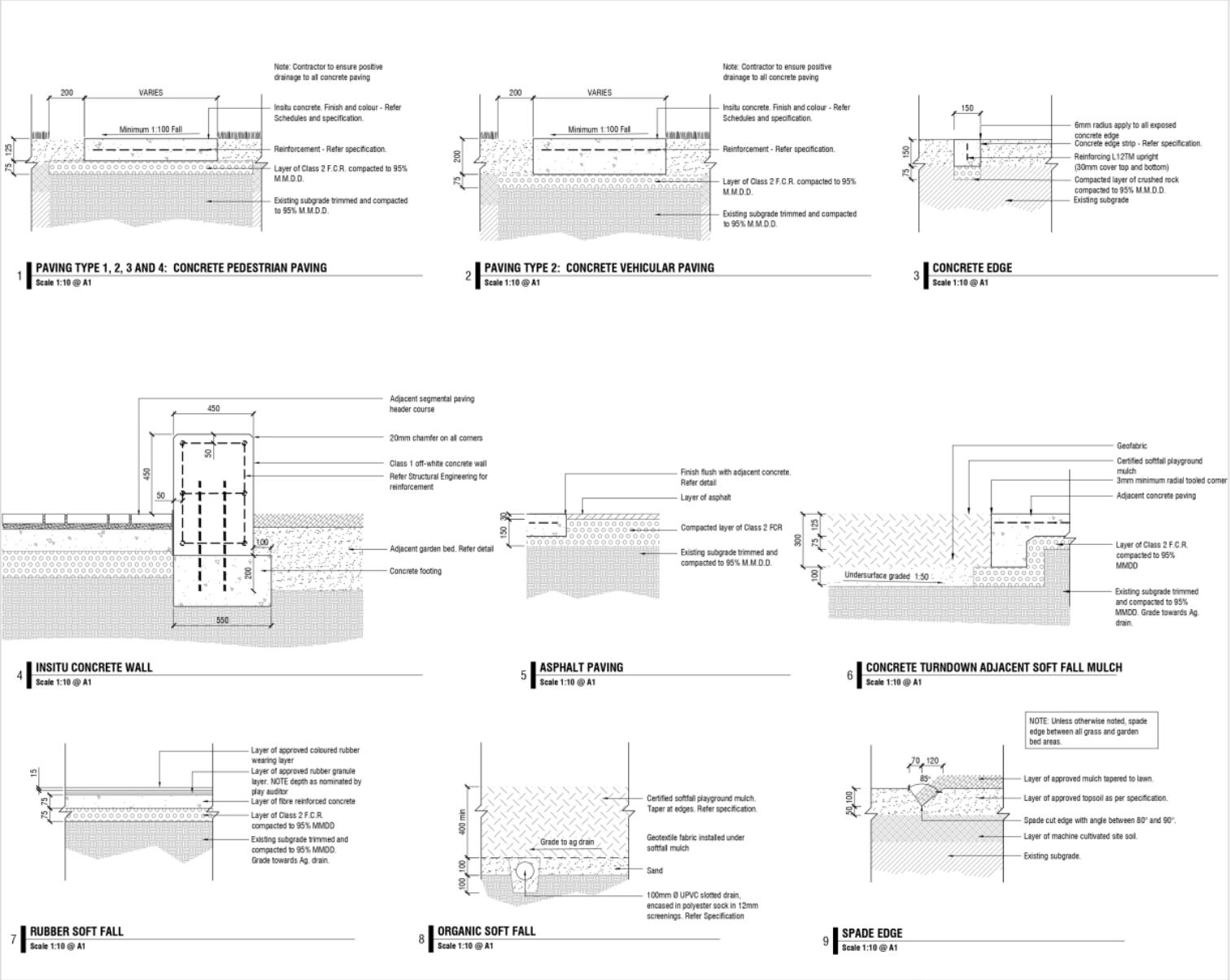


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SCALE @ A1

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13/08/2021 308925LD001 B





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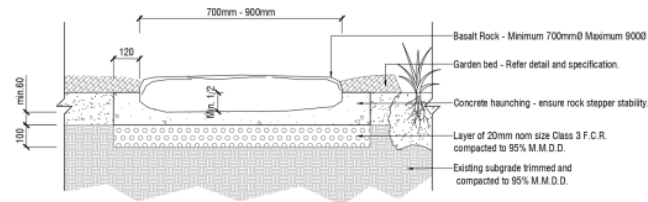
PRELIMINARY

C	ISSUED TO COUNCIL	PB	13/08/21
B	ISSUED TO CLIENT	PB	06/08/21
A	ISSUED FOR COORDINATION	PB	11/06/21
REV	DESCRIPTION	APP	DATE

STH JERRABOMBERRA TOWN PARK  
LANDSCAPE WORKS  
DETAILED DESIGN  
DETAILS - SHEET 1  
SHEET 26 OF 31  
QUEANBEYAN-PALERANG REGIONAL COUNCIL  
VILLAGE BUILDING COMPANY



DESIGNED	DRAWN	CHECKED	APPROVED
PB	AT	SME	MB
13/08/2021		308925LD900	C



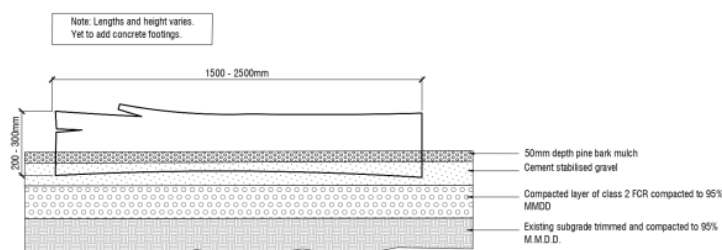
2 | **NATURE PLAY ROCK STEPPERS**  
Scale 1:10 @ A1

NOTE:

- Place rock with smoothest side facing up
- Set rock a minimum 1/2 below ground line
- Ensure exposed rock face is free of sharp edges
- Basalt rock to be sourced locally.



### 3 NATURE PLAY LOW BALANCE CIRCUIT



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## PRELIMINARY

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	APP	DATE

**TERRABOMBERRA TOWN PARK**

### SCAPE WORKS

S - SHEET 2

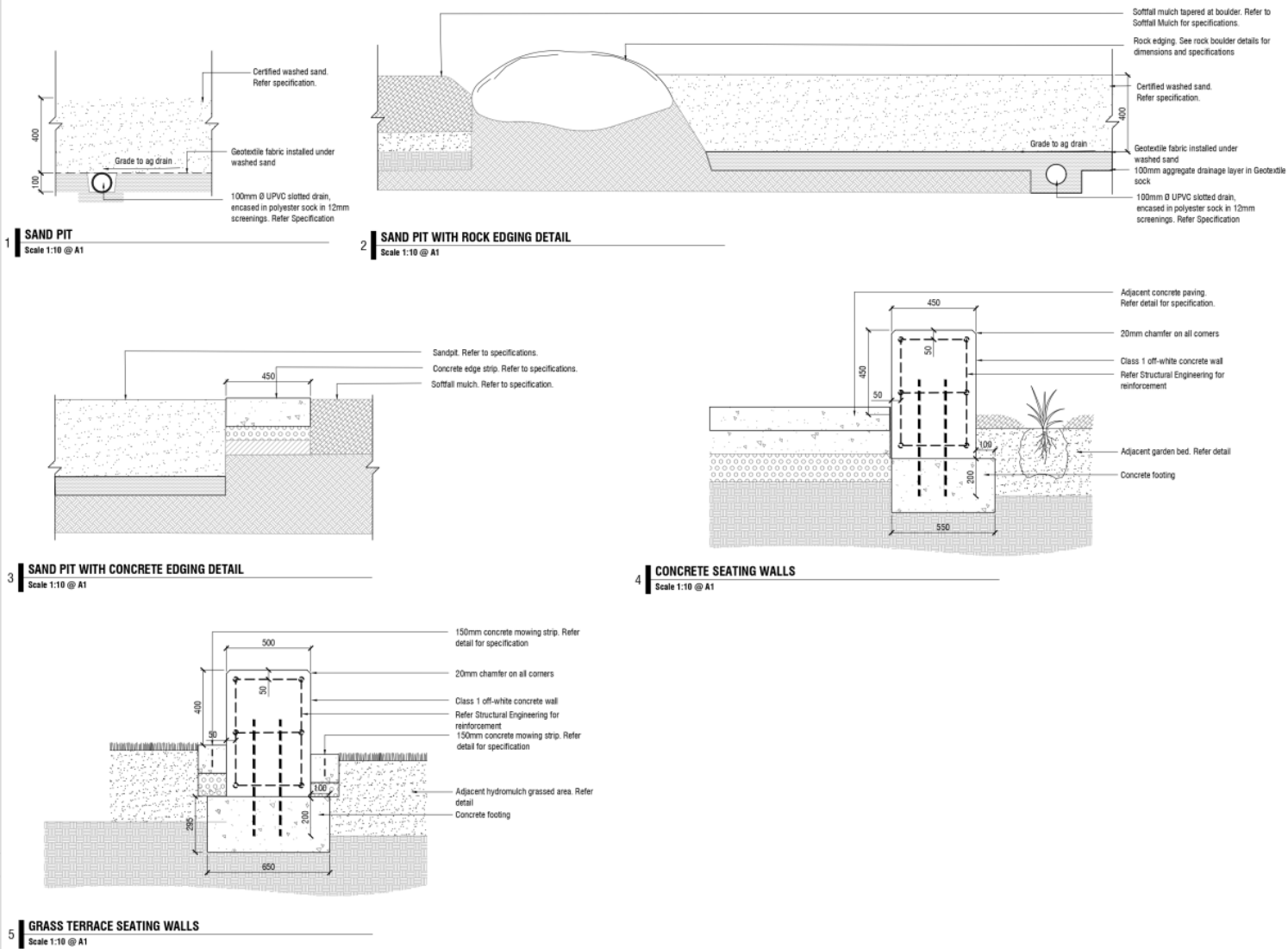
BEYAN-PALERANG REGIONAL COUNCIL

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STH JERRABOMBERRA TOWN PARK

LANDSCAPE WORKS

DETAILED DESIGN

DETAILS - SHEET 3

SHEET 28 OF 31

QUEANBEYAN-PALERANG REGIONAL COUNCIL

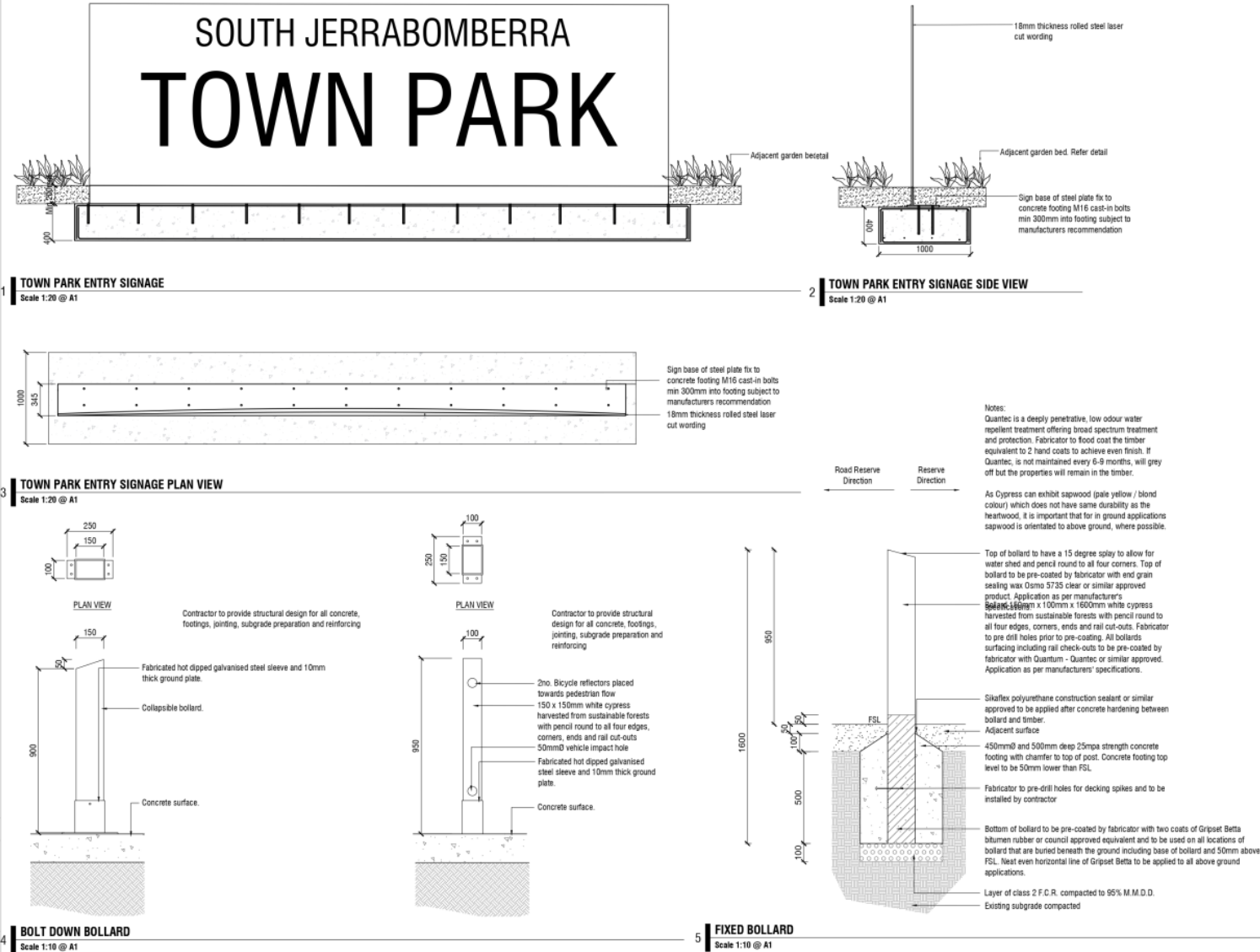
VILLAGE BUILDING COMPANY

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ZONE

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DATE 30/09/21 09:02 REV B



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LANDSCAPE WORKS

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DETAILS - SHEET 4

SHEET 29 OF 31

QUEANBEYAN-PALERANG REGIONAL COUNCIL  
VILLAGE BUILDING COMPANY

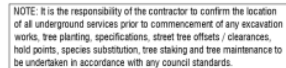
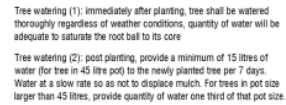


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ZONE

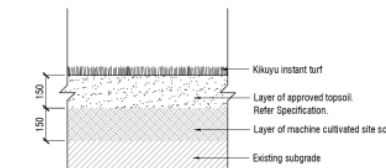
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DATE	DATE	DATE	DATE

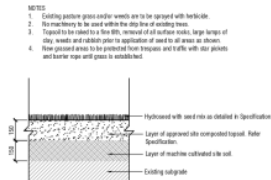
308925LD903 B



2 | **GARDEN BED PLANTING**  
Scale 1:10 @ A1



3 | **TURF GRASSING DETAIL**  
Scale 1:10 @ A1



4 HYDROSEED GRASSING  
Scale 1:10 @ A1

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**STH JERRABOMBERRA TOWN PARK  
LANDSCAPE WORKS**

## DETAILED DESIGN

DETAILS - SHEET 5

SHEET 30 OF 31

QUEANBEYAN-PALERANG REGIONAL COUNCIL

VILLAGE BUILDING COMPANY



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1    **HERO PIECE - OPC COMPLIANT**  
Imagination Play



2    **HERO PIECE - OPC NON-COMPLIANT**  
Imagination Play



3    **URBAN TABLE SHELTER**  
Terrain Group

The image is a 3D rendering of a playground structure. It is a red frame with two red slides. The structure is labeled 'HERO PIECE - OPC COMPLIANT' and 'Imagination Play'. The image is a 3D rendering of a playground structure. It is a grey frame with two yellow slides. The structure is labeled 'HERO PIECE - OPC NON-COMPLIANT' and 'Imagination Play'. The image is a 3D rendering of a playground structure. It is a metal frame with a table and benches. The structure is labeled 'URBAN TABLE SHELTER' and 'Terrain Group'.

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LANDSCAPE WORKS

DETAILED DESIGN

DETAILS - SHEET 6

SHEET 31 OF 31

QUEANBEYAN-PALERANG REGIONAL COUNCIL

VILLAGE BUILDING COMPANY



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DATE 30/09/21 30/09/21 30/09/21 30/09/21