Our Ref: 80221001: L010A v05 GN
Contact: Garry Neville

24 November 2022

now Stantec

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Breen Resources

By Email: benjamin@breen.com.au

Attention: Benjamin Warner

Dear Ben,

BREEN RESOURCE RECOVERY FACILTY – RESPONSE TO AGENCY COMMENTS

We write to provide responses to agency comments provided to us in your email dated 23 May 2022.

1. Sutherland Shire Council

a. Lindum Road Intersection

Agency Comment: *Round about alignment. A detailed design for the site access with Lindum Road considering other existing accessways and pedestrian facilities must be provided. An assessment of the potential conflicts with traffic to and from the recreational areas and cars parked on Lindum Road should also be provided.*

Response: The roundabout has been designed in consultation with Sutherland Shire Council's Senior Traffic Engineer to provide safe access to the proposed Breen Resource Recovery Facility (RRF) whilst maintaining equivalent or improved vehicular access to the neighbour site (Besmaw) and the Boat Harbour driveway.

The intersection layout included in **Attachment A** shows swept paths for design vehicles adopted for the concept design.

The primary pedestrian movement at the location of the proposed intersection is from the existing Lindum Road path to/from the beach access track adjacent to the RRF's eastern boundary as shown in red on **Figure 1**.

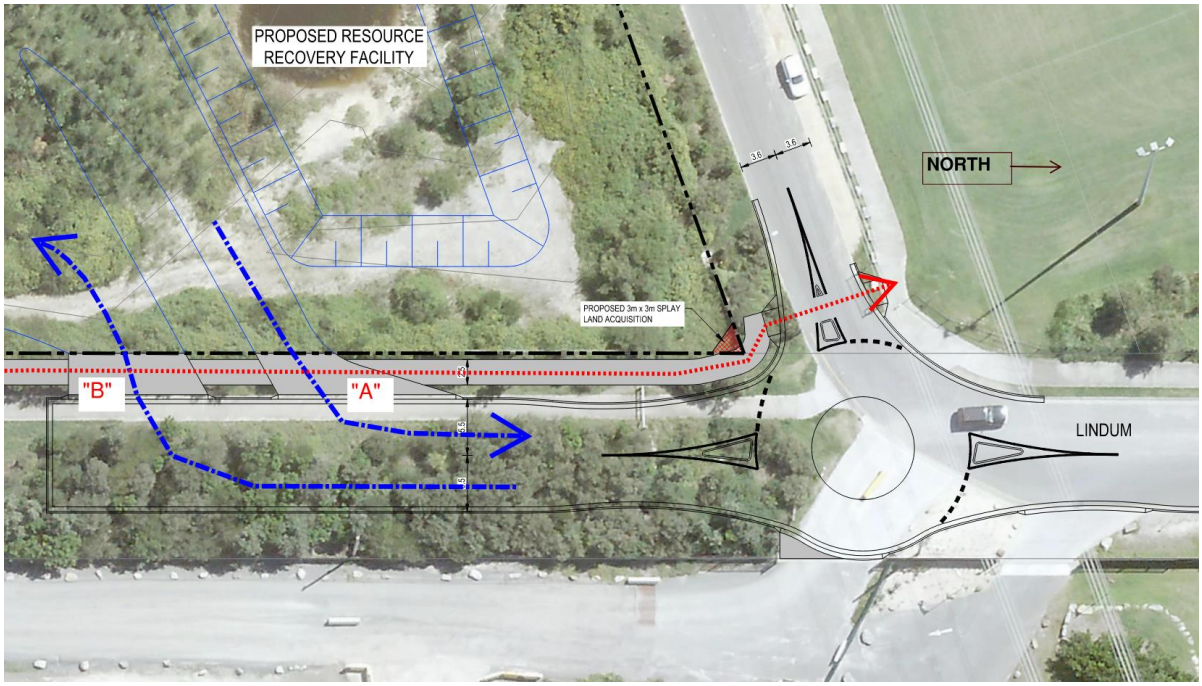


Figure 1: Pedestrian (red) and RRF Vehicular (blue) traffic interaction

In the existing situation pedestrians are required to cross two lanes of traffic in the single movement at a bend on Lindum Road.

This proposed intersection improves the safety of this movement as the roundabout configuration presents an opportunity to introduce a pedestrian island at the western leg of the intersection, thereby reducing the pedestrian movement to a single lane crossing at a time. Sightlines for pedestrians to oncoming traffic are also improved with the inclusion of a roundabout at Lindum Road, particularly for pedestrians heading south across Lindum Road as the turn speeds of vehicles is slowed due to much reduced turn radius. The configuration of the roundabout also aids pedestrians to anticipate traffic heading south on Lindum Road by improving visibility and sight lines.

The separation of the entry and exit lanes provides for a de-facto pedestrian refuge island, enabling pedestrians to anticipate one vehicle direction at a time. These are marked as points “A” and “B” on **Figure 1** and are the exit and entry point to the Facility respectively. Sightlines for traffic exiting will be maintained as part of the final design and site features such as landscaping and entry statements will be designed to ensure sightlines are not compromised.

Pedestrian and vehicle movements have adequately resolved as presented above and as per the concept intersection design included in **Attachment A**.

b. Infiltration Basin’s

Agency Comment: *Redesign infiltration ponds on parklands area to council design storms.*

Response: The design of the infiltration basins outlined in Cardno’s Surface Water Management Assessment Section 5.2.1.1 is compliant with Council’s design criteria (Sutherland Shire Development Control Plan 2015 Chapter 38: Stormwater and Groundwater Management Section 4.5 points 1 to 7). Runoff from events upto the 1% AEP are contained within the site. Flows from extreme events larger than the 1% AEP are evenly distributed across the site boundary. No concentration of overflows across the property boundary is proposed.

c. Flooding

Agency Comment: *The mitigating measures identified in Section 8.6.3 apply to the resource recovery facility only. No mitigating measures have been identified for the Embellished Parklands.*

Response: Flooding has been considered in the EIS and has been determined not to be an issue for the parklands due to the topography. Figure 53 from the EIS for the PMF flood extents in the area has been included as Figure 2 below for reference.

Figure 2: Post Development Probable Maximum Flood depth.

2. TfNSW

a. Captain Cook Drive Speed Limit

Agency Comment: *It is noted that on page 77 of the Traffic and Transport report it states that the speed limit fronting the site should be changed from 80km to 70km. If the development were to explore this a possibility TfNSW advises that a separate application is required for TfNSW consideration of the proposed reduction against existing guidelines.*

Response: Breen Resources (Breen) wishes to confirm that there is no proposal to change the speed limit on Captain Cook Drive as part of the subject application. Speed zone review and changes are under the control of TfNSW, and is therefore up to the road authority to determine its suitability.

a. Forecast Traffic

Agency Comment: *The Traffic and Transport Report does not illustrate how the forecast daily traffic movements of 1,070 two-way vehicles on weekdays was calculated, including breaking this down by heavy vehicle type. It is requested the proponent illustrate how the forecast daily traffic movements of 1,070 two-way vehicles on weekdays was calculated, including breaking this down by heavy vehicle type. This should show how the forecast vehicle daily movement figure is capable of moving the 650,000t intake and 600,000t export to and from the site.*

Response: The forecast daily traffic movements have been estimated based on the incoming and exported material. The incoming material and resulting traffic movements were calculated as follows:

1. The 2017/2018 vehicle counts were reviewed for each waste type and divided by the total weight of that waste type. This gave an average vehicle weight per waste type.
2. The tonnes of each proposed waste type was divided by average vehicle weight to give the number of vehicles per waste type.

3. The daily and hourly distribution of vehicles delivering to the proposed facility was assumed to be the same as the 2017/18 data set and the vehicle numbers were scaled accordingly.

The exported material was calculated as follows:

1. The recovery rate for each incoming waste stream was estimated
2. The recovery rate was multiplied by the incoming waste stream to determine the total export for each waste type
3. The exported material will be for larger commercial customers and it was expected that the large vehicle capacities would be used to move these export product. Typical truck weights were estimated for each export type.
4. The tonnes of each proposed exported material type was divided by the average vehicle weight to give the number of vehicles per type of exported material.
5. The daily and hourly distribution of vehicles exporting from the proposed facility was assumed to be the same as the 2017/18 data set and the vehicle numbers were scaled accordingly.

The vehicle types expected would range from a mix of small rigid to larger articulated vehicles such as truck and dog, semi-trailers and B-doubles.

Further information is provided in section 7.1.1 “Traffic Generation” of the traffic report and summarised below.

Table 1-1 Proposed Product Intake

Description	Proposed (tpa)
Soils	300,000
Heavy C&D waste (brick and concrete)	150,000
Light C&D waste	150,000
Light C&I waste and non-putrescible organic waste	50,000
Total	650,000

The current operation is understood to not receive Light C&I waste, however for the purpose of this assessment, it is considered vehicle sizes are equivalent to the current intake of Light C&D waste. Delivery Tonnages will be split as per **Table 1-1**.

The capped increase to 650,000tpa is an increase of approximately 37% compared to the 2017/18 intake however in some cases is a reduction of previous historical intakes. The average tonnes per vehicle for the intake of material is summarised below:

- Soil – ~13.8 tonnes
- Heavy C&D – ~7.8 tonnes
- Light C&D / C&I – ~4.3 tonnes

For the purpose of estimating the forecast intake vehicle movements, the above averages are reflective of the assumed increase.

It is understood that the efficiency of the recycled material is based on the following:

- Soil – 90% efficiency
- Heavy C&D – 100% efficiency
- Light C&D / C&I – 90% efficiency

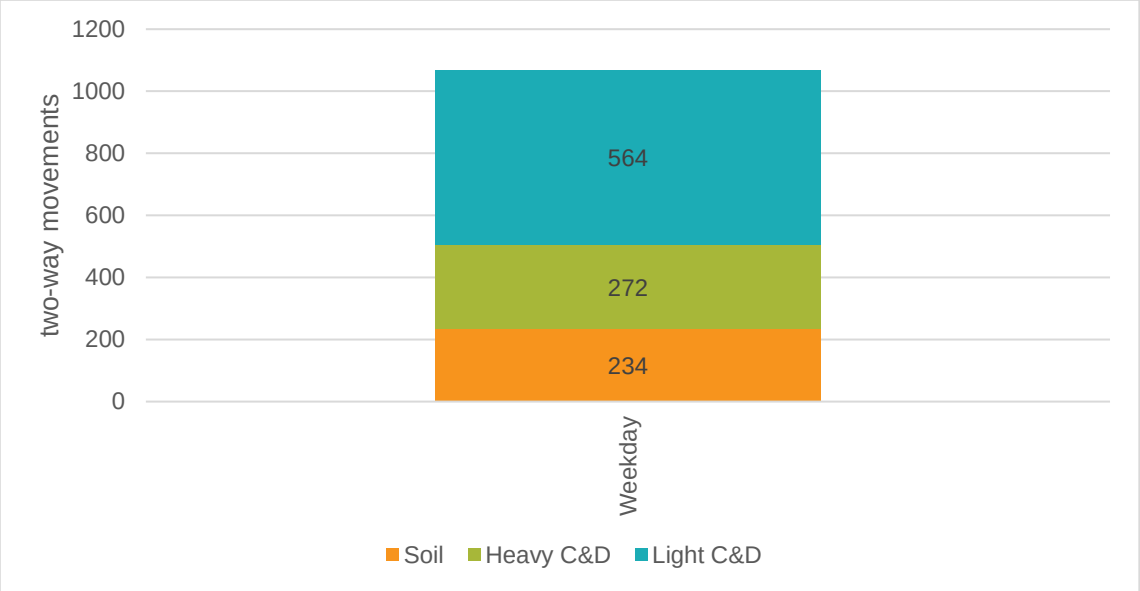
The resulting future exported material is summarised in **Table 1-2**.

Table 1-2 Forecast Product Export

Description	Estimate (tpa)
Soils	270,000
Heavy C&D waste (brick and concrete)	150,000
Light C&D waste	135,000
Light C&I waste and non-putrescible organic waste	45,000
Total	600,000

The resulting number of average daily movements by material type (accounting for vehicle types) is shown in the figure below.

Table 1-3 Weekday Daily Volumes



3. EPA

a. Sedimentation Control

Agency Comment: *The Proposal proposes erosion and sediment controls designed consistent with Managing Urban Stormwater: Soils and construction – Vol 2B, waste landfills (DECC 2008). The SWIA indicates that two sediment basins would be utilised during construction. However, no details are provided of the location, design storm capacity and the expected frequency, volume and quality of discharges. The SWIA states that the sediment basins will be finalised at detailed design.*

Response: The information requested above was submitted with the original EIS in Appendix H. Table 5.3 and 5.4. Locations are shown in Fig 7.2. These figures have been include below for ease of reference.

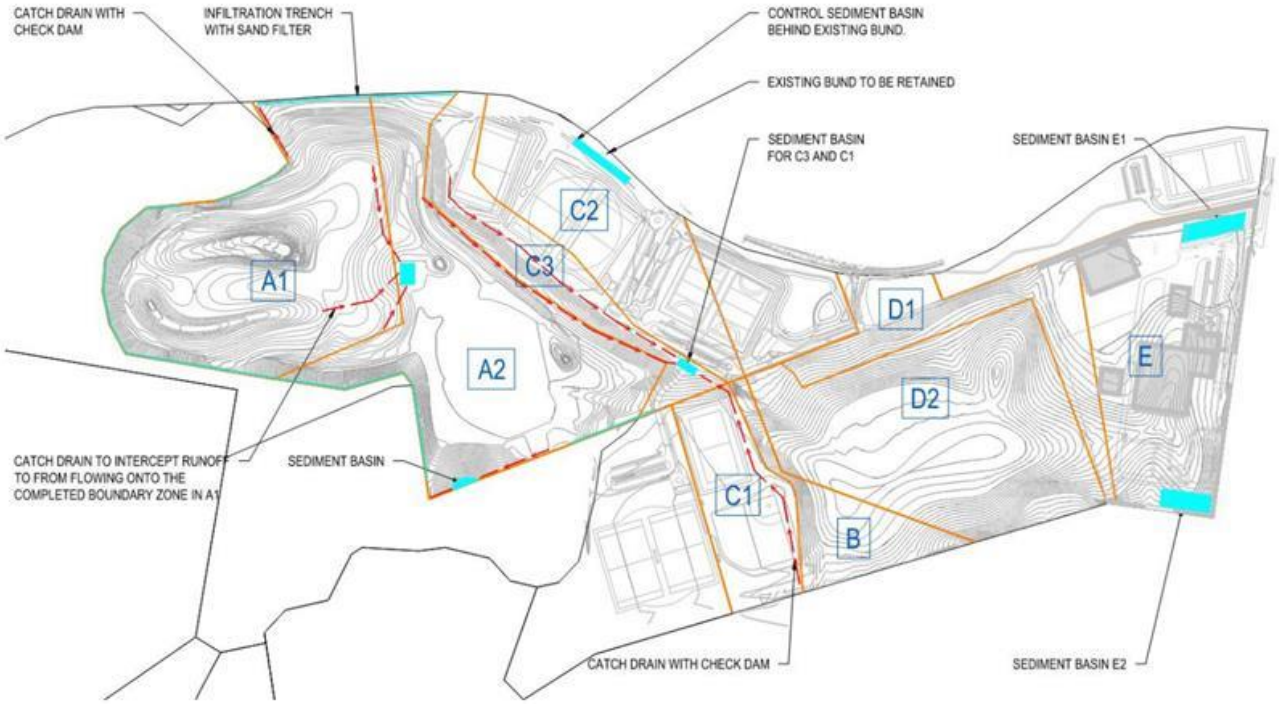


Figure 7-2 Sediment and Erosion Control Layout

b. Slope Stability

Agency Comment: *The expanded landform will have acceptable slope stability, taking into account various possible failure modes.*

Response: Waste Cells and capping layers will be constructed in a manner that ensures adequate compaction and drainage to suit maximum batter gradients. The proposed finished surface gradients are generally less than 1 (Vertical) : 3 (Horizontal) with the exception of an isolated location in Area A1 (Cardno drg. 89913035-SK-108) where batter gradients are closer to 1 (Vertical) to 2 (Horizontal). Geotechnical speciation's will be established to ensure that waste cell layers will be placed in near horizontal layers of max 500mm loose thickness. Compaction to min density ratio of 95% based on Standard Compaction as determined by AS1289.5.11 tested by a NATA accredited laboratory. Alternative methods of achieving the compaction requirements such as dynamic compaction by impact rolling with associated verification testing may be considered subject to an assessment based on in-situ testing at the detail design stage.

4. Community Submissions

a. Kurnell Residents Association

Association Comment: *In regard to increased traffic movement, the traffic report says that the Lindum Road roundabout would be able to cope with the increases. Does this consider increased use of sporting fields and other amenities used by recreational users? If in time it is proven that the roundabout cannot cope, would you commit to creating an alternative entry and exit point to your site?*

Response: As per Section 7.3.1 of the submitted Traffic and Transport Report, the forecast traffic generation from the increased use of sporting fields and other amenities used by recreational users has been included. Based on the cumulative traffic modelling assessment presented in Section 7.6 of the report, there is no indication that the Lindum Road / Captain Cook Drive roundabout intersection roundabout would not be not be able to cope.

b. Besmaw Submission (Urbis, 2 September 2021)

Besmaw Comment: *The application does not adequately assess the conflict between the existing pedestrian pathway and the extension to Lindum Road, which will require the trucks to traverse the pedestrian pathway.*

Response: The revised proposal to include the roundabout treatment on Lindum Road at the Boat Harbour driveway and proposed RRF driveway, which includes retention of the existing pedestrian footpath addresses the perceived conflict.

The proposed RRF driveway at the property boundary has separated entry and exit lanes, with suitable area for pedestrians to wait safely if necessary. This facilitates safe movement of pedestrians across the RRF driveway.

Besmaw Comment: *The TIA does not acknowledge the approved Boat Harbour Access point (Application No.RDA18/1172) on the Besmaw site which has been constructed and is utilised by the general public. The EIS states it is 'yet to be completed' which is incorrect and as a result the forecast modelling is not consistent with the current usage of Boat Harbour Drive.*

Response: The revised proposal to include the roundabout treatment on Lindum Road at the Boat Harbour driveway and proposed RRF driveway accounts for the Boat Harbour Access as identified in the Besmaw comment.

The forecast traffic modelling is considered to be conservative given it has adopted a seasonal peak hour traffic generation. This has been documented in Section 7.3.2 of the submitted Traffic and Transport Report.

Besmaw Comment: *A cumulative assessment of the traffic utilising this junction has not been provided. Truck volumes are expected to almost double as result of the new resource recovery facility. This has not been discussed in detail with the EIS. The TIA states there is an expected increase in daily traffic movements from 585 to 1070 two-way vehicles on weekdays, and from 227 to 422 two-way vehicles on Saturdays. There will be a forecast increase 53 two-way vehicles during the morning peak from 8:30am to 9:30am and 34 trips on Saturdays. When combined with the Besmaw land, the Boat Harbour Drive vehicle movements and the existing and proposed playing fields, this will have substantial flow on effects for Captain Cook Drive and wider Sutherland Shire network, including significant queue lengths.*

Response: The cumulative assessment of the traffic using the Lindum Road / Captain Cook Drive roundabout has been assessed as per Section 7 of the submitted Traffic and Transport Report. The cumulative assessment considers the development of the Marang Parklands and RRF site in conjunction with full development of the playing fields and Boat Harbour access.

The net traffic generation and impacts of the Marang Parklands and RRF site is demonstrated by the SIDRA modelling to be negligible.

Besmaw Comment: *The applicant has failed to assess the cumulative impacts associated with the existing vehicular movements into the Besmaw site, the traffic associated with vehicles accessing Boat Harbour Drive (approved and in use), the vehicular movements associated with the hockey field, skate park and walkway, and the additional traffic entering the Breen site.*

Response: The cumulative impacts are addressed in Section 7 of the Traffic and Transport Report. This accounts for existing survey data, the Boat Harbour access, full development of the playing fields and development of the Marang Parklands and RRF site. The assessment determined that the impacts were negligible.

The amended proposal to include the roundabout on Lindum Road at the RRF driveway and Boat Harbour access addresses the raised concern regarding vehicular and pedestrian conflicts in this location.

Besmaw Comment: *Detailed Civil Engineering plans showing the internal car and truck parking, road dimensions, long and cross sections have not been provided. This includes the new entry point connecting to Lindum Road. To understand the operation of this access point and the likely future conflicts further detailed information must be provided on how it will be constructed.*

Response: The design of the proposed roundabout on Lindum Road at the RRF driveway was designed in conjunction with Sutherland Shire Council's Senior Traffic Engineer and is attached to

this submission. Vehicle turning paths have been attached to this response to demonstrate operation of this access point.

Besmaw Comment: *The existing pedestrian pathway off Lindum Road is frequently used by members of the public to access Wanda Beach. This has increased as a result of COVID-19. It is the only entry point to the beach within 5km. Vehicles regularly park next to the soccer field and skate park and use this pathway. The proposed entrance on the eastern side and extension to Lindum Road will result in this pathway being diverted and will be in direct conflict with trucks and commercial vehicles entering the site. This presents a safety issue to the users of the pedestrian path and has not been appropriately addressed in the Traffic Report (Figure 12)*

Response: The revised proposal includes a roundabout treatment on Lindum Road at the Boat Harbour driveway and proposed RRF driveway. This solution was proposed by Sutherland Shire Council's Senior Traffic Engineer as an appropriate treatment for this location and also retains the existing pedestrian footpath to further address the perceived conflict.

The proposed RRF driveway at the property boundary has separated entry and exit lanes, with suitable safe waiting area for pedestrians if necessary. This facilitates safe movement of pedestrians across the RRF driveway.

Besmaw Comment: *The approved Boat Harbour vehicle access was proposed to facilitate the orderly continuation of the approved extraction and rehabilitation operations on the Besmaw site and to maintain a safe and separate access to Boat Harbour. Private vehicles using the approved vehicle access off Lindum Road will be in direct conflict with commercial trucks entering the proposed Breen waste management facility at this junction (Figure 12 and 13).*

Response: The revised proposal includes the roundabout treatment on Lindum Road at the Boat Harbour driveway and proposed RRF driveway, which includes retention of the existing pedestrian footpath addresses the perceived conflict. This solution was proposed by Sutherland Shire Council's Senior Traffic Engineer as an appropriate treatment for this location.

Besmaw Comment: *The TIA notes that "The future potential export from the Proposal site is expected to be some 3.6 times greater than the recorded 2017/18 year", rising from 166,838 tonnes to 600,000 tonnes. This is a significant increase which will have major ramifications for truck movements on Captain Cook Drive, in which it is expected that "large vehicle capacities will be used to move the different product types."*

Response: As documented in the submitted Traffic and Transport Report, the proposal is to cap the productivity on-site where no cap currently exists. Historically, the site has received higher levels of waste than what is being requested (up to 86% higher in 2009 and 71% higher in 2008) and the resulting traffic generation, inclusive of the traffic mix, is consistent with the function of Captain Cook Drive as a sub-arterial road servicing both industrial and non-industrial land uses. The projected maximum total waste tonnages for the new facility(inbound and outbound) is less than the historic values for 2002, 2003, 2005 and 2008 (approximately 35% less for the case of 2003). The 2017/2018 data was the most representative detailed data set readily available and hence was used to determine the distribution of truck sizes. It does not represent typical historical total throughput data.

Besmaw Comment: *The addition of commercial trucks will increase traffic pressure on Lindum Road and Captain Cook Drive. The current length of Lindum Road to the pedestrian pathway and approved Boat Harbour access is approximately 95m. The proposal will almost double the amount of trucks entering and existing Breen's site. Additional commercial trucks will result in delays on both Lindum Road and in Captain Cook Drive.*

Response: As per Section 7.8.2 of the submitted Traffic and Transport Report, the resulting queue based on the cumulative modelling assessment is well below the storage capacity of Lindum Road, such that there is no detrimental impact or significant delays to Lindum Road traffic. See detail below.

Besmaw Comment: *Alternate locations must be explored o remove the significant conflict at this pinch point. The proposal includes a high volume of truck movements which need to cross a regularly trafficked pedestrian pathway (including young children) accessing Bate Bay. There is also a conflict with the existing Boat Harbour Drive access as well as it being entry point for trucks entering Besmaw's site. The proposed location of the truck access (two way traffic) combined with the projected volumes, will create a choke point, presenting a pedestrian and traffic hazard that is not appropriate.*

Response: The Sutherland Shire Senior Traffic Planning Engineer proposed a roundabout at this location would be the most suitable treatment. We have revised the proposal to include the roundabout treatment on Lindum Road at the Boat Harbour driveway and proposed RRF driveway, which includes retention of the existing pedestrian footpath.

The proposed RRF driveway at the property boundary has separated entry and exit lanes, with suitable safe waiting areas for pedestrians if necessary. This facilitates safe movement of pedestrians across the RRF driveway.

Besmaw Comment: *A swept path analysis has not been provided to determine if in-going and outgoing trucks can bypass one another without resulting in a loss of on street carparking.*

Response: Lindum Road currently services both light and heavy vehicle traffic, inclusive of the heavy vehicles accessing the adjacent Besmaw site. Lindum Road is approximately 11m in width which provides approximately 2.1m parking width either side, and 6.8m travel width (i.e. 3.4m in each direction). This width is sufficient for heavy vehicle access.

5. Additional Clarifying Comments

a. Lindum Road Roundabout Capacity

The proposed roundabout on Lindum Road has been assessed using SIDRA intersection analysis for the year 2031 (consistent with the design horizon, Cardno April 2021). The analysis considers the cumulative traffic generation of the Proposal, Boat Harbour, Sports Fields and background traffic.

The intersection performance is summarised in the below table.

Table 1-4 Intersection Performance

	Degree of Saturation	*Average Delay (worst movement)*	*Level of Service*
AM	*0.075*	*7.9*	*A*
PM	*0.040*	*7.9*	*A*
SAT	*0.063*	*7.9*	*A*

The intersection performance of the proposed roundabout is forecast to be LoS A, which is considered to be good performance with spare capacity. Therefore, there are no identified performance issues with the roundabout.

b. Lindum Road Roundabout additional design details

Additional plans have been included in Attachment 2 showing more design details of the roundabout design including;

a) Proposed geometry and design features of the roundabout and;

b) Swept path compliance for B-Double Vehicles to/from the Resource Recovery Facility accessing the site via the proposed Lindum Road Roundabout.

c. Assessment of Potential Contaminants of Concern

The proposed waste process plant and the associated stockpiles are proposed to be located within buildings with a roof over. As such we do not anticipate that waste material will be exposed to rainfall or stormwater runoff. Leachate produced in the waste processing and the stockpile areas will be segregated from sources of clean stormwater runoff which will prevent any mixing of leachate with stormwater runoff generated from roofs, pavements and landscaped areas. Runoff from these areas (rooves, pavements and landscaped areas) will be treated a best practice stormwater treatment train comprising proprietary Gross Pollutant Traps (GPT's), stormwater pit filter cartridges, bioswales and bio retention basins. These elements will together remove Phosphorus, Nitrogen and Suspended Solids including particulate bound organic and inorganic matter such as Poly Aromatic Hydrocarbons and heavy metals generated from road pavements and vehicle use.

If you require any clarifications please do not hesitate to contact the undersigned.

Yours sincerely,

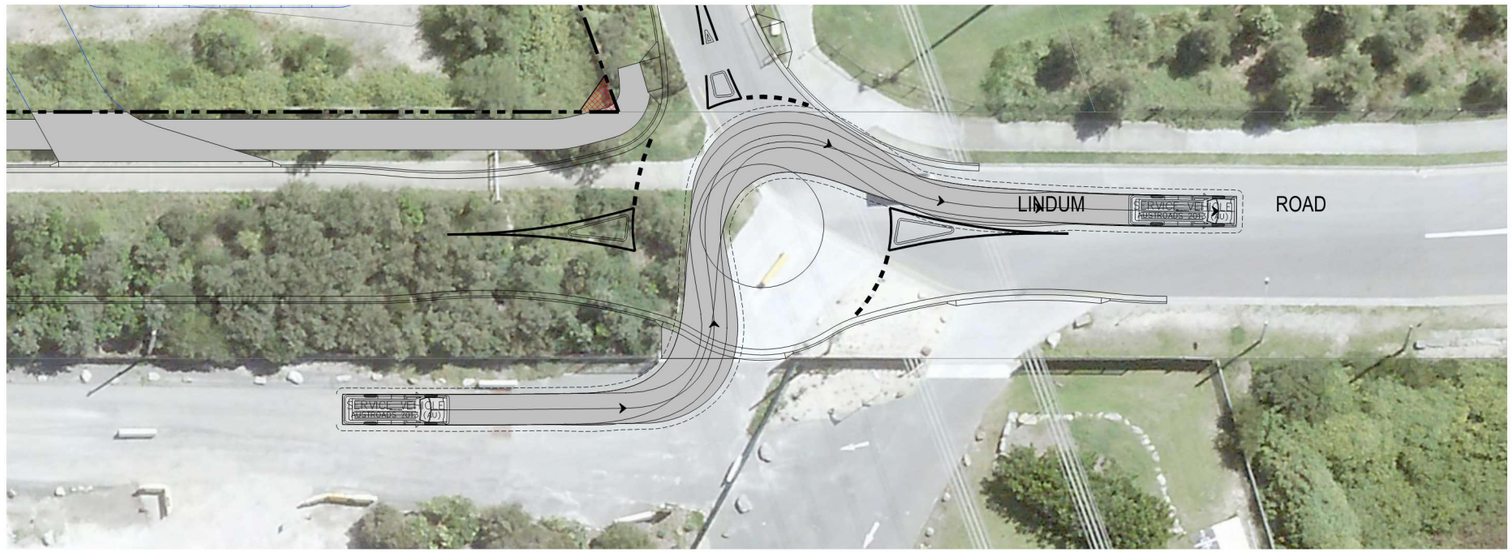
Garry Neville
Senior Civil Engineer - Principal - Civil Engineering
for Cardno now Stantec
Direct Line: +61 2 9496 7846
Email: garry.neville@cardno.com.au

Encl: Attachment 1 – Drawing 80218082-SK005 Lindum Road Concept Roundabout layout – Turn Paths.
Attachment 2 – Drawing 80218082-SK006 and SK007 Lindum Road Roundabout Detail Plan and B Double Turn Path Plan

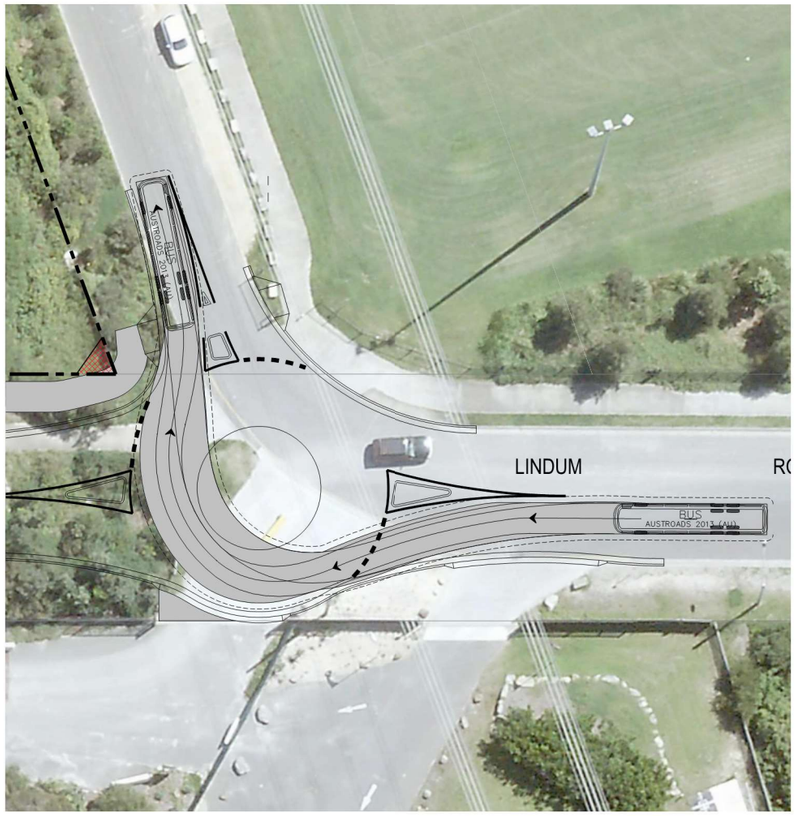
Attachment 1

Drawing 80218082-SK005 Lindum Road Concept Roundabout layout – Turn Paths.

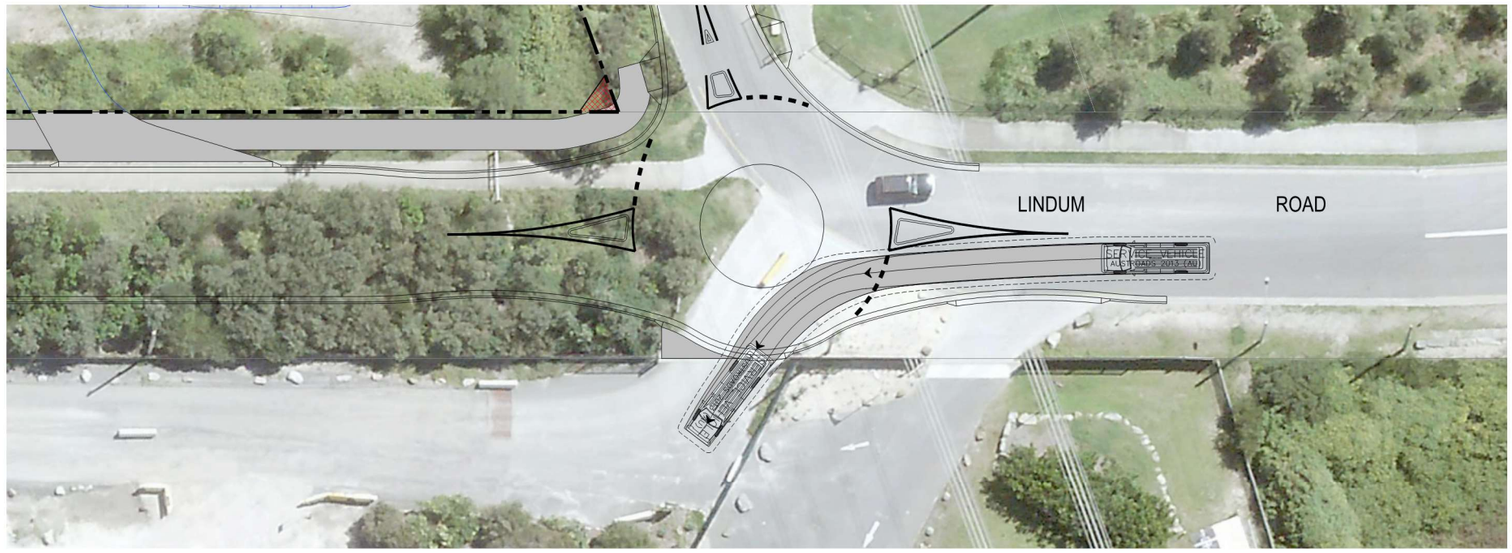
NORTH



8.8m SERVICE VEHICLE EXIT



12.5m BUS



8.8m SERVICE VEHICLE ENTRY

Rev.	Date	Description	Des.	Verif	Appd.
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1	20/05/2022	ISSUE FOR INFORMATION	DJB		

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SCALE 1:250 @A1

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Tel: Fax:
Web: www.cardno.com.au

Drawn	DB	Date 20/05/2022
Checked		Date
Designed		Date
Verified		Date
Approved		Date

Client: BREEN RESOURCES PTY LTD
Project: LINDUM ROAD ROUNDABOUT
Title: TURNING PATHS PLAN
Status: FOR INFORMATION ONLY
NOT TO BE USED FOR CONSTRUCTION PURPOSES

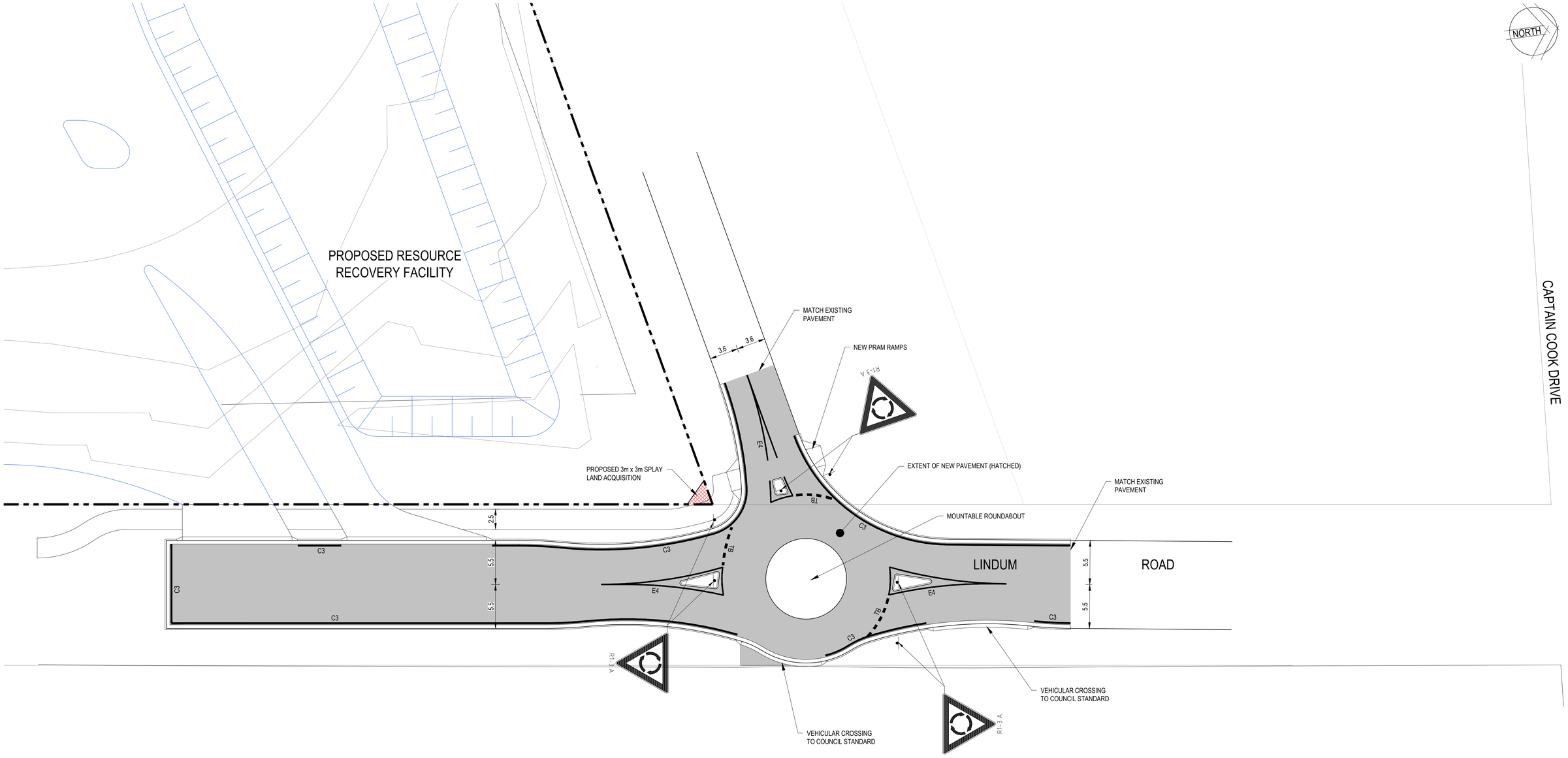
Datum	Date	Scale	Size
AHD	MAY'22	1:250	A1

Drawing Number: 80218082-SK005
Revision: 2

Attachment 2

Drawing 80218082-SK006 and SK007 Lindum Road Roundabout Detail Plan and B Double Turn Path Plan

DATE PLOTTED: 15 November 2022 5:00 PM BY : DAVID BALL



Rev.	Date	Description	Des.	Verif.	Appd.
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Drawn	DB	Date 20/05/2022
Checked		Date
Designed		Date
Verified		Date
Approved		Date

Client: BREEN RESOURCES PTY LTD
Project: LINDUM ROAD ROUNDABOUT
Title: ROUNDABOUT DESIGN
Status: FOR INFORMATION ONLY
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Datum	Date	Scale	Size
AHD	NOV'22	1:250	A1

Drawing Number: 80218082-SK006
Revision: 1

XREFs: 21-27045-XV_VOL_SRVY
CAD File: N:\Projects\80\EY\80182_Kurnell Resource Recovery Facil\Drawings\Build\Sketches\80218082-SK006-SK007.dwg

B-DOUBLE TURNING PATH ENTRY/EXIT

Rev.	Date	Description	Des.	Verif.	Appd.
1	14/11/2022	ISSUE FOR INFORMATION	DJB		

0 5 10 15 20 25m

SCALE 1:250 @A1

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Checked		Date
Designed		Date
Verified		Date
Approved		Date

Client: BREEN RESOURCES PTY LTD

Project: LINDUM ROAD ROUNDABOUT

Title: TURNING PATHS PLAN

Status: FOR INFORMATION ONLY
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Datum	Date	Scale	Size
AHD	NOV'22	1:250	A1

Drawing Number: 80218082-SK007

Revision: 1